UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	12/30/2014	8922566	NVIDP997/PU-09-0228-US1	9884

75359 7590 12/10/2014

ZILKA-KOTAB, PC- NVID
1155 N. 1st St.
Suite 105
SAN JOSE, CA 95112

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 548 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Srinivas Soma, Hyderabad, INDIA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

75339 7590 09/23/2014
ZILKA-KOTAB, PC- NVID
P.O. BOX 721120
SAN JOSE, CA 95172-1120

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	NVIDP997/PC-09-0228-US1	9884

TITLE OF INVENTION: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	11/21/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
THOMPSON, JAMES A	2616	345-520000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 Zilka-Kotab, PC
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: NVIDIA Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Santa Clara, California

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 50-1351 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☒ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Stephanie L. Winner/ Date November 21, 2014
Typed or printed name Stephanie L. Winner Registration No. 52,371

Neural AI, LLC, Exhibit 2018
Page 2018 - 2
IPR2025-00608, NVIDIA Corporation v. Neural AI, LLC

Electronic Patent Application Fee Transmittal

Application Number:	12824423
Filing Date:	28-Jun-2010
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Filer:	Stephanie Winner/Justin Bocchino
Attorney Docket Number:	NVIDP997/PU-09-0228-US1

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	960	960
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**960**

Electronic Acknowledgement Receipt

EFS ID:	20773742
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	75359
Filer:	Stephanie Winner/Justin Bocchino
Filer Authorized By:	Stephanie Winner
Attorney Docket Number:	NVIDP997/PU-09-0228-US1
Receipt Date:	21-NOV-2014
Filing Date:	28-JUN-2010
Time Stamp:	20:17:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$960
RAM confirmation Number	6341
Deposit Account	501351
Authorized User	ZILKA, KEVIN J

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	NVIDP997_IssueFee_11-21-2014.pdf	483400 588be2ddfc3de6a091ffbcc214cec44fa1f16424	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30763 90cb3d0e68a156051a74ce32984e369a0693fff0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	514163		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

75359 7590 08/21/2014

ZILKA-KOTAB, PC- NVID
P.O. BOX 721120
SAN JOSE, CA 95172-1120

EXAMINER
THOMPSON, JAMES A

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 08/21/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	NVIDP997/PU-09-0228-US1	9884

TITLE OF INVENTION: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	11/21/2014

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

75359 7590 08/21/2014
ZILKA-KOTAB, PC- NVID
P.O. BOX 721120
SAN JOSE, CA 95172-1120

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	NVIDP997/PU-09-0228-US1	9884

TITLE OF INVENTION: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	11/21/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
THOMPSON, JAMES A	2616	345-520000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

Neural AI, LLC, Exhibit 2018
Page 2018 - 8
IPR2025-00608; NVIDIA Corporation v. Neural AI, LLC

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	NVIDP997/PU-09-0228-US1	9884

75359 7590 08/21/2014

ZILKA-KOTAB, PC- NVID
P.O. BOX 721120
SAN JOSE, CA 95172-1120

EXAMINER	
THOMPSON, JAMES A	

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 08/21/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 12/824,423	Applicant(s) SOMA, SRINIVAS	
	Examiner James A. Thompson	Art Unit 2616	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *11 August 2014*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1-20*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/James A Thompson/
Primary Examiner, Art Unit 2616

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Response to Arguments

Applicant's arguments, see pages 9-14 of the Remarks, filed 11 August 2014, with respect to the rejections of the claims under 35 U.S.C. 103(a) have been fully considered and are persuasive. The rejections of the claims under 35 U.S.C. 103(a) have been withdrawn.

Allowable Subject Matter

Claims 1-20 are allowed.

The following is an examiner's statement of reasons for allowance:

Claim 1 recites a portable graphics card of a data processing device comprising a set of components. The particular configuration of the portable graphics card is not found in the prior art. Applicant's amendments introduce, among other things, conditional statements regarding the reception of graphics instructions and the association of an indication of completion with a particular identifier stored in memory.

The closest prior art discovered is the combination of the previously cited references: NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_V03, NVIDIA Corporation (2007) (NVIDIA), US-2009/0141894 (Sahdra), US-2009/0144456 (Gelf), US-2006/0171689

(Smith), US-2010/0091025 (Nugent), and US-6507172 (Sherman). However, the previously cited references do not fully teach claim 1, either in a single reference or in an obvious combination of references. Examiner has searched the prior art, and has not discovered any additional references which fully teach claim 1, either in a single reference or in an obvious combination of references. Accordingly, claim 1 is allowed.

Claims 7, 15 and 17 are amended by Applicant so as to incorporate the features which distinguish claim 1 over the prior art. Accordingly, claims 7, 15 and 17 are allowed.

Claims 2-6, 8-14, 16 and 18-20 are each allowed at least due to their respective dependencies from an allowable claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ke Xiao can be reached on 571-272-7776. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A Thompson/
Primary Examiner, Art Unit 2616

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BIB DATA SHEET

CONFIRMATION NO. 9884

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/824,423	06/28/2010	345	2616	NVIDP997/PU-09-0228-US1

APPLICANTS

INVENTORS

Srinivas Soma, Hyderabad, INDIA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
07/08/2010

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /JAMES A THOMPSON/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		INDIA	6	20	4

ADDRESS

ZILKA-KOTAB, PC- NVID
P.O. BOX 721120
SAN JOSE, CA 95172-1120
UNITED STATES

TITLE

RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

FILING FEE RECEIVED		
572	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

EAST Search History

EAST Search History (Prior Art)

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S17	782	(345/530).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/08/14 16:04
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S29	6056	(G06T1/20).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/14 16:08
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S36	21	(S29 or S30 or S31 or S32 or S33 or S34) and S26	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/14 16:09
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S40	10340	(G06F1/26).cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/14 16:10
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S45	4297	(gpu or (graphic near2 (card or processor or chip))) with (interface or ui or gui) with (program or application of software)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/14 16:22
S46	205	((gpu or (graphic near2 (card or processor or chip))) with (interface or ui or gui) with (program or application of software)) and ((710/2,8).ccls. or (345/505,520,530).ccls.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/14 16:24
S47	26	((gpu or (graphic near2 (card or processor or chip))) with (interface or ui or gui) with (program or application of software)) and ((G06F21/00 OR G06F13/385 OR G06F11/0712 OR G06F11/0742 OR G06F12/00 OR G06F12/08 OR G06F13/20 OR G06F2009/45579).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/14 16:25
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S49	539	((gpu or (graphic near2 (card or processor or chip))) with (interface or ui or gui) with (program or application of software)) and ((G06T15/005 OR G06T1/60 OR G06F3/14 OR G06F13/385 OR G06F9/4411 OR G06F13/4022 OR H04N21/4104 OR H04N21/631 OR G06F1/26).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2014/08/14 16:28

EAST Search History (Interference)

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8/ 14/ 2014 4:46:16 PM
C:\ Users\ jthompson2\ Documents\ EAST\ Workspaces\ 12824423.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	James A. Thompson	2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/02/2012	04/01/2013	07/30/2013	11/19/2013	03/18/2014	04/02/2014	08/14/2014		
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	Art Unit
	JAMES A THOMPSON	2616

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
G06F 21/00, 13/385, 11/0712, 11/0742, 12/00, 12/08, 13/20, 2009/45579, 3/14, 9/4411, 13/4022, 1/26	8/14/2014	/J.A.T./
G06T 1/20, 15/005, 1/60	8/14/2014	/J.A.T./
A61B8/4411	8/14/2014	/J.A.T./
G09G 5/363, 2360/06	8/14/2014	/J.A.T./
H04N 21/4104, 21/631	8/14/2014	/J.A.T./

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
710	2, 8	8/14/2014	/J.A.T./
345	505, 520, 530	8/14/2014	/J.A.T./

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search (see attached notes)	8/14/2014	/J.A.T./

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
text search	within claim language (see EAST search notes)	8/14/2014	/J.A.T./

	/J.A.T./ Primary Examiner.Art Unit 2616

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	JAMES A THOMPSON	2616

CPC						
Symbol					**Type**	**Version**
G06F		13	/	385	F	2013-01-01
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CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
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NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/JAMES A THOMPSON/ Primary Examiner.Art Unit 2616	8/14/2014	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	JAMES A THOMPSON	2616

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
345	520	G 0 6 F 13 / 14 (2006.01.01)	
CROSS REFERENCE(S)		G 0 6 T 1 / 60 (2006.01.01)	

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
345	530				

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/JAMES A THOMPSON/ Primary Examiner.Art Unit 2616 (Primary Examiner)	8/14/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office

Part of Paper No. 20140814

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	JAMES A THOMPSON	2616

☒ **Claims renumbered in the same order as presented by applicant** ☐ **CPA** ☐ **T.D.** ☐ **R.1.47**

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		17												
	2		18												
	3		19												
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NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/JAMES A THOMPSON/ Primary Examiner.Art Unit 2616 (Primary Examiner)	8/14/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	12/824,423	Filing Date	2010-06-28	Docket Number (if applicable)	NVIDP997/PU-09-0228-US1	Art Unit	2616
First Named Inventor	Srinivas Soma			Examiner Name	J. A. Thompson		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☒ Other One Month Extension

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 501351

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
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Signature of Registered U.S. Patent Practitioner			
Signature	/Stephanie L. Winner/	Date (YYYY-MM-DD)	2014-08-11
Name	Stephanie L. Winner	Registration Number	52371

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Confirmation No.: 9884
Srinivas Soma	Examiner: James A. Thompson
Application No.: 12/824,423	Art Unit: 2616
Filed: 06/28/2010	Atty. Docket No.: NVIDP997/PU-09-0228-US1
For: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD	Date: 08/11/2014

AMENDMENT G

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Examiner:

In response to the Office Action dated 04/09/2014, please enter the following amendments believed to place the claims in condition for allowance.

AMENDMENTS TO THE CLAIMS

Amended claims follow:

1. (Currently Amended) A portable graphics card of a data processing device, comprising:

a graphics processor;

an application interface;

a battery; and

a Universal Serial Bus (USB) interface communicatively coupled with the graphics processor,

the USB interface being configured to transfer a graphics instruction from the data processing device to the ~~graphics processor~~ application interface, the data processing device being external to the portable graphics card,

the graphics processor and the application interface together being configured to:

in response to receiving the graphics instruction at the application interface, store in memory, by the application interface, an identifier associated with the graphics instruction,

process, by the graphics processor, the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card,

provide, by the graphics processor to the application interface, an indication of completion of processing the graphics instruction,

associate, by the application interface, the indication of completion of processing the graphics instruction with the identifier stored in the memory, and

in response to associating the indication of completion with the identifier stored in the memory, transfer a result of processing the graphics instruction to the data processing device using the USB interface, and

the battery being configured to at least partially power the graphics processor to process the graphics instruction,

wherein the portable graphics card is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card, the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules, and the modular architecture being configured to utilize standard interfaces between the individual functional modules.

2. (Previously Presented) The graphics card of claim 1, wherein the USB interface utilizes a USB 3.0 protocol.

3. (Previously Presented) The graphics card of claim 1, wherein the graphics instruction is associated with a graphics application executing on the data processing device.

4. (Previously Presented) The graphics card of claim 1, wherein the battery is rechargeable.

5. (Previously Presented) The graphics card of claim 1, wherein the battery is a lithium ion battery.

6. (Previously Presented) The graphics card of claim 1, wherein the battery is user-attachable with the graphics card and user-detachable from the graphics card such that the battery is field replaceable.

7. (Currently Amended) A data processing system comprising:

a data processing device;

a portable external graphics card including a graphics processor, an application interface, and a battery configured to provide power to the graphics processor, the portable external graphics card being external to the data processing device, and the portable external graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof

without a need to entirely replace the portable external graphics card, the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules, and the modular architecture being configured to utilize standard interfaces between the individual functional modules; and

a USB module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device, the USB module being configured to transfer an instruction originating from the data processing device to the ~~graphics processor~~ application interface, and

the graphics processor and the application interface together being configured to:

in response to receiving the instruction at the application interface, store in memory, by the application interface, an identifier associated with the instruction,

process, by the graphics processor, the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card,

provide, by the graphics processor to the application interface, an indication of completion of processing the instruction,

associate, by the application interface, the indication of completion of processing the instruction with the identifier stored in the memory, and

in response to associating the indication of completion with the identifier stored in the memory, transfer a result of the processed instruction to the data processing device using the USB module.

8. (Previously Presented) The data processing system of claim 7, wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device.

9. (Previously Presented) The data processing system of claim 7, wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device.

10. (Previously Presented) The data processing system of claim 7, wherein the battery is configured to at least partially power the processor to process the instruction.

11. (Previously Presented) The data processing system of claim 7, wherein the battery is user-detachable from the portable external graphics card and user-attachable with the portable external graphics card.

12. (Previously Presented) The data processing system of claim 7, wherein the battery is rechargeable.

13. (Previously Presented) The data processing system of claim 7, wherein the battery is a lithium ion rechargeable battery.

14. (Previously Presented) The data processing system of claim 7, wherein the USB module utilizes a USB 3.0 protocol.

15. (Currently Amended) A graphics processing system comprising:

a data processing device comprising:

one or more system processors,

a memory coupled with the one or more system processors,

a video display device configured to display graphical data generated by the one or more system processors,

a first USB interface coupled with the one or more system processors, and

an audio device configured to generate audio data generated by the one or more system processors; and

a portable graphics card external to the data processing device and communicatively coupled with the data processing device using a USB cable, the portable graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card, the replacement of the individual functional modules being facilitated through a

capability to mix and match components of the individual functional modules, the modular architecture being configured to utilize standard interfaces between the individual functional modules, and the portable graphics card including:

one or more graphics processors,

an application interface,

a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction, and

a second USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable,

the second USB interface being configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the data processing device via the USB cable and to provide the graphics instruction [[for]]to the ~~one or more graphics processors~~ application interface, and

the one or more graphics processors and the application interface together being configured to:

in response to receiving the graphics instruction at the application interface, store in a second memory, by the application interface, an identifier associated with the graphics instruction,

process, by the one or more graphics processors, the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card,

provide, by the one or more graphics processors to the application interface, an indication of completion of processing the graphics instruction,

associate, by the application interface, the indication of completion of processing the graphics instruction with the identifier stored in the second memory, and [[to]]

in response to associating the indication of completion with the identifier stored in the second memory, transfer a result of the processed graphics instruction to the data processing device using the second USB interface.

16. (Previously Presented) The graphics processing system of claim 15, wherein the one or more graphics processors include at least one multi-core processor.

17. (Currently Amended) A method comprising:

implementing a portable graphics card with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card;

facilitating the replacement of the individual functional modules of the portable graphics card through a capability to mix and match components of the individual functional modules;

utilizing standard interfaces for communication between the individual functional modules of the portable graphics card;

indicating to a data processing device, utilizing a Universal Serial Bus (USB) protocol, that the portable graphics card is active, the portable graphics card being portable by a user and external to the data processing device;

acquiring, utilizing the USB protocol, a graphics instruction from the data processing device, based at least in part on the indication that the portable graphics card is active, wherein an identifier associated with the acquired graphics instruction is stored in memory in response to acquiring the graphics instruction;

processing the acquired graphics instruction using a graphics processor within the portable graphics card to perform a process intensive task through the portable graphics card on behalf of the data processing device, wherein, upon completion of processing the

acquired graphics instruction, an indication of completion of processing the acquired graphics instruction is associated with the identifier stored in the memory;

providing a rechargeable battery within the portable graphics card;

using energy supplied by the rechargeable battery to process the acquired graphics instruction; and

in response to associating the indication of completion with the identifier stored in the memory, transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction.

18. (Original) The method of claim 17, wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol.

19. (Original) The method of claim 17, comprising:
storing the energy in the rechargeable battery prior to the supplying of the energy.

20. (Previously Presented) The method of claim 17, wherein the battery is a lithium ion rechargeable battery.

REMARKS

The Examiner has rejected Claims 1-4, 6-12, 14, and 17-19 under 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007), in view of Sahdra et al. (U.S. Publication No. 2009/0141894), in view of Gelf et al. (U.S. Publication No. 2009/0144456). Additionally, the Examiner has rejected Claim 15 under 35 U.S.C. 103(a) as being unpatentable over NVIDIA in view of Sahdra and Gelf, in further view Smith (U.S. Publication No. 2006/0171689). Applicant respectfully disagrees with such rejection, especially in view of the amendments made hereinabove to the independent claims.

Specifically, applicant has amended independent Claims 1, 7, and 15 to further distinguish applicant's claim language from the NVIDIA, Sahdra, Gelf, and Smith references, as follows:

> "the graphics processor *and the application interface together* being configured to:
>
> *in response to receiving the instruction at the application interface, store in memory, by the application interface, an identifier associated with the instruction,*
>
> process*, by the graphics processor,* the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card,
>
> *provide, by the graphics processor to the application interface, an indication of completion of processing the instruction,*
>
> *associate, by the application interface, the indication of completion of processing the instruction with the identifier stored in the memory,* and
>
> *in response to associating the indication of completion with the identifier stored in the memory*, transfer a result of the processed instruction to the data processing device using the USB module" (see this

or similar, but not necessarily identical, language in independent Claims 1, 7, and 15 – emphasis added).

Applicant respectfully notes the NVIDIA reference discloses that "[o]ne (1) NVIDIA Quadro Plex Interface Card… [i]nstalls into the PCI Express x16 slot in the host system," where "[t]wo (2) Interconnect Cables… [connect] from the interface card in the host system to the NVIDIA Quadro Plex 1000," and "[o]ne (1) USB Patch Cable… [c]onnects to interface card in the host system and one of the USB connectors on the back of the host system… to enable the USB ports on the NVIDIA Quadro Plex 1000" (Page 6).

Further, applicant notes the Sahdra reference as relied on by the Examiner discloses that "USB dongle device 10 is coupled to the host device 104 to encode one or more of video signals 110 to form a processed video signal 112 that is transferred to respective host 104 to play, process, store, distribute or otherwise operate based on the processed video signal" (Paragraph [0022] – emphasis added), where "USB dongle device 10 operates in accordance with many of the functions and features of the H.264 standard, the MPEG-4 standard, VC-1 (SMPTE standard 421M) or other standard, to produce processed video signals 112 by encoding, transrating, transcaling, and/or transcoding video signal 110 that is received via signal interfaces 198, such as USB interface 20" (Paragraph [0028]), and "USB dongle device 10 includes a signal interface 198, processing module 230, memory module 232, encoding module 234, decoding module 236, optional encrypting module 238 and optional decrypting module 240" (Paragraph [0029]).

Still further, applicant notes the Gelf reference as relied on by the Examiner discloses "a modular and extendable interface device for securely facilitating communication between one or more other devices," where "[s]everal interface devices can be connected together as modules to form a single compound interface device," and "[t]he interface device may also communicate with one or more computing devices, and may allow the computing device to control any extension devices and modular interface

devices" (Paragraph [0003] – emphasis added). The Gelf reference also discloses that "[p]ower module 430 may include logic to control power to interface device 100 and one or more extension devices," where "[p]ower module 430 may comprise a battery… [and] may be configured to generate or to store power, as well as recharge a rechargeable batter[y] or other power source" (Paragraph [0046] – emphasis added).

However, disclosing an interface card that installs into a PCI Express slot in a host system, and connects the host system to a Quadro Plex 1000 using two interconnect cables, as in the NVIDIA reference, in addition to disclosing a USB dongle device that encodes video signals to form a processed video signal, which is then transferred to a host, as in the Sahdra reference, and disclosing that several interface devices are connected together to form a single compound interface device that communicates with a computing device, where a power module controls power to the interface device and is configured to recharge a rechargeable battery, as in the Gelf reference, does not teach applicant's claimed:

"graphics processor and… application interface together being configured to:

in response to receiving the instruction at the application interface, store in memory, by the application interface, an identifier associated with the instruction,

process, by the graphics processor, the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card,

provide, by the graphics processor to the application interface, an indication of completion of processing the instruction,

associate, by the application interface, the indication of completion of processing the instruction with the identifier stored in the memory, and

in response to associating the indication of completion with the identifier stored in the memory, transfer a result of the processed instruction to the data processing device using the USB module" (emphasis added), as claimed by applicant.

More clearly, connecting an interface card in a host system to a Quadro Plex 1000 using interconnect cables, as in NVIDIA, in addition to a USB dongle device encoding

video signals to form a processed video signal, which is then transferred to a host, as in Sahdra, and connecting together several interface devices to form a single compound interface device that communicates with a computing device, as in Gelf, fails to *even suggest* a:

"graphics processor and… application interface together being configured to:

in response to receiving the instruction at the application interface, store in memory, by the application interface, an identifier associated with the instruction,

process, by the graphics processor, the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card,

provide, by the graphics processor to the application interface, an indication of completion of processing the instruction,

associate, by the application interface, the indication of completion of processing the instruction with the identifier stored in the memory, and

in response to associating the indication of completion with the identifier stored in the memory, transfer a result of the processed instruction to the data processing device using the USB module" (emphasis added), as specifically claimed by applicant.

Still further, applicant has amended independent Claim 17 to further distinguish applicant's claim language from the NVIDIA, Sahdra, and Gelf references, as follows:

> "acquiring, utilizing the USB protocol, a graphics instruction from the data processing device, based at least in part on the indication that the portable graphics card is active, *wherein an identifier associated with the acquired graphics instruction is stored in memory in response to acquiring the graphics instruction*;
>
> processing the acquired graphics instruction using a graphics processor within the portable graphics card to perform a process intensive task through the portable graphics card on behalf of the data processing device, *wherein, upon completion of processing the acquired graphics instruction, an indication of*

completion of processing the acquired graphics instruction is associated with the identifier stored in the memory… and

in response to associating the indication of completion with the identifier stored in the memory, transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction" (see Claim 17 – emphasis added).

Applicant again respectfully notes, as already noted hereinabove, the NVIDIA reference discloses connecting an interface card in a host system to a Quadro Plex 1000 using interconnect cables, the Sahdra reference discloses a USB dongle device encoding video signals to form a processed video signal, which is then transferred to a host, and the Gelf reference discloses connecting together several interface devices to form a single compound interface device that communicates with a computing device, which fails to *even suggest*:

"acquiring, utilizing the USB protocol, a graphics instruction from the data processing device, based at least in part on the indication that the portable graphics card is active, wherein an identifier associated with the acquired graphics instruction is stored in memory in response to acquiring the graphics instruction;

processing the acquired graphics instruction using a graphics processor within the portable graphics card to perform a process intensive task through the portable graphics card on behalf of the data processing device, wherein, upon completion of processing the acquired graphics instruction, an indication of completion of processing the acquired graphics instruction is associated with the identifier stored in the memory… and

in response to associating the indication of completion with the identifier stored in the memory, transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction" (emphasis added), as specifically claimed by applicant.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or

in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck,*947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991).

Applicant respectfully asserts that at least the third element of the *prima facie* case of obviousness has not been met, since the prior art excerpts, as relied upon by the Examiner, fail to teach or suggest all of the claim limitations, as noted above. Thus, a notice of allowance or specific prior art showing of each of the foregoing claim elements, in combination with the remaining claimed features, is respectfully requested.

In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 971-2573. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 50-1351 (Order No. NVIDP997).

Respectfully submitted,
Zilka-Kotab, PC.

/Stephanie L. Winner

Stephanie L. Winner
Registration No. 52,371

P.O. Box 721120
408-971-2573

Electronic Patent Application Fee Transmittal

Application Number:	12824423
Filing Date:	28-Jun-2010
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Filer:	Stephanie Winner/Justin Bocchino
Attorney Docket Number:	NVIDP997/PU-09-0228-US1

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	1251	1	200	200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE - 2nd and Subsequent Request	1820	1	1700	1700
		Total in USD ($)		**1900**

Electronic Acknowledgement Receipt

EFS ID:	19836411
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	75359
Filer:	Stephanie Winner/Justin Bocchino
Filer Authorized By:	Stephanie Winner
Attorney Docket Number:	NVIDP997/PU-09-0228-US1
Receipt Date:	11-AUG-2014
Filing Date:	28-JUN-2010
Time Stamp:	20:04:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1900
RAM confirmation Number	6791
Deposit Account	501351
Authorized User	ZILKA, KEVIN J

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	NVIDP997_RCE_08-11-2014.pdf	697686 b06d1b13ec799b08202b57f5be286f6188e04661	no	3
Warnings:					
Information:					
2		NVIDP997_Amendment_E_08-11-2014.pdf	109079 c291321af4fd6bc5253509d091ceb94b4fe3ae05	yes	14

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	14

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32663 79048e825a063ba1f567f9a82158779c1c31fa96	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	839428	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1

CONFIRMATION NO. 9884

75359
ZILKA-KOTAB, PC- NVID
P.O. BOX 721120
SAN JOSE, CA 95172-1120

POA ACCEPTANCE LETTER

OC000000067982845

Date Mailed: 04/25/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/17/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/sleutchit/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1

CONFIRMATION NO. 9884

POWER OF ATTORNEY NOTICE

102288
Raj Abhyanker, P.C.
1580 W. El Camino Real,
Suite 13
Mountain View, CA 94040

OC000000067982807

Date Mailed: 04/25/2014

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/17/2014.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/sleutchit/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☑ Practitioners associated with the Customer Number: 75359

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☑ The address associated with Customer Number: 75359

OR

☐ Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address:

Nvidia Corporation
2701 San Tomas Expressway
Santa Clara, California 95050

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Richard B Domingo	Date	1/11/2011
Name	Richard Domingo	Telephone	408-566-6981
Title	Director of Intellectual Property		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Srinivas Soma

Application No./Patent No.: 12/824,423 Filed/Issue Date: 06-28-2010

Titled: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

NVIDIA Corporation , a Corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. ☑ the assignee of the entire right, title, and interest in;

2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 024601, Frame 0467 or for which a copy therefore is attached.

OR

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

2. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/JAMIE ROSSI/ April 17, 2014
Signature Date

Jamie L. Rossi Attorney for Client
Printed or Typed Name Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Electronic Acknowledgement Receipt

EFS ID:	18798749
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	102288
Filer:	Jamie Lynn Rossi/Justin Bocchino
Filer Authorized By:	Jamie Lynn Rossi
Attorney Docket Number:	00108.00020US1
Receipt Date:	17-APR-2014
Filing Date:	28-JUN-2010
Time Stamp:	20:20:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		NVIDP997_POA_373b_04-17-2014.pdf	368530 c04a67ee42203867b920a7a7004d9b54998c1ba4	yes	2

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Power of Attorney	1	1
	Assignee showing of ownership per 37 CFR 3.73.	2	2
Warnings:			
Information:			
	Total Files Size (in bytes):	368530	

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1	9884

102288 7590 04/09/2014

Raj Abhyanker, P.C.
1580 W. El Camino Real,
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EXAMINER	
THOMPSON, JAMES A	
ART UNIT	PAPER NUMBER
2616	

NOTIFICATION DATE	DELIVERY MODE
04/09/2014	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@rajpatent.com
docketing@legalforcelaw.com

Office Action Summary	Application No. 12/824,423	Applicant(s) SOMA, SRINIVAS	
	Examiner James A. Thompson	Art Unit 2616	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☐ Claim(s) _____ is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Arguments

2. Applicant's arguments filed 27 March 2014 have been fully considered but they are not persuasive.

Regarding page 2, line 1 to page 2, line 16: Examiner notes also that none of claims 1-20 have been amended in Applicant's response of 27 March 2014.

Applicant argues that Sahdra (US-2009/0141894) does not show or suggest a graphics card-like use of the video card, and "clearly does not connote high processing power." Applicant further argues that a graphics card connotes an expansion of processing power or capability.

Examiner replies that Sahdra teaches a USB video card which performs video encoding. Sahdra therefore teaches a form of portable graphics card. Applicant's opinion that the USB video card "clearly does not connote high processing power" is merely Applicant's personal opinion, and is of relative terminology ("high-processing power"). High-processing power is relative both to the application involved and the time at which the device is considered. The USB video card encodes video data, which is an intensive processing task compared with other, non-mathematically intensive processing tasks.

Furthermore, Sahdra is not relied upon for any teaching with respect to the graphics card itself, but rather with the portability of a card which performs graphics processing, such as video

processing. One cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In the prior art rejections, Sahdra is relied upon for teaching that the interface communicatively coupled with the graphics processor (a video processor processes graphics) is specifically a Universal Serial Bus (USB) interface, and a portable graphics card. It would be obvious to specifically make the graphics card of NVIDIA portable and with the ability to interface via a USB port, as with the video card of Sahdra. This provides the obvious advantage of allowing the graphics card of NVIDIA to be coupled to a range of host devices. While this may or may not affect the speed of the video/graphics processing, it is common in the art to trade speed for easy portability.

For example, USB memory devices are generally slower than drives directly coupled to the motherboard. Yet, users still use USB memory drives since they are portable, and considerably more user-friendly than having to shut down the computer, open the computer case, disconnect the drive from the motherboard, open another computer case, connect the drive to the motherboard, re-assemble the computer case, restart the other computer, and ensure that the appropriate software drivers for the drive are installed in order to use the drive. A similar argument can be made for the portability of a graphics card.

In response to applicant's argument that a graphics card connotes an expansion of processing power or capability, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is

capable of performing the intended use, then it meets the claim. All of the elements of the claim are taught by the prior art of record, and a rationale for combining the references is provided.

Regarding page 3, line 18 to page 5, line 15: Applicant repeats similar arguments regarding the alleged non-obviousness of combining Sahdra with NVIDIA. As discussed above, the combination fully teaches the claim as specifically recited, and a proper rationale to combine the references is provided. It would have been obvious to one of ordinary skill in the art at the time of the invention to make a graphics card portable since doing so allows the graphics processing system of NVIDIA to be coupled to a range of host devices. This is a desired advantage, which would have been known at the time of the invention (see, *e.g.*, paragraphs 0002-0004 and 0025 of Sahdra).

Applicant further states that "the graphics card was associated solely with the motherboard of a computing system at the [time of filing] the present Application." However, Applicant has provided no evidence of such a contention. Rather, Applicant merely asserts such a thing to be so. Furthermore, even if *arguendo* such a thing were so, the fact remains that Sahdra shows a video card which is portable. It would have been obvious at the time of the invention to introduce portability to graphics cards for the reasons already discussed in extensive detail above.

Finally, Applicant argues that "it would be absurd to also consider Gelf for the rechargeable battery at the time of filing the present Application. This is because graphics cards have been shown to be employed solely in motherboards of computing systems through slots". Again, where is this shown? Applicant has merely asserted such a situation. Further, such a

situation does not render the use of a rechargeable battery "absurd", which Examiner assumes Applicant to mean "non-obvious", which is the proper standard. If the graphics card is portable, which would have been obvious based on the combination of NVIDIA and Sahdra discussed above, then a portable power source can of use. As set forth in the previous office action of 21 March 2014, including a portable power source would be beneficial since it would not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. While a USB interface can be used to drain power from a device, it can be advantageous for it not to do so, especially with a "high-powered" device such as a graphics card or video card.

Regarding page 5, lines 17-23: Applicant notes that both the NVIDIA reference and the present application are by the same entity, NVIDIA Corporation. Applicant further argues that, since the present application was filed by a "pioneer of graphics cards and GPU-related processing" and "an entity such as NVIDIA" filed the application as late as 28 June 2010, there is "support enough for the contention that one skilled in the art would never conceive portability of a graphics card from Sahdra."

Examiner replies firstly that the NVIDIA reference relied upon in the rejection was published over one year before the filing of the present application, and is thus available as a prior art reference under 35 U.S.C. § 102(b). NVIDIA's reputation does not preclude combining Sahdra with the NVIDIA reference. Applicant has not demonstrated that the combination would not have been obvious to one of ordinary skill at the time of the invention since all the limitations are present in the cited prior art, the references themselves provide ample suggestion to one of

ordinary skill in the art at the time of the invention for combining the features relied upon, and one of ordinary skill in the art at the time of the invention would have been skilled enough to combine the features of the references to obtain the invention recited in the claims.

Regarding page 6: Examiner has shown, both in the response above and in the prior art rejections below, that the independent claims are fully taught by the cited prior art. Thus, the remaining claims cannot be deemed allowable merely due to their respective dependencies.

Regarding page 7: Examiner concludes that all of claims 1-20 are taught by the prior art, as set forth in the prior art rejections below. **The present action is made final.**

Claim Rejections - 35 USC § 103

3. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-4, 6-12, 14, and 17-19 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf).

Regarding independent claim 1, NVIDIA teaches a graphics card of a data processing device, comprising:

a. a graphics processor (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*);

b. a[n]… interface communicatively coupled with the graphics processor (*see NVIDIA, pp.6, 16-19, disclosing that the graphics system can be deployed (communicatively coupled) using a PCI Express x16 (interface) card installed in a host system (data processing device)*),

i. the… interface being configured to transfer a graphics instruction from the data processing device to the graphics processor (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*), the data processing device being external to the portable graphics card (*see NVIDIA, p.17 figure, depicting the host system (externally) connecting to the graphics system (portable graphics cards) via the interface*),

ii. the graphics processor being configured to:

(1) process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks)*), and

(2) transfer a result of processing the graphics instruction to the data processing device using the… interface (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*)….

Although NVIDIA, on page 17, discloses USB patch cables and USB ports, NVIDIA does not expressly disclose that the interface communicatively coupled with the graphics processor is a "Universal Serial Bus (USB) interface," and the graphics card is specifically a "portable graphics card," as recited in claim 1.

However, Sahdra teaches that the interface communicatively coupled with the graphics processor is a Universal Serial Bus (USB) interface (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a*

reasonable analog to a graphics processor), and a portable graphics card (*see Sahdra, ¶0044, where a video card is a USB video card designed similarly to the USB dongle, and is thus portable*).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art to specifically use a USB video device and interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having

to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 1.

However, Gelf teaches:

a. a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery*),

i. the battery being configured to at least partially power the graphics processor to process the graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*),

ii. wherein the portable graphics card is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*), the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*), and the modular architecture being configured to utilize standard interfaces between the individual

functional modules (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-designed interface device with standard interfaces and mix-and-match components, along with a removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of a modular, standard interface design with mix-and-match components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source. Therefore, it would have been obvious to combine the teachings of Gelf with NVIDIA in view of Sahdra to obtain the invention as specified in claim 1.

Regarding claim 2, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1. Gelf further teaches wherein the USB interface utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

The motivation for combining Gelf with NVIDIA for claim 2 is the same as described above in claim 1.

Regarding claim 3, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1, and further teaches wherein the graphics instruction is associated with a graphics application executing on the data processing device (*see NVIDIA, p.1 para.1, p.5 para.1, disclosing that the graphics system is designed to be connected to a host system (data processing device) for graphics computing to meet the most demanding professional application requirements (graphics application)*).

Regarding claim 4, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1. Gelf further teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

The motivation for combining Gelf with NVIDIA for claim 4 is the same as described above in claim 1.

Regarding claim 6, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1. Gelf further teaches wherein the battery is user-attachable with the graphics card and user-detachable from the graphics card such that the battery is field replaceable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and field replaceable)*).

The motivation for combining Gelf with NVIDIA for claim 6 is the same as described above in claim 1.

Regarding independent claim 7, NVIDIA teaches a data processing system comprising:

a. a data processing device (*see NVIDIA, p.5 para.1, disclosing the system is connected to a host system (data processing device)*);

b. an … graphics card including a graphics processor (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*) and a [power source] configured to provide power to the graphics processor (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions)*), the portable external graphics card being external to the data processing device (*see NVIDIA, p.17 figure, depicting the host system (externally) connecting to the graphics system (portable graphics cards) via the interface*)…;

c. an [interface] module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device (*see NVIDIA, p.6, disclosing an interface card for installation into the host system (data processing device) to connect the host system to the graphics system (graphics processors)*), the [interface] module being configured to transfer an instruction originating from the data processing device to the graphics processor (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*), and

the graphics processor being configured to:

i. process the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks)*), and

ii. transfer a result of the processed instruction to the data processing device using the [interface] module (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*).

Although NVIDIA, on page 17, discloses USB patch cables and USB ports, NVIDIA is does not expressly disclose that, the interface module communicatively coupled with the graphics processor is a "USB" module, and the graphics card is a “portable external” graphics card, as recited in claim 7.

However, Sahdra teaches a USB module (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*) , and a portable external graphics card (*see Sahdra, ¶0044,*

where a video card is a USB video card designed similarly to the USB dongle, and is thus portable and external).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art to specifically use a USB video device and interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 7.

However, Gelf teaches:

a. [the power source is] a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery and that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*), and

b. the portable external graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable external graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*), the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*), and the modular architecture being configured to utilize standard interfaces between the individual functional modules (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-

designed interface device with standard interfaces and mix-and-match components, along with a removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of a modular, standard interface design with mix-and-match components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source. Therefore, it would have been obvious to combine the teachings of Gelf with NVIDIA in view of Sahdra to obtain the invention as specified in claim 7.

Regarding claim 8, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7.

Although NVIDIA, on page 1, paragraph 1, page 5, paragraph 1, and page 16, discloses that the external graphics system performs graphics processing for the host system, NVIDIA does not expressly teach, "wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device," as recited in claim 8.

However, Sahdra teaches wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device (*see Sahdra, ¶¶0027, 0029, disclosing that the USB device (portable external graphics processing device), which includes a processing module (graphics processor) receives video signals for further processing (auxiliary graphics processing) when coupled to the host device (data processing device)*).

The motivation for combining Sahdra with NVIDIA for claim 8 is the same as described above in claim 7.

Regarding claim 9, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7, and further teaches wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device (*see NVIDIA, p.1 para.1, p.5 para.1, disclosing that the graphics system is designed to be connected to a host system (data processing device) for graphics computing to meet the most demanding professional application requirements (graphics application)*).

Regarding claim 10, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7, and further teaches wherein the battery is configured to at least partially power the processor to process the instruction (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions);see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing teaching that power is supplied by a removable, rechargeable battery and that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*).

The motivation for combining Gelf with NVIDIA for claim 10 is the same as described above in claim 7.

Regarding claim 11, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7. Gelf further teaches wherein the battery is user-detachable from the portable external graphics card and user-attachable with the portable external graphics card (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and user-attachable) from the interface device (portable external graphics processing device)*).

The motivation for combining Gelf with NVIDIA for claim 11 is the same as described above in claim 7.

Regarding claim 12, NVIDIA in view of Sahdra, and further in view of Gelf teaches the system of claim 7, and further teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

The motivation for combining Gelf with NVIDIA for claim 12 is the same as described above in claim 7.

Regarding claim 14, NVIDIA in view of Sahdra, and further in view of Gelf teaches the system of claim 7. Gelf further teaches wherein the USB module utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

The motivation for combining Gelf with NVIDIA for claim 14 is the same as described above in claim 7.

Regarding independent claim 17, NVIDIA teaches a method comprising:

a. implementing a … graphics card (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*)…;

b. indicating to a data processing device, utilizing a[n interface] protocol, that the portable graphics card is active, the portable graphics card being portable by a user and external to the data processing device (*see NVIDIA, p.14-15, p.17 figure, p.27-30, disclosing that the internal graphics card of the host system is removed, the old drivers are removed, that the host system is (externally) connected to the graphics system (portable enclosure of graphics cards) via the interface, and that drivers are installed for the graphics system; the host system (data processing device) therefore necessarily having an indication when the graphics system (portable graphics cards) is active*);

c. acquiring, utilizing the [interface] protocol, a graphics instruction from the data processing device, based at least in part on the indication that the portable graphics card is active (*see NVIDIA, p.1 para.1, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing for a host system (i.e., acquires graphics instruction data processing device) via the PCI Express x16 interface; in order for the command (graphics instruction) to be processed, it is necessarily based at least in part on the graphics system (graphics cards) being active*);

d. processing the acquired graphics instruction using a graphics processor within the portable graphics card to perform a process intensive task through the portable graphics card on behalf of the data processing device (*see NVIDIA, p.2 para.1, disclosing that the graphics system*

(portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks));

e. using energy supplied by [the power source] to process the acquired graphics instruction (*see NVIDIA, page 20, disclosing the power supply of the graphics system (for processing the instructions)*); and

f. transferring to the data processing device, utilizing the [interface] protocol, a result of the processing of the acquired graphics instruction (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*).

Although NVIDIA, on page 17, discloses USB patch cables and USB ports, NVIDIA does not expressly disclose that, the interface is "Universal Serial Bus (USB) protocol," and the graphics card is a “portable graphics card,” as recited in claim 17.

However, Sahdra teaches the interface is Universal Serial Bus (USB) protocol (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*) , and a

portable graphics card (*see Sahdra, ¶0044, where a video card is a USB video card designed similarly to the USB dongle, and is thus portable*).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art to specifically use a USB video device and interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 17.

However, Gelf teaches:

a. [implementing] with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*);

b. facilitating the replacement of the individual functional modules of the portable graphics card through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*);

c. utilizing standard interfaces for communication between the individual functional modules of the portable graphics card (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*);

d. providing a rechargeable battery within the portable graphics card (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion (within) of the USB device, the power module being connected to the processor module 415 (graphics processing device) that receives and processes data*); and

e. [using energy supplied by] the rechargeable battery… (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion of the USB device, the power module being connected to (i.e., uses the*

energy supplied by the rechargeable battery) the processor module 415 (graphics processing device) that receives and processes data (i.e., according to the acquired graphics instruction)).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-designed interface device with standard interfaces and mix-and-match components, along with a removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of a modular, standard interface design with mix-and-match components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source. Therefore, it would have been obvious to combine the teachings of Gelf with NVIDIA in view of Sahdra to obtain the invention as specified in claim 17.

Regarding claim 18, NVIDIA in view of Sahdra, and further in view of Gelf teaches the method of claim 17. Gelf further teaches wherein the USB protocol can be a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

The motivation for combining Gelf with NVIDIA for claim 18 is the same as described above in claim 17.

Regarding claim 19, NVIDIA in view of Sahdra, and further in view of Gelf teaches the method of claim 17. Gelf further teaches storing the energy in the rechargeable battery prior to the supplying of the energy (*see Gelf, ¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data, and the battery capable of being recharged (storing energy) by power control 315 prior to the supplying of energy*).

The motivation for combining Gelf with NVIDIA for claim 19 is the same as described above in claim 17.

5. Claims 5, 13, and 20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf), and further in view of US-6507172 (Sherman).

Regarding claim 5, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1.

NVIDIA in view of Sahdra, and further in view of Gelf does not expressly disclose "wherein the battery is a lithium ion battery," as recited in claim 5. However, Sherman teaches wherein the battery is a lithium ion battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

The artisan of ordinary skill, starting with the rechargeable battery of Gelf, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by Sherman. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in Gelf for the known lithium-ion battery of Sherman, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute the battery Gelf for the lithium-ion battery of Sherman, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of Gelf for the lithium-ion battery of Sherman to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

Regarding claim 13, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7.

NVIDIA in view of Sahdra, and further in view of Gelf does not expressly disclose "wherein the battery is a lithium ion rechargeable battery," as recited in claim 13. However,

Sherman teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

The artisan of ordinary skill, starting with the rechargeable battery of Gelf, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by Sherman. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in Gelf for the known lithium-ion battery of Sherman, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute the battery Gelf for the lithium-ion battery of Sherman, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of Gelf for the lithium-ion battery of Sherman to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

Regarding claim 20, NVIDIA in view of Sahdra, and further in view of Gelf teaches the method of claim 17.

NVIDIA in view of Sahdra, and further in view of Gelf is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery," as recited in claim 20. However, Sherman teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

The artisan of ordinary skill, starting with the rechargeable battery of Gelf, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by Sherman. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in Gelf for the known lithium-ion battery of Sherman, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute the battery Gelf for the lithium-ion battery of Sherman, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of Gelf for the lithium-ion battery of Sherman to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

6. Claim 15 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf), and further in view of US-2006/0171689 (Smith).

Regarding independent claim 15, NVIDIA teaches a graphics processing system comprising:

a. a … graphics card external to the data processing device and communicatively coupled with the data processing device using a[n interface] cable (*see NVIDIA, p.6, disclosing that the graphics system (graphics cards) can be deployed (communicatively coupled) using a PCI Express x16 (interface) interconnect cable connected to a PCI Express x16 (interface) card installed in a host system (data processing device)*),

and the portable graphics card including:

i. one or more graphics processors (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards (one or more graphics processors) combined in a single external unit*),

ii. a [power source]…, the [power source] being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions)*), and

iii. a second … interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first … interface with the second … interface using the [interface] cables (*see NVIDIA, p.6, p.9 figure, p.10 figure, p.11 figure, p.12, pp.16-17, figure, disclosing two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card and the two interconnect cable connectors (first and second interfaces) of the graphics system*),

iv. the second … interface being configured to receive a graphics instruction … from the data processing device via the [interface] cable and to provide the graphics instruction for the one or more graphics processors (*see NVIDIA, p.1 para.1, p.5 para.1, p.6, p.9*

figure, p.10 figure, p.11 figure, p.12 figure, pp.16-17, disclosing a graphics system having multiple graphics processing units for graphics computing (processing graphics instructions) having including two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card in the host system (data processing device) and the two interconnect cable connectors (first and second interfaces) of the graphics system), and

v. the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card and to transfer a result of the processed graphics instruction to the data processing device (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*) using the second … interface (*see NVIDIA, p.6, p.9 figure, p.10 figure, p.11 figure, p.12, pp.16-17, figure, disclosing two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card and the two interconnect cable connectors (first and second interfaces) of the graphics system*).

Although NVIDIA, on pages 5-6 and 16-17, discloses a host system, USB patch cables and USB ports, and the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 15.

However, Sahdra teaches:

a. a data processing device (*see Sahdra, ¶0021, fig.2, disclosing a video processing system including a personal computer (data processing device)*) comprising:

i. one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

ii. a memory coupled with the one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

iii. a video display device configured to display graphical data generated by the one or more system processors (*see Sahdra, ¶0027, disclosing a display screen or monitor associated with the system*),

iv. a first USB interface coupled with the one or more system processors (*see Sahdra, ¶0022, the USB (first USB interface) dongle device is coupled to the host device (computer system including one or more system processors)*), and

v. an audio device configured to generate audio data generated by the one or more system processors (*see Sahdra, ¶¶0024, 0041, 0062, disclosing that video signal being processed by the device may include audio signals*); and

b. a portable graphics card external to the data processing device (*see Sahdra, ¶0044, where a video card is a USB video card designed similarly to the USB dongle, and is thus portable and external to the data processing device*).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art to specifically use a USB video device and interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which

would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 15.

However, Gelf teaches:

a. [the power source is] a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable (removably coupled and field replaceable), rechargeable battery 1145 for powering the device (i.e., the USB device processing the graphics instructions), the power module being connected to the processor module 415 that receives and processes data*)…;

b. … that [the graphics instruction] is encoded by a USB 3.0 communication protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*) …; and

c. the portable graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*), the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*), and the modular architecture being configured to utilize standard interfaces between the individual functional modules (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-designed interface device with standard interfaces and mix-and-match components, along with a removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common

sense, would readily see the benefits of a modular, standard interface design with mix-and-match components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB 3.0 graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source.

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source by utilizing a modular, USB 3.0 design and a removable, rechargeable battery.

NVIDIA does not expressly teach the interface cable which communicatively couples the portable graphics device to the data processing device is specifically a USB cable.

However, Smith teaches: [the interface cable is] a USB cable (*see Smith, ¶0041, discloses an external audio device coupled to a host computer by a USB cable, and an external video*

capture device (graphics processor) also coupled to the host computer by USB cable (communicatively coupled via the computer system)).

NVIDIA and Smith are analogous art because they are from the same field of endeavor, namely external image processing devices. One of ordinary skill in the art at the time of the invention, starting with the external graphics processing system of NVIDIA, would have appreciated the benefits of connecting external video and audio cards to a host computer with USB cables, as taught by Smith. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having an audio device in communication with a video device via USB cables, which would produce the well-known, predictable and expected results and benefits of processing of audio and video data encoded and synchronized in the same signal (*see Smith, ¶0006).*

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the connecting external video and audio cards to a host computer with USB cables of Smith with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal.

7. Claim 16 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf), and further in view of US-2006/0171689 (Smith), and further in view of US-2010/0091025 (Nugent).

Regarding claim 16, NVIDIA in view of Sahdra, and further in view of Gelf, and further in view of Smith teaches the graphics processing system of claim 15.

Although NVIDIA, on page 6, discloses that the graphics system may contain multiple Quadro FX 5500, 4500, and 5600 graphics processing units, NVIDIA in view of Sahdra, and further in view of Gelf, and further in view of Smith does not expressly teach, "wherein the one or more graphics processors include at least one multi-core processor," as recited in claim 16.

However, Nugent teaches wherein the one or more graphics processors include at least one multi-core processor (*see Nugent, ¶0019, discloses that the processor of an external graphics-processing device may include one or more cores of a multi-core processing unit*).

NVIDIA and Nugent are analogous art because they are from the same field of endeavor, namely, external graphics processing systems. One of ordinary skill in the art at the time of the invention, starting with the external graphics processing system of NVIDIA, would have appreciated the benefits of multi-core graphics-processing units, as taught by Nugent. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of multi-core graphics-processing units, which would produce the well-known, predictable and expected results and benefits of increased graphics processing speed. The artisan of ordinary skill would have been motivated to combine Nugent with NVIDIA, as proposed above, in order to in order to provide high-performance graphics while reducing the power drawn (see *Nugent, ¶¶0002, 0004*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the multi-core graphics-processing units of Nugent with the external graphics processing system of NVIDIA to achieve the well-known and expected

benefits of providing high-performance graphics while reducing the power drawn by using multi-core graphics-processing units.

Conclusion

8. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ke Xiao can be reached on 571-272-7776. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James A Thompson/
Primary Examiner, Art Unit 2616

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	5	"20090141894".pn. or "20090144456".pn. or "6507172".pn. or "20060171689".pn. or "20120162235".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 13:59
L2	900	(710/2).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 13:59
L3	3554	(710/8).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 13:59
L4	782	(345/505).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 13:59
L5	749	(345/530).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 13:59
L6	903	(345/520).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:00
L7	0	usb with (gpu or (graphic near2 (card or processor or chip))) with (modular or modularly or modularity or (plug near2 play))	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:00
L8	1145	usb with (gpu or (graphic near2 (card or processor or chip)))	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:00
L9	189	(gpu or (graphic near2 (card or processor or chip))) with (modular or modularly or modularity or (plug near2 play))	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:00
L10	35	L8 AND ((G06F21/00 OR G06F13/385 OR G06F11/0712 OR G06F11/0742 OR G06F12/00 OR G06F12/08 OR G06F13/20 OR G06F2009/45579).CPC.)	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:00
L11	24	L9 AND ((G06T1/20 OR A61B8/4411 OR G09G5/363 OR G09G2360/06 OR G06F9/4411).CPC.)	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:00
L12	2308	(G06T1/20).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01

L13	2299	(G06T15/005).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L14	3267	(G06F3/14).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L15	1581	(G06T1/60).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L16	4137	(G06F13/385).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L17	2619	(G06F9/4411).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L18	72	(L12 or L13 or L14 or L15 or L16 or L17) and L8	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L19	12	(L12 or L13 or L14 or L15 or L16 or L17) and L9	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L20	1872	(G06F13/4022).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L21	851	(H04N21/4104).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L22	682	(H04N21/631).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:01
L23	4586	(G06F1/26).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:02
L24	22	(L20 or L21 or L22 or L23) and L8	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:02
L25	0	(L20 or L21 or L22 or L23) and L9	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:02
L26	2588	(nvidia$).as.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:02
L27	1	(nvidia$).as. and (srinivas$ near2 soma$).in.	US-PGPUB; USPAT;	OR	ON	2014/04/02 14:02

			USOCR			
L28	1	"20100091025".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2014/04/02 14:02

4/2/2014 2:03:56 PM
C:\Users\jthompson2\Documents\EAST\Workspaces\12824423.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	James A. Thompson	2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/02/2012	04/01/2013	07/30/2013	11/19/2013	03/18/2014	04/02/2014			
	1	✓	✓	✓	✓	✓	✓			
	2	✓	✓	✓	✓	✓	✓			
	3	✓	✓	✓	✓	✓	✓			
	4	✓	✓	✓	✓	✓	✓			
	5	✓	✓	✓	✓	✓	✓			
	6	✓	✓	✓	✓	✓	✓			
	7	✓	✓	✓	✓	✓	✓			
	8	✓	✓	✓	✓	✓	✓			
	9	✓	✓	✓	✓	✓	✓			
	10	✓	✓	✓	✓	✓	✓			
	11	✓	✓	✓	✓	✓	✓			
	12	✓	✓	✓	✓	✓	✓			
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	14	✓	✓	✓	✓	✓	✓			
	15	✓	✓	✓	✓	✓	✓			
	16	✓	✓	✓	✓	✓	✓			
	17	✓	✓	✓	✓	✓	✓			
	18	✓	✓	✓	✓	✓	✓			
	19	✓	✓	✓	✓	✓	✓			
	20	✓	✓	✓	✓	✓	✓			

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	Art Unit
	JAMES A THOMPSON	2616

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
G06F 21/00, 13/385, 11/0712, 11/0742, 12/00, 12/08, 13/20, 2009/45579, 3/14, 9/4411, 13/4022, 1/26	4/2/14	/J.A.T./
G06T 1/20, 15/005, 1/60	4/2/14	/J.A.T./
A61B8/4411	4/2/14	/J.A.T./
G09G 5/363, 2360/06	4/2/14	/J.A.T./
H04N 21/4104, 21/631	4/2/14	/J.A.T./

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
710	2, 8	4/2/14	/J.A.T./
345	505, 520, 530	4/2/14	/J.A.T./

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search (see attached notes)	4/2/14	/J.A.T./

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/J.A.T./ Primary Examiner.Art Unit 2616

S/N 12/824,423 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Srinivas Soma Examiner: Thompson, James A

Serial No.: 12/824,423 Group Art Unit: 2616

Filed: June 28, 2010 Docket No.: 00108.00020US1

Title: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

RESPONSE TO NON-FINAL OFFICE ACTION

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Applicant has reviewed the Non-Final Office Action mailed on March 21, 2014. Please consider the following Remarks.

REMARKS

Please reconsider this Application in view of the following remarks. Applicant thanks the Examiner for carefully considering this Application.

Disposition of Claims

Claims 1-20 are currently pending in this application. Claims 1, 7, 15 and 17 are independent. The other claims depend, directly or indirectly, on independent claims 1, 7, 15 and 17.

Claim Amendment(s)

No claim amendments have been made.

Claim Rejection(s)

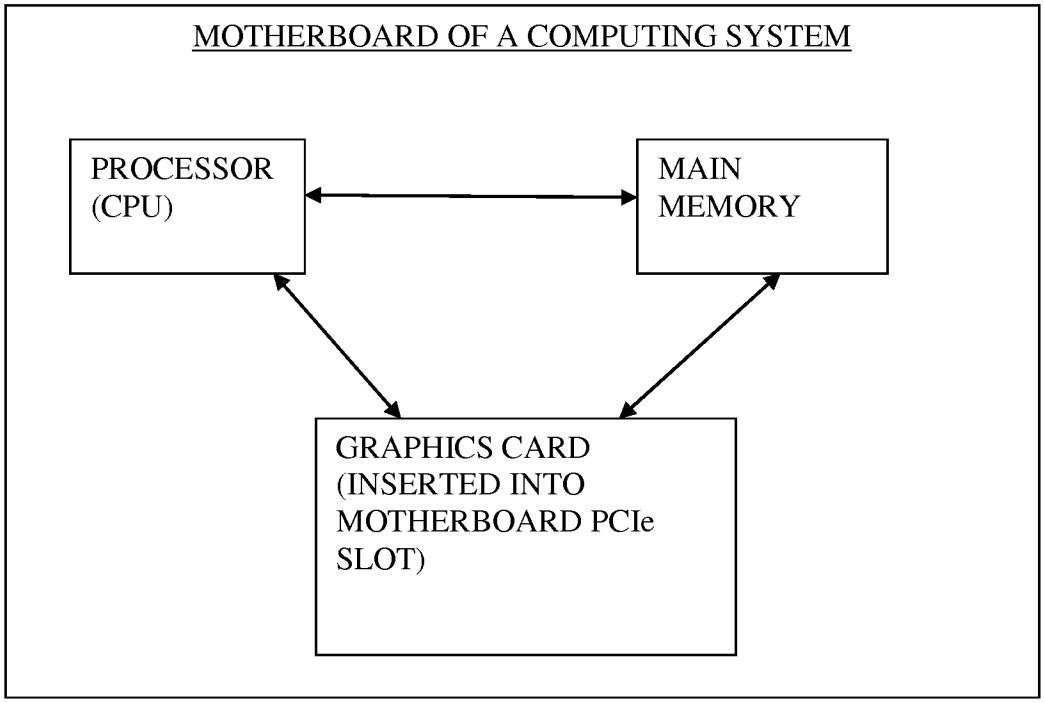
Rejection(s) under 35 U.S.C. 103

Claims 1-4, 6-12, 14 and 17-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03 (hereinafter "NVIDIA") in view of Sahdra and Gelf. For at least the following reasons, this rejection is respectfully traversed.

The Examiner cites pp. 6, 16-19 of NVIDIA as allegedly disclosing a graphics card with an interface (the interface is a set of PCI-e interfaces/slots in NVIDIA) communicatively coupled with a graphics processor thereof; the Examiner admits that the system in NVIDIA is designed for transferring graphics instructions via PCI-e interfaces (*see* page 5 of Office Action dated 03/21/2014). The Examiner further goes on to cite the video card 17 (and the USB communication/interface) in Fig. 6 (paragraph [0044]) of Sahdra to assert that the combination of the graphics card of NVIDIA and the video card 17 (coupled to a computing device through a USB interface) renders the limitations of independent claims 1, 7, 15 and 17 obvious. Applicant respectfully disagrees once again for at least the following reasons.

A graphics card connotes an expansion capability – an expansion of processing power or capability. Considering the whole of the Sahdra reference, nowhere does Sahdra show or suggest a graphics card-like use of the video card 17 (of Fig. 6 of Sahdra). In fact, Sahdra merely implies that the video card 17 is used for encoding/processing video signals. The USB dongle-like arrangement of the video card 17 in Fig. 7 of Sahdra clearly does not connote high processing power.

One skilled in the art would not be motivated to even consider combining the features of NVIDIA with Sahdra to realize portability of a graphics card. A typical graphics card arrangement (pioneered by NVIDIA) would look like PICTURE 1 below



PICTURE 1

Said graphics card is used to perform auxiliary/high-graphics requirement processing associated with the computing system. The graphics card was introduced as an accelerating engine (to perform high-end processing). The graphics card was associated solely with the motherboard of a computing system at the TIME OF FILING the present Application. While external USB dongle devices were available at the time of filing, the aforementioned dongle devices (such as video card 17) were merely used as ENABLERS of functionalities. In fact, the Wikipedia definition of a dongle still states that "***a dongle is a small piece of hardware that attaches to computer, TV, or other electronic device, and that when attached enables additional functions such as copy protection, audio, VIDEO*** (can draw analogy to the video

card 17 of Sahdra)***, games, data, or other services. These services are available only when the dongle is attached***."

Thus, it can clearly be seen that the video card 17 of Sahdra cannot be seen as an analogy to a graphics card of the independent claims 1, 7, 15 and 17 and NVIDIA, at least at the time of filing the present application. Further, it would be absurd to also consider Gelf for the rechargeable battery at the time of filing the present Application. This is because graphics cards have been shown to be employed solely in motherboards of computing systems through slots (e.g., PCIe slots) thereon at the time of filing the present Application. Powering the graphics card through a dedicated battery instead of the system power supply would be something that one of ordinary skill in the art would never conceive due to the wastefulness thereof. Further, powering a small dongle device such as the video card 17 of Sahdra through a dedicated battery would also be absurd; this is because the video card 17 of Sahdra itself would not consume much power and would, in fact, derive power from a computing system through the USB interface.

Last but not the least, it should be noted that the present Application and NVIDIA are the same entity; in other words, the present Application is also assigned to NVIDIA. NVIDIA Corporation is the pioneer of graphics cards and GPU-related processing. Sahdra was filed on Dec 4, 2007 and the present Application was filed on June 28, 2010. The fact that the present Application from an entity such as NVIDIA has only been filed on June 28, 2010 is support enough for the contention that one skilled in the art would never conceive portability of a graphics card from Sahdra.

In view of at least the above arguments, NVIDIA, Sahdra and Gelf, whether considered separately or in combination, do not show or suggest all limitations of independent claims 1, 7, 15 and 17. Independent claims 1, 7, 15 and 17 are, therefore, patentable over NVIDIA, Sahdra and Gelf. Claims 2-4, 6, 8-12, 14 and 18-19, directly or indirectly dependent on independent claims 1, 7 and 17, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 5, 13 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA, Sahdra and Gelf in view of Sherman. Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA, Sahdra and Gelf in view of Smith. Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA, Sahdra, Gelf and Smith in view of Nugent. The additional references fail to supply that which NVIDIA, Sahdra and/or Gelf lack with regard to independent claims 1, 7, 15 and 17. Thus, NVIDIA, Sahdra, Gelf and/or one or more of the additional references do not show or suggest all of the limitations of independent claims 1, 7, 15 and 17. Independent claims 1, 7, 15 and 17 are, therefore, patentable over NVIDIA, Sahdra, Gelf and/or the one or more of the additional references. Claims 5, 13, 20 and 16, directly or indirectly dependent on independent claims 1, 7, 15 and 17, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicant respectfully submits that the Claims are in condition for allowance and notification to that effect is requested. The Examiner is invited to telephone the attorney of the Applicant at 650-965-8731 to facilitate prosecution of this application.

Respectfully submitted,

nVIDIA Corporation

By their Representatives,
Raj Abhyanker, P.C.
Customer No. 102288
Ph.: 650-965-8731

Date: March 27, 2014

By: /Raj Abhyanker/
Raj Abhyanker
Reg. No. 45474

Electronic Acknowledgement Receipt

EFS ID:	18607890
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	102288
Filer:	Raj Vasant Abhyanker/Anjal Dhomane
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	27-MAR-2014
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1	Amendment/Req. Reconsideration-After Non-Final Reject	RTNFOA_00108_00020US1.pdf	50362 1a3c0d18ab8dda218e75ab9a357ef012ae83556f	no	7

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1	9884

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EXAMINER	
THOMPSON, JAMES A	

ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 12/824,423	Applicant(s) SOMA, SRINIVAS	
	Examiner James A. Thompson	Art Unit 2616	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 February 2014*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

1. Applicant's amendments to the claims filed 28 February 2014 have been entered and fully considered. Applicant's arguments also have been considered and are not persuasive, as discussed in detail below.

Response to Arguments

2. Applicant's arguments filed 28 February 2014 have been fully considered but they are not persuasive.

Regarding page 10: *Applicant argues* that the NVIDIA reference uses PCI-e interfaces/ slots to facilitate insertion of the graphics card inside the corresponding PCI-e interfaces/slots of a motherboard of a data processing device, such as a computer. Thus, the PCI-e interfaces/slots allegedly take away from the portability of the graphics card.

Examiner replies that a graphics card taught by the NVIDIA reference. Making the graphics card portable is taught by the Sahdra reference, such as in paragraph 44 where the reference describes a video card that is a USB video card designed similarly to the USB dongle, also shown in Sahdra, and is thus portable. By combination the graphics card of NVIDIA modified by Sahdra is a portable graphics card.

Regarding page 11, paragraph 1: *Applicant argues* using the USB interface instead of PCI-e slots inside the motherboard would make the communications very slow, and would therefore allegedly destroy the teachings of NVIDIA.

Examiner replies that USB devices are commonly used for the benefit of portability. As discussed above, the combination of NVIDIA and Sahdra teaches this portability of the graphics card. While this may be slower than a graphics card directly connected to a motherboard slot (or may not be, depending upon a comparison of the actual hardware used), the user gains the advantage of portability. Rather than relying upon the older, far less convenient use of graphics cards that have to be carefully installed into the slots of a motherboard and the corresponding software installed into the computing device, a USB device allows for an easy plug-and-play access. Further, the motherboard slots are internal to the computing device and thus requiring significant work to uninstall, and transport to another motherboard where it is then re-installed. Thus, the use of a USB video card is obvious due to the many advantages afforded.

Regarding page 11, paragraph 2 and paragraph on pages 11 and 12: Applicant's amendments have been fully considered by Examiner. The Gelf reference teaches the amended limitations, as demonstrated below in the prior art rejections. As shown in detail below, and in the final office action of 29 November 2013, Gelf has been relied upon to teach considerably more than merely a rechargeable battery.

Regarding page 12: The independent claims have been shown, both in the response to Applicant's arguments above and in the prior art rejections below, to be obvious over the prior

art. Thus, the remaining claims cannot be deemed allowable merely due to their respective dependencies.

Conclusion: All of claims 1-20 stand rejected over the prior art.

Claim Rejections - 35 USC § 103

3. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-4, 6-12, 14, and 17-19 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03,

NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf).

Regarding independent claim 1, NVIDIA teaches a graphics card of a data processing device, comprising:

a. a graphics processor (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*);

b. a[n]… interface communicatively coupled with the graphics processor (*see NVIDIA, pp.6, 16-19, disclosing that the graphics system can be deployed (communicatively coupled) using a PCI Express x16 (interface) card installed in a host system (data processing device)*),

i. the… interface being configured to transfer a graphics instruction from the data processing device to the graphics processor (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*), the data processing device being external to the portable graphics card (*see NVIDIA, p.17 figure, depicting the host system (externally) connecting to the graphics system (portable graphics cards) via the interface*),

ii. the graphics processor being configured to:

(1) process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene*

antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks)), and

(2) transfer a result of processing the graphics instruction to the data processing device using the… interface (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*)….

Although NVIDIA, on page 17, discloses USB patch cables and USB ports, NVIDIA does not expressly disclose that the interface communicatively coupled with the graphics processor is a "Universal Serial Bus (USB) interface," and the graphics card is specifically a "portable graphics card," as recited in claim 1.

However, Sahdra teaches that the interface communicatively coupled with the graphics processor is a Universal Serial Bus (USB) interface (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*), and a portable graphics card (*see Sahdra, ¶0044, where a video card is a USB video card designed similarly to the USB dongle, and is thus portable*).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have

been obvious for one of ordinary skill in the art to specifically use a USB video device and interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 1.

However, Gelf teaches:

a. a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery*),

i. the battery being configured to at least partially power the graphics processor to process the graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*),

ii. wherein the portable graphics card is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*), the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*), and the modular architecture being configured to utilize standard interfaces between the individual functional modules (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-designed interface device with standard interfaces and mix-and-match components, along with a

removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of a modular, standard interface design with mix-and-match components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source. Therefore, it would have been obvious to combine the teachings of Gelf with NVIDIA in view of Sahdra to obtain the invention as specified in claim 1.

Regarding claim 2, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1. Gelf further teaches wherein the USB interface utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

The motivation for combining Gelf with NVIDIA for claim 2 is the same as described above in claim 1.

Regarding claim 3, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1, and further teaches wherein the graphics instruction is associated with a graphics application executing on the data processing device (*see NVIDIA, p.1 para.1, p.5 para.1, disclosing that the graphics system is designed to be connected to a host system (data processing device) for graphics computing to meet the most demanding professional application requirements (graphics application)*).

Regarding claim 4, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1. Gelf further teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

The motivation for combining Gelf with NVIDIA for claim 4 is the same as described above in claim 1.

Regarding claim 6, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1. Gelf further teaches wherein the battery is user-attachable with the graphics card and user-detachable from the graphics card such that the battery is field replaceable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and field replaceable)*).

The motivation for combining Gelf with NVIDIA for claim 6 is the same as described above in claim 1.

Regarding independent claim 7, NVIDIA teaches a data processing system comprising:

a. a data processing device (*see NVIDIA, p.5 para.1, disclosing the system is connected to a host system (data processing device)*);

b. an … graphics card including a graphics processor (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*) and a [power source] configured to provide power to the graphics processor (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions)*), the portable external graphics card being external to the data processing device (*see NVIDIA, p.17 figure, depicting the host system (externally) connecting to the graphics system (portable graphics cards) via the interface*)…;

c. an [interface] module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device (*see NVIDIA, p.6, disclosing an interface card for installation into the host system (data processing device) to connect the host system to the graphics system (graphics processors)*), the [interface] module being configured to transfer an instruction originating from the data processing device to the graphics processor (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*), and

the graphics processor being configured to:

i. process the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing*

(processes graphics instructions on behalf of the data processing device for process intensive tasks)), and

ii. transfer a result of the processed instruction to the data processing device using the [interface] module (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*).

Although NVIDIA, on page 17, discloses USB patch cables and USB ports, NVIDIA is does not expressly disclose that, the interface module communicatively coupled with the graphics processor is a "USB" module, and the graphics card is a “portable external” graphics card, as recited in claim 7.

However, Sahdra teaches a USB module (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*) , and a portable external graphics card (*see Sahdra, ¶0044, where a video card is a USB video card designed similarly to the USB dongle, and is thus portable and external*).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art to specifically use a USB video device and

interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 7.

However, Gelf teaches:

a. [the power source is] a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery and that the removable, rechargeable battery 1145 powers (at least*

partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data), and

b. the portable external graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable external graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*), the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*), and the modular architecture being configured to utilize standard interfaces between the individual functional modules (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-designed interface device with standard interfaces and mix-and-match components, along with a removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of a modular, standard interface design with mix-and-match

components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source. Therefore, it would have been obvious to combine the teachings of Gelf with NVIDIA in view of Sahdra to obtain the invention as specified in claim 7.

Regarding claim 8, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7.

Although NVIDIA, on page 1, paragraph 1, page 5, paragraph 1, and page 16, discloses that the external graphics system performs graphics processing for the host system, NVIDIA does not expressly teach, "wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device," as recited in claim 8.

However, Sahdra teaches wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device (*see Sahdra, ¶¶0027, 0029, disclosing that the USB device (portable external graphics processing device), which includes a*

processing module (graphics processor) receives video signals for further processing (auxiliary graphics processing) when coupled to the host device (data processing device)).

The motivation for combining Sahdra with NVIDIA for claim 8 is the same as described above in claim 7.

Regarding claim 9, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7, and further teaches wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device (*see NVIDIA, p.1 para.1, p.5 para.1, disclosing that the graphics system is designed to be connected to a host system (data processing device) for graphics computing to meet the most demanding professional application requirements (graphics application)*).

Regarding claim 10, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7, and further teaches wherein the battery is configured to at least partially power the processor to process the instruction (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions);see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing teaching that power is supplied by a removable, rechargeable battery and that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*).

The motivation for combining Gelf with NVIDIA for claim 10 is the same as described above in claim 7.

Regarding claim 11, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7. Gelf further teaches wherein the battery is user-detachable from the portable external graphics card and user-attachable with the portable external graphics card (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and user-attachable) from the interface device (portable external graphics processing device)*).

The motivation for combining Gelf with NVIDIA for claim 11 is the same as described above in claim 7.

Regarding claim 12, NVIDIA in view of Sahdra, and further in view of Gelf teaches the system of claim 7, and further teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

The motivation for combining Gelf with NVIDIA for claim 12 is the same as described above in claim 7.

Regarding claim 14, NVIDIA in view of Sahdra, and further in view of Gelf teaches the system of claim 7. Gelf further teaches wherein the USB module utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

The motivation for combining Gelf with NVIDIA for claim 14 is the same as described above in claim 7.

Regarding independent claim 17, NVIDIA teaches a method comprising:

a. implementing a … graphics card (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*)…;

b. indicating to a data processing device, utilizing a[n interface] protocol, that the portable graphics card is active, the portable graphics card being portable by a user and external to the data processing device (*see NVIDIA, p.14-15, p.17 figure, p.27-30, disclosing that the internal graphics card of the host system is removed, the old drivers are removed, that the host system is (externally) connected to the graphics system (portable enclosure of graphics cards) via the interface, and that drivers are installed for the graphics system; the host system (data processing device) therefore necessarily having an indication when the graphics system (portable graphics cards) is active*);

c. acquiring, utilizing the [interface] protocol, a graphics instruction from the data processing device, based at least in part on the indication that the portable graphics card is active (*see NVIDIA, p.1 para.1, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing for a host system (i.e., acquires graphics instruction data processing device) via the PCI Express x16 interface; in order for the command (graphics instruction) to be processed, it is necessarily based at least in part on the graphics system (graphics cards) being active*);

d. processing the acquired graphics instruction using a graphics processor within the portable graphics card to perform a process intensive task through the portable graphics card on behalf of the data processing device (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and*

enables the highest quality and resolution full-scene antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks));

e. using energy supplied by [the power source] to process the acquired graphics instruction (*see NVIDIA, page 20, disclosing the power supply of the graphics system (for processing the instructions)*); and

f. transferring to the data processing device, utilizing the [interface] protocol, a result of the processing of the acquired graphics instruction (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*).

Although NVIDIA, on page 17, discloses USB patch cables and USB ports, NVIDIA does not expressly disclose that, the interface is "Universal Serial Bus (USB) protocol," and the graphics card is a “portable graphics card,” as recited in claim 17.

However, Sahdra teaches the interface is Universal Serial Bus (USB) protocol (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*) , and a portable graphics card (*see Sahdra, ¶0044, where a video card is a USB video card designed similarly to the USB dongle, and is thus portable*).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art to specifically use a USB video device and interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 17.

However, Gelf teaches:

a. [implementing] with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*);

b. facilitating the replacement of the individual functional modules of the portable graphics card through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*);

c. utilizing standard interfaces for communication between the individual functional modules of the portable graphics card (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*);

d. providing a rechargeable battery within the portable graphics card (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion (within) of the USB device, the power module being connected to the processor module 415 (graphics processing device) that receives and processes data*); and

e. [using energy supplied by] the rechargeable battery… (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion of the USB device, the power module being connected to (i.e., uses the*

energy supplied by the rechargeable battery) the processor module 415 (graphics processing device) that receives and processes data (i.e., according to the acquired graphics instruction)).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-designed interface device with standard interfaces and mix-and-match components, along with a removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of a modular, standard interface design with mix-and-match components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source. Therefore, it would have been obvious to combine the teachings of Gelf with NVIDIA in view of Sahdra to obtain the invention as specified in claim 17.

Regarding claim 18, NVIDIA in view of Sahdra, and further in view of Gelf teaches the method of claim 17. Gelf further teaches wherein the USB protocol can be a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

The motivation for combining Gelf with NVIDIA for claim 18 is the same as described above in claim 17.

Regarding claim 19, NVIDIA in view of Sahdra, and further in view of Gelf teaches the method of claim 17. Gelf further teaches storing the energy in the rechargeable battery prior to the supplying of the energy (*see Gelf, ¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data, and the battery capable of being recharged (storing energy) by power control 315 prior to the supplying of energy*).

The motivation for combining Gelf with NVIDIA for claim 19 is the same as described above in claim 17.

5. Claims 5, 13, and 20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf), and further in view of US-6507172 (Sherman).

Regarding claim 5, NVIDIA in view of Sahdra, and further in view of Gelf teaches the graphics card of claim 1.

NVIDIA in view of Sahdra, and further in view of Gelf does not expressly disclose "wherein the battery is a lithium ion battery," as recited in claim 5. However, Sherman teaches wherein the battery is a lithium ion battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

The artisan of ordinary skill, starting with the rechargeable battery of Gelf, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by Sherman. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in Gelf for the known lithium-ion battery of Sherman, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute the battery Gelf for the lithium-ion battery of Sherman, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of Gelf for the lithium-ion battery of Sherman to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

Regarding claim 13, NVIDIA in view of Sahdra, and further in view of Gelf teaches the data processing system of claim 7.

NVIDIA in view of Sahdra, and further in view of Gelf does not expressly disclose "wherein the battery is a lithium ion rechargeable battery," as recited in claim 13. However,

Sherman teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

The artisan of ordinary skill, starting with the rechargeable battery of Gelf, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by Sherman. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in Gelf for the known lithium-ion battery of Sherman, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute the battery Gelf for the lithium-ion battery of Sherman, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of Gelf for the lithium-ion battery of Sherman to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

Regarding claim 20, NVIDIA in view of Sahdra, and further in view of Gelf teaches the method of claim 17.

NVIDIA in view of Sahdra, and further in view of Gelf is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery," as recited in claim 20. However, Sherman teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

The artisan of ordinary skill, starting with the rechargeable battery of Gelf, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by Sherman. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in Gelf for the known lithium-ion battery of Sherman, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute the battery Gelf for the lithium-ion battery of Sherman, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of Gelf for the lithium-ion battery of Sherman to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

6. Claim 15 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf), and further in view of US-2006/0171689 (Smith).

Regarding independent claim 15, NVIDIA teaches a graphics processing system comprising:

a. a … graphics card external to the data processing device and communicatively coupled with the data processing device using a[n interface] cable (*see NVIDIA, p.6, disclosing that the graphics system (graphics cards) can be deployed (communicatively coupled) using a PCI Express x16 (interface) interconnect cable connected to a PCI Express x16 (interface) card installed in a host system (data processing device)*),

and the portable graphics card including:

i. one or more graphics processors (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards (one or more graphics processors) combined in a single external unit*),

ii. a [power source]…, the [power source] being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions)*), and

iii. a second … interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first … interface with the second … interface using the [interface] cables (*see NVIDIA, p.6, p.9 figure, p.10 figure, p.11 figure, p.12, pp.16-17, figure, disclosing two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card and the two interconnect cable connectors (first and second interfaces) of the graphics system*),

iv. the second … interface being configured to receive a graphics instruction … from the data processing device via the [interface] cable and to provide the graphics instruction for the one or more graphics processors (*see NVIDIA, p.1 para.1, p.5 para.1, p.6, p.9*

figure, p.10 figure, p.11 figure, p.12 figure, pp.16-17, disclosing a graphics system having multiple graphics processing units for graphics computing (processing graphics instructions) having including two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card in the host system (data processing device) and the two interconnect cable connectors (first and second interfaces) of the graphics system), and

v. the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card and to transfer a result of the processed graphics instruction to the data processing device (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*) using the second … interface (*see NVIDIA, p.6, p.9 figure, p.10 figure, p.11 figure, p.12, pp.16-17, figure, disclosing two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card and the two interconnect cable connectors (first and second interfaces) of the graphics system*).

Although NVIDIA, on pages 5-6 and 16-17, discloses a host system, USB patch cables and USB ports, and the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 15.

However, Sahdra teaches:

a. a data processing device (*see Sahdra, ¶0021, fig.2, disclosing a video processing system including a personal computer (data processing device)*) comprising:

i. one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

ii. a memory coupled with the one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

iii. a video display device configured to display graphical data generated by the one or more system processors (*see Sahdra, ¶0027, disclosing a display screen or monitor associated with the system*),

iv. a first USB interface coupled with the one or more system processors (*see Sahdra, ¶0022, the USB (first USB interface) dongle device is coupled to the host device (computer system including one or more system processors)*), and

v. an audio device configured to generate audio data generated by the one or more system processors (*see Sahdra, ¶¶0024, 0041, 0062, disclosing that video signal being processed by the device may include audio signals*); and

b. a portable graphics card external to the data processing device (*see Sahdra, ¶0044, where a video card is a USB video card designed similarly to the USB dongle, and is thus portable and external to the data processing device*).

NVIDIA and Sahdra are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art to specifically use a USB video device and interface, as taught by Sahdra. One of ordinary skill in the art at the time of the invention, with recourse to common sense, would readily see the benefits of an external USB device, which

would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. Thus, one of ordinary skill at the time of the invention would have been motivated to combine Sahdra with NVIDIA, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*). Therefore, one of ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of Sahdra with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

Although NVIDIA, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, NVIDIA does not expressly teach the remaining limitations recited in claim 15.

However, Gelf teaches:

a. [the power source is] a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable (removably coupled and field replaceable), rechargeable battery 1145 for powering the device (i.e., the USB device processing the graphics instructions), the power module being connected to the processor module 415 that receives and processes data*)…;

b. … that [the graphics instruction] is encoded by a USB 3.0 communication protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*) …; and

c. the portable graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*), the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules (*see Gelf, figs. 5, 6 & 10; ¶¶0003, 0050-0055, & 0074, where a compound interface device is formed by the connecting and removing of individual interface devices*), and the modular architecture being configured to utilize standard interfaces between the individual functional modules (*see Gelf, ¶0050 which lists a variety of standard interfaces for each of the individual interface devices*).

Gelf and NVIDIA are analogous art because they are from the same field of endeavor, namely graphics processing hardware and software. At the time of the invention, it would have been obvious for one of ordinary skill in the art at the time of the invention to use a modularly-designed interface device with standard interfaces and mix-and-match components, along with a removable, rechargeable battery, as taught by Gelf, in the external graphics processing system of NVIDIA. One of ordinary skill in the art at the time of the invention, with recourse to common

sense, would readily see the benefits of a modular, standard interface design with mix-and-match components, and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable and modularly-replaceable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB 3.0 graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. One of ordinary skill in the art at the time of the invention would have been motivated to combine Gelf with NVIDIA, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source.

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source by utilizing a modular, USB 3.0 design and a removable, rechargeable battery.

NVIDIA does not expressly teach the interface cable which communicatively couples the portable graphics device to the data processing device is specifically a USB cable.

However, Smith teaches: [the interface cable is] a USB cable (*see Smith, ¶0041, discloses an external audio device coupled to a host computer by a USB cable, and an external video*

capture device (graphics processor) also coupled to the host computer by USB cable (communicatively coupled via the computer system)).

NVIDIA and Smith are analogous art because they are from the same field of endeavor, namely external image processing devices. One of ordinary skill in the art at the time of the invention, starting with the external graphics processing system of NVIDIA, would have appreciated the benefits of connecting external video and audio cards to a host computer with USB cables, as taught by Smith. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having an audio device in communication with a video device via USB cables, which would produce the well-known, predictable and expected results and benefits of processing of audio and video data encoded and synchronized in the same signal (*see Smith, ¶0006).*

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the connecting external video and audio cards to a host computer with USB cables of Smith with the external graphics processing system of NVIDIA to achieve the well-known and expected benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal.

7. Claim 16 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (NVIDIA) in view of US-2009/0141894 (Sahdra), and further in view of US-2009/0144456 (Gelf), and further in view of US-2006/0171689 (Smith), and further in view of US-2010/0091025 (Nugent).

Regarding claim 16, NVIDIA in view of Sahdra, and further in view of Gelf, and further in view of Smith teaches the graphics processing system of claim 15.

Although NVIDIA, on page 6, discloses that the graphics system may contain multiple Quadro FX 5500, 4500, and 5600 graphics processing units, NVIDIA in view of Sahdra, and further in view of Gelf, and further in view of Smith does not expressly teach, "wherein the one or more graphics processors include at least one multi-core processor," as recited in claim 16.

However, Nugent teaches wherein the one or more graphics processors include at least one multi-core processor (*see Nugent, ¶0019, discloses that the processor of an external graphics-processing device may include one or more cores of a multi-core processing unit*).

NVIDIA and Nugent are analogous art because they are from the same field of endeavor, namely, external graphics processing systems. One of ordinary skill in the art at the time of the invention, starting with the external graphics processing system of NVIDIA, would have appreciated the benefits of multi-core graphics-processing units, as taught by Nugent. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of multi-core graphics-processing units, which would produce the well-known, predictable and expected results and benefits of increased graphics processing speed. The artisan of ordinary skill would have been motivated to combine Nugent with NVIDIA, as proposed above, in order to in order to provide high-performance graphics while reducing the power drawn (see *Nugent, ¶¶0002, 0004*).

Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the multi-core graphics-processing units of Nugent with the external graphics processing system of NVIDIA to achieve the well-known and expected

benefits of providing high-performance graphics while reducing the power drawn by using multi-core graphics-processing units.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is (571)272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ke Xiao can be reached on 571-272-7776. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/James A Thompson/
Primary Examiner, Art Unit 2616

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	James A. Thompson	2616

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/02/2012	04/01/2013	07/30/2013	11/19/2013	03/18/2014				
	1	✓	✓	✓	✓	✓				
	2	✓	✓	✓	✓	✓				
	3	✓	✓	✓	✓	✓				
	4	✓	✓	✓	✓	✓				
	5	✓	✓	✓	✓	✓				
	6	✓	✓	✓	✓	✓				
	7	✓	✓	✓	✓	✓				
	8	✓	✓	✓	✓	✓				
	9	✓	✓	✓	✓	✓				
	10	✓	✓	✓	✓	✓				
	11	✓	✓	✓	✓	✓				
	12	✓	✓	✓	✓	✓				
	13	✓	✓	✓	✓	✓				
	14	✓	✓	✓	✓	✓				
	15	✓	✓	✓	✓	✓				
	16	✓	✓	✓	✓	✓				
	17	✓	✓	✓	✓	✓				
	18	✓	✓	✓	✓	✓				
	19	✓	✓	✓	✓	✓				
	20	✓	✓	✓	✓	✓				

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	5	"20090141894".pn. or "20090144456".pn. or "6507172".pn. or "20060171689".pn. or "20120162235".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/14 12:44
S2	898	(710/2).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:16
S3	3538	(710/8).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:16
S4	776	(345/505).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:18
S5	741	(345/530).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:18
S6	899	(345/520).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:19
S7	0	usb with (gpu or (graphic near2 (card or processor or chip))) with (modular or modularly or modularity or (plug near2 play))	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:22
S8	1131	usb with (gpu or (graphic near2 (card or processor or chip)))	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:22
S9	189	(gpu or (graphic near2 (card or processor or chip))) with (modular or modularly or modularity or (plug near2 play))	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:22
S10	35	S8 AND ((G06F21/00 OR G06F13/385 OR G06F11/0712 OR G06F11/0742 OR G06F12/00 OR G06F12/08 OR G06F13/20 OR G06F2009/45579).CPC.)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:28
S11	24	S9 AND ((G06T1/20 OR A61B8/4411 OR G09G5/363 OR G09G2360/06 OR G06F9/4411).CPC.)	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:31
S12	2225	(G06T1/20).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:32

S13	2289	(G06T15/005).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:33
S14	3244	(G06F3/14).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:33
S15	1572	(G06T1/60).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:34
S16	4130	(G06F13/385).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:35
S17	2606	(G06F9/4411).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:35
S18	72	(S12 or S13 or S14 or S15 or S16 or S17) and S8	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:36
S19	12	(S12 or S13 or S14 or S15 or S16 or S17) and S9	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:36
S20	1868	(G06F13/4022).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:38
S21	846	(H04N21/4104).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:39
S22	682	(H04N21/631).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:40
S23	4550	(G06F1/26).cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:42
S24	21	(S20 or S21 or S22 or S23) and S8	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:42
S25	0	(S20 or S21 or S22 or S23) and S9	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:42
S26	2556	(nvidia$).as.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/17 11:43
S27	1	(nvidia$).as. and (srinivas$ near2 soma$).in.	US-PGPUB; USPAT;	OR	ON	2014/03/17 11:44

			USOCR			
S28	1	"20100091025".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2014/03/18 10:47

3/18/2014 11:34:10 AM
C:\Users\jthompson2\Documents\EAST\Workspaces\12824423.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	Art Unit
	JAMES A THOMPSON	2616

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
G06F 21/00, 13/385, 11/0712, 11/0742, 12/00, 12/08, 13/20, 2009/45579, 3/14, 9/4411, 13/4022, 1/26	3/17/14	/J.A.T./
G06T 1/20, 15/005, 1/60	3/17/14	/J.A.T./
A61B8/4411	3/17/14	/J.A.T./
G09G 5/363, 2360/06	3/17/14	/J.A.T./
H04N 21/4104, 21/631	3/17/14	/J.A.T./

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
710	2, 8	3/17/14	/J.A.T./
345	505, 520, 530	3/17/14	/J.A.T./

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Search (see attached notes)	3/17/14	/J.A.T./

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/J.A.T./ Primary Examiner.Art Unit 2616

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	12/824,423	Filing Date	2010-06-28	Docket Number (if applicable)	00108.00020US1	Art Unit	2611
First Named Inventor	Srinivas Soma			Examiner Name	Tung, Kee M.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☑ Enclosed

- ☑ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☑ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 505934

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

◉ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Raj Abhyanker/	Date (YYYY-MM-DD)	2014-02-28
Name	Raj Abhyanker	Registration Number	45474

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	12824423
Filing Date:	28-Jun-2010
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Filer:	Raj Vasant Abhyanker/Seema Taile
Attorney Docket Number:	00108.00020US1

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE - 2nd and Subsequent Request	1820	1	1700	1700
		Total in USD ($)		**1700**

Electronic Acknowledgement Receipt

EFS ID:	18345115
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	102288
Filer:	Raj Vasant Abhyanker/Seema Taile
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	28-FEB-2014
Filing Date:	28-JUN-2010
Time Stamp:	23:53:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1700
RAM confirmation Number	10163
Deposit Account	505934
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Response After Final Action	RTFOA_00108_00020US1.pdf	77715 e9b85520904dbdb7816bc616bb1b348e41549cf0	no	13
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	RCE_00108_00020US1.pdf	995162 3c61c41856f84a8da4fc51e2f7a0d4b4e69b9678	no	3
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30327 581351d56f1f0df92b6ab26d4804b2a2964f89d5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1103204		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

S/N 12/824,423 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Srinivas Soma Examiner: Tung, Kee M.

Serial No.: 12/824,423 Group Art Unit: 2611

Filed: June 28, 2010 Docket No.: 00108.00020US1

Title: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

RESPONSE TO FINAL OFFICE ACTION

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Applicant has reviewed the Final Office Action mailed on November 29, 2013. Please consider the following Amendments and the following Remarks.

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A portable graphics card of a data processing device, comprising:

a graphics processor;

a battery; and

a Universal Serial Bus (USB) interface communicatively coupled with the graphics processor,

the USB interface being configured to transfer a graphics instruction from the data processing device to the graphics processor, the data processing device being external to the portable graphics card,

the graphics processor being configured to:

process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card, and

transfer a result of processing the graphics instruction to the data processing device using the USB interface, and

the battery being configured to at least partially power the graphics processor to process the graphics instruction,

wherein the portable graphics card is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card, the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules, and the modular architecture being configured to utilize standard interfaces between the individual functional modules.

2. (Previously Presented) The graphics card of claim 1, wherein the USB interface utilizes a USB 3.0 protocol.

3. (Previously Presented) The graphics card of claim 1, wherein the graphics instruction is associated with a graphics application executing on the data processing device.

4. (Previously Presented) The graphics card of claim 1, wherein the battery is rechargeable.

5. (Previously Presented) The graphics card of claim 1, wherein the battery is a lithium ion battery.

6. (Previously Presented) The graphics card of claim 1, wherein the battery is user-attachable with the graphics card and user-detachable from the graphics card such that the battery is field replaceable.

7. (Currently Amended) A data processing system comprising:

a data processing device;

a portable external graphics card including a graphics processor and a battery configured to provide power to the graphics processor, the portable external graphics card being external to the data processing device, and the portable external graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable external graphics card, the replacement of the individual functional

modules being facilitated through a capability to mix and match components of the individual functional modules, and the modular architecture being configured to utilize standard interfaces between the individual functional modules; and

a USB module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device,

the USB module being configured to transfer an instruction originating from the data processing device to the graphics processor, and

the graphics processor being configured to:

process the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card, and

transfer a result of the processed instruction to the data processing device using the USB module.

8. (Previously Presented) The data processing system of claim 7, wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device.

9. (Previously Presented) The data processing system of claim 7, wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device.

10. (Previously Presented) The data processing system of claim 7, wherein the battery is configured to at least partially power the processor to process the instruction.

11. (Previously Presented) The data processing ~~s~~system of claim 7, wherein the battery is user-detachable from the portable external graphics card and user-attachable with the portable external graphics card.

12. (Previously Presented) The data processing system of claim 7, wherein the battery is rechargeable.

13. (Previously Presented) The data processing system of claim 7, wherein the battery is a lithium ion rechargeable battery.

14. (Previously Presented) The data processing system of claim 7, wherein the USB module utilizes a USB 3.0 protocol.

15. (Currently Amended) A graphics processing system comprising:

a data processing device comprising:

one or more system processors,

a memory coupled with the one or more system processors,

a video display device configured to display graphical data generated by the one or more system processors,

a first USB interface coupled with the one or more system processors, and

an audio device configured to generate audio data generated by the one or more system processors; and

a portable graphics card external to the data processing device and communicatively coupled with the data processing device using a USB cable, the portable graphics card

being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card, the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules, the modular architecture being configured to utilize standard interfaces between the individual functional modules, and the portable graphics card including:

one or more graphics processors,

a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction, and

a second USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable,

the second USB interface being configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the data processing device via the USB cable and to provide the graphics instruction for the one or more graphics processors, and

the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card and to transfer a result of the

processed graphics instruction to the data processing device using the second USB interface.

16. (Previously Presented) The graphics processing system of claim 15, wherein the one or more graphics processors include at least one multi-core processor.

17. (Currently Amended) A method comprising:

implementing a portable graphics card with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card;

facilitating the replacement of the individual functional modules of the portable graphics card through a capability to mix and match components of the individual functional modules;

utilizing standard interfaces for communication between the individual functional modules of the portable graphics card;

indicating to a data processing device, utilizing a Universal Serial Bus (USB) protocol, that the portable graphics card is active, the portable graphics card being portable by a user and external to the data processing device;

acquiring, utilizing the USB protocol, a graphics instruction from the data processing device, based at least in part on the indication that the portable graphics card is active;

processing the acquired graphics instruction using a graphics processor within the portable graphics card to perform a process intensive task through the portable graphics card on behalf of the data processing device;

providing a rechargeable battery within the portable graphics card;

using energy supplied by the rechargeable battery to process the acquired graphics instruction; and

transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction.

18. (Original) The method of claim 17, wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol.

19. (Original) The method of claim 17, comprising:

storing the energy in the rechargeable battery prior to the supplying of the energy.

20. (Previously Presented) The method of claim 17, wherein the battery is a lithium ion rechargeable battery.

REMARKS

Please reconsider this Application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this Application.

Disposition of Claims

Claims 1-20 are currently pending in this application. Claims 1, 7, 15 and 17 are independent. The other claims depend, directly or indirectly, on independent claims 1, 7, 15 and 17.

Claim Amendment(s)

Independent claim 1 has been amended to additionally recite that the replacement of the individual functional modules (of the portable graphics card) is facilitated through a capability to mix and match components thereof, and that the modular architecture is configured to utilize standard interfaces between the individual functional modules. Independent claims 7, 15 and 17 have also been amended to additionally recite analogous limitations. Support for these amendments may be found, for example, in paragraphs [0031]-[0032] of U.S. Patent Publication No. 2011/0316865 (hereinafter "Published Application"). No new matter has been added.

Claim Rejection(s)

Rejection(s) under 35 U.S.C. 103

Claims 1-4, 6-12, 14 and 17-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03 (hereinafter "NVIDIA") in view of Sahdra and Gelf. To the extent that this rejection may still apply to the amended claims, this rejection is respectfully traversed.

The Examiner cites pp. 6, 16-19 of NVIDIA as allegedly disclosing an interface (the interface is a set of PCI-e interfaces/slots in NVIDIA) communicatively coupled with the graphics processor and goes on to cite Sahdra for allegedly disclosing a USB interface to conclude that it is obvious to one skilled in the art to arrive at the appropriate limitations of independent claims 1, 7 and 17. Applicant respectfully disagrees. Applicant further respectfully submits that one skilled in the art would not be motivated to combine NVIDIA and Sahdra to arrive at the aforementioned limitations for at least the following reasons.

Firstly, NVIDIA discloses a graphics card including PCI-e interfaces/slots. The PCI-e interfaces/slots are provided to facilitate insertion of the graphics card inside corresponding PCI-e interfaces/slots of a motherboard of a data processing device (e.g., a computer). The aforementioned PCI-e interfaces/slots and the corresponding motherboard slots of the data processing device take away from the portability of the graphics card. While the graphics card was available separate from the data processing device at the time of conception of independent claims 1, 7, 15 and 17, the functionality of the graphics card was restricted to being utilized within the motherboard of the data processing device.

Secondly, Sahdra merely discloses a dongle as an external device; said dongle utilizes a USB interface. One skilled in the art would not be motivated to conceive utilization of the graphics card external to the data processing device based on USB interfaces merely through a combination of NVIDIA and Sahdra. If USB interfaces are provided within the motherboard discussed above (with respect to NVIDIA) instead of PCI-e slots, the communication would be very slow (protocol conversion would also be required) and would destroy the teachings of NVIDIA. It is, therefore, non-obvious, to one skilled in the art to combine NVIDIA and Sahdra.

Further, the assignee of the present Application is NVIDIA Corporation, which is the same entity associated with NVIDIA (the Quadro Plex document). Applicant has also added a few more limitations, viz. "the replacement of the individual functional modules being facilitated through a capability to mix and match components of the individual functional modules," and "the modular architecture being configured to utilize standard interfaces between the individual functional modules," with regard to independent claim 1 and, analogously, independent claims 7, 15 and 17 to facilitate quick prosecution of the present Application.

Gelf has merely been additionally cited to disclose a rechargeable battery. In view of the above arguments, NVIDIA, Sahdra and Gelf, whether considered separately or in combination, do not show or suggest all limitations of amended independent claims 1, 7, 15 and 17. Amended independent claims 1, 7, 15 and 17 are, therefore, patentable over NVIDIA, Sahdra and Gelf. Claims 2-4, 6, 8-12, 14 and 18-19, directly or indirectly dependent on amended independent

claims 1, 7 and 17, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 5, 13 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA, Sahdra and Gelf in view of Sherman. Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA, Sahdra and Gelf in view of Smith. Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over NVIDIA, Sahdra, Gelf and Smith in view of Nugent. The additional references fail to supply that which NVIDIA, Sahdra and/or Gelf lack with regard to amended independent claims 1, 7, 15 and 17. Thus, NVIDIA, Sahdra, Gelf and/or one or more of the additional references do not show or suggest all of the limitations of amended independent claims 1, 7, 15 and 17. Amended independent claims 1, 7, 15 and 17 are, therefore, patentable over NVIDIA, Sahdra, Gelf and/or the one or more of the additional references. Claims 5, 13, 20 and 16, directly or indirectly dependent on amended independent claims 1, 7, 15 and 17, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicant respectfully submits that the Claims are in condition for allowance and notification to that effect is requested. If any additional fees are due for this submission, the fees may be charged to Deposit Account number 505934. The Examiner is invited to telephone the attorney of the Applicantat 650-965-8731 to facilitate prosecution of this application.

Respectfully submitted,

nVIDIA Corporation

By their Representatives,
Raj Abhyanker P.C.
Customer No. 102288
Ph.: 650-965-8731

Date: February 28, 2014

By: /Raj Abhyanker/
Raj Abhyanker
Reg. No. 45,474

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1	9884

102288 7590 11/29/2013

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1580 W. El Camino Real, Suite 8
Mountain View, CA 94040

EXAMINER	
RABURN, GREG A	

ART UNIT	PAPER NUMBER
2613	

NOTIFICATION DATE	DELIVERY MODE
11/29/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@rajpatent.com

Office Action Summary	Application No. 12/824,423	Applicant(s) SOMA, SRINIVAS	
	Examiner GREG RABURN	Art Unit 2613	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/8/2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Response to Amendment

1. Applicant's amendments and remarks filed 11/8/2013 have been entered and considered, but are not found convincing. Claims 9, 10, 12-14, 16, and 18-20 were previously presented or have not been amended. Applicant's amendments have necessitated the new grounds of rejection set forth herein; accordingly, this action is made final.

Response to Applicant's Remarks

35 U.S.C. §103

2. In the non-final Office Action mailed 8/8/2013:

a. **Claims 1-4, 6-12, 14, and 17-19 were rejected under 35 U.S.C. 103(a)** as being unpatentable over Sahdra et al., U.S. Patent Publication 2009/0141894 (filed Dec. 4, 2007) (*Sahdra*) in view of Gelf et al., U.S. U.S. Patent Publication 2009/0144456 (filed Nov. 29, 2008) (*Gelf*).

b. **Claims 5, 13, and 20 were rejected under 35 U.S.C. 103(a)** as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Sherman, U.S. Patent No. 6,507,172 (filed Mar. 19, 2001) (*Sherman*).

c. **Claim 15 was rejected under 35 U.S.C. 103(a)** as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Smith, U.S. Patent Publication 2006/0171689 (filed Mar. 8, 2006) (*Smith*).

d. **Claim 16 was rejected under 35 U.S.C. 103(a)** as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of *Smith*, and further in view of Nugent et al., U.S. Patent Publication 2012/0162235 (filed Oct. 13, 2008) (*Nugent*).

3. Applicant traverses these rejections.

4. **Regarding claims 1, 7, 15, and 17**, Applicant's arguments with respect to claims 1, 7, 15, and 17 have been considered but are moot because the arguments do not apply to the references being used in the current rejection.

5. Applicant 's arguments concerning the remaining claims are based on the same arguments put forth against claims 1,7 ,15, and 17, which the examiner has addressed above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. **Claims 1-4, 6-12, 14, and 17-19 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_v03, NVIDIA Corporation (2007) (*NVIDIA*) in view of *Sahdra*, and further in view of *Gelf*.**

9. **Regarding independent claim 1**, *NVIDIA* teaches a portable graphics card of a data processing device, comprising:

a. a graphics processor (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*);

b. a[n]… interface communicatively coupled with the graphics processor (*see NVIDIA, pp.6, 16-19, disclosing that the graphics system can be deployed (communicatively coupled) using a PCI Express x16 (interface) card installed in a host system (data processing device)*),

i. the… interface being configured to transfer a graphics instruction from the data processing device to the graphics processor (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*), the data processing device being external to the portable graphics card (*see NVIDIA, p.17 figure, depicting the host system (externally) connecting to the graphics system (portable graphics cards) via the interface*),

ii. the graphics processor being configured to:

(1) process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics

card (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks)*), and

(2) transfer a result of processing the graphics instruction to the data processing device using the… interface (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*)….

10. Although *NVIDIA*, on page 17, discloses USB patch cables and USB ports, *NVIDIA* is understood to be silent on the limitation that the interface communicatively coupled with the graphics processor is a "Universal Serial Bus (USB) interface," as recited in claim 1. However, *Sahdra* teaches that the interface communicatively coupled with the graphics processor is a Universal Serial Bus (USB) interface (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital*

signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor).

11. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of the USB video device, as proposed by *Sahdra*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. The artisan of ordinary skill would have been motivated to combine *Sahdra* with *NVIDIA*, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*) and at least because both *NVIDIA* and *Sahdra* are similarly drawn to graphics processing.

12. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of *Sahdra* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

13. Although *NVIDIA*, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, *NVIDIA* does not expressly teach the remaining limitations recited in claim 1. However, *Gelf* teaches:

a. a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery*); and

i. the battery being configured to at least partially power the graphics processor to process the graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*),

ii. wherein the portable graphics card is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*).

14. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of having a modularly designed USB 3.0 device with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of a modular, USB 3.0 design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable graphics processing system utilizing a USB

protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *NVIDIA*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *NVIDIA* and *Gelf* are similarly drawn to external extension devices.

15. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source by utilizing a modular, USB 3.0 design and a removable, rechargeable battery.

16. **Regarding claim 2**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the card of claim 1. *Gelf* further teaches wherein the USB interface utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

17. The motivation for combining *Gelf* with *NVIDIA* for claim 3 is the same as described above in claim 1.

18. **Regarding claim 3**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the card of claim 1, and further teaches wherein the graphics instruction is associated with a graphics application executing on the data processing device (*see NVIDIA, p.1 para.1, p.5 para.1,*

disclosing that the graphics system is designed to be connected to a host system (data processing device) for graphics computing to meet the most demanding professional application requirements (graphics application)).

19. **Regarding claim 4**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the card of claim 1. *Gelf* further teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

20. The motivation for combining *Gelf* with *NVIDIA* for claim 4 is the same as described above in claim 1.

21. **Regarding claim 6**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the card of claim 1. *Gelf* further teaches wherein the battery is user-attachable with the graphics card and user-detachable from the graphics card such that the battery is field replaceable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and field replaceable)*).

22. The motivation for combining *Gelf* with *NVIDIA* for claim 6 is the same as described above in claim 1.

23. **Regarding independent claim 7**, *NVIDIA* teaches a data processing system comprising:

a. a data processing device (*see NVIDIA, p.5 para.1, disclosing the system is connected to a host system (data processing device)*);

b. a portable external graphics card including a graphics processor (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*) and a [power source] configured to provide power to the graphics processor (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions)*), the portable

external graphics card being external to the data processing device (*see NVIDIA, p.17 figure, depicting the host system (externally) connecting to the graphics system (portable graphics cards) via the interface*)…;

c. an [interface] module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device (*see NVIDIA, p.6, disclosing an interface card for installation into the host system (data processing device) to connect the host system to the graphics system (graphics processors)*), the [interface] module being configured to transfer an instruction originating from the data processing device to the graphics processor (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*), and the graphics processor being configured to:

i. process the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks)*), and

ii. transfer a result of the processed instruction to the data processing device using the [interface] module (*see NVIDIA, p.16, disclosing that the graphics*

system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)).

24. Although *NVIDIA*, on page 17, discloses USB patch cables and USB ports, *NVIDIA* is understood to be silent on the limitation that, the interface module communicatively coupled with the graphics processor is a "USB" module as recited in claim 7. However, *Sahdra* teaches a USB module (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*).

25. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of the USB video device, as proposed by *Sahdra*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. The artisan of ordinary skill would have been motivated to combine *Sahdra* with *NVIDIA*, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*) and at least because both *NVIDIA* and *Sahdra* are similarly drawn to graphics processing.

26. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of *Sahdra* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

27. Although *NVIDIA*, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, *NVIDIA* does not expressly teach the remaining limitations recited in claim 7. However, *Gelf* teaches:

a. [the power source is] a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery and that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*), and

b. the portable external graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable external graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device),*

such as storage, security, communication, input, or output, and may operate as a single device).

28. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of having a modularly designed USB 3.0 device with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of a modular, USB 3.0 design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *NVIDIA*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *NVIDIA* and *Gelf* are similarly drawn to external extension devices.

29. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source by utilizing a modular, USB 3.0 design and a removable, rechargeable battery.

30. **Regarding claim 8**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the system of claim 7.

31. Although *NVIDIA*, on page 1, paragraph 1, page 5, paragraph 1, and page 16, discloses that the external graphics system performs graphics processing for the host system, *NVIDIA* does not expressly teach, "wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device," as recited in claim 8. However, *Sahdra* teaches wherein the portable external graphics card is configured to provide auxiliary graphics processing for the data processing device (*see Sahdra, ¶¶0027, 0029, disclosing that the USB device (portable external graphics processing device), which includes a processing module (graphics processor) receives video signals for further processing (auxiliary graphics processing) when coupled to the host device (data processing device)*).

32. The motivation for combining *Sahdra* with *NVIDIA* for claim 8 is the same as described above in claim 7.

33. **Regarding claim 9**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the system of claim 7, and further teaches wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device (*see NVIDIA, p.1 para.1, p.5 para.1, disclosing that the graphics system is designed to be connected to a host system (data processing device) for graphics computing to meet the most demanding professional application requirements (graphics application)*).

34. **Regarding claim 10**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the system of claim 7, and further teaches wherein the battery is configured to at least partially power the processor to process the instruction (*see NVIDIA, page 20, disclosing the power*

supply of (at least partially powering) the graphics system (for processing the instructions);see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing teaching that power is supplied by a removable, rechargeable battery and that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data).

35. The motivation for combining *Gelf* with *NVIDIA* for claim 10 is the same as described above in claim 7.

36. **Regarding claim 11**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the system of claim 7. *Gelf* further teaches wherein the battery is user-detachable from the portable external graphics card and user-attachable with the portable external graphics card (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and user-attachable) from the interface device (portable external graphics processing device)*).

37. The motivation for combining *Gelf* with *NVIDIA* for claim 11 is the same as described above in claim 7.

38. **Regarding claim 12**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the system of claim 7, and further teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

39. The motivation for combining *Gelf* with *NVIDIA* for claim 12 is the same as described above in claim 7.

40. **Regarding claim 14**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the system of claim 7. *Gelf* further teaches wherein the USB module utilizes a USB 3.0 protocol

(*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

41. The motivation for combining *Gelf* with *NVIDIA* for claim 14 is the same as described above in claim 7.

42. **Regarding independent claim 17**, *NVIDIA* teaches a method comprising:

a. implementing a portable graphics card (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards combined in a single external unit*)…;

b. indicating to a data processing device, utilizing a[n interface], that the portable graphics card is active, the portable graphics card being portable by a user and external to the data processing device (*see NVIDIA, p.14-15, p.17 figure, p.27-30, disclosing that the internal graphics card of the host system is removed, the old drivers are removed, that the host system is (externally) connected to the graphics system (portable enclosure of graphics cards) via the interface, and that drivers are installed for the graphics system; the host system (data processing device) therefore necessarily having an indication when the graphics system (portable graphics cards) is active*);

c. acquiring, utilizing the [interface], based at least in part on the indication that the portable graphics card is active a graphics instruction from the data processing device (*see NVIDIA, p.1 para.1, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing for a host system (i.e., acquires*

graphics instruction data processing device) via the PCI Express x16 interface; in order for the command (graphics instruction) to be processed, it is necessarily based at least in part on the graphics system (graphics cards) being active)…;

d. processing the acquired graphics instruction using a graphics processor within the portable graphics card to perform a process intensive task through the portable graphics card on behalf of the data processing device (*see NVIDIA, p.2 para.1, disclosing that the graphics system (portable graphics cards) delivers (performs) high throughput for interactive visualization of large models and high performance for real time processing of large textures and frames and enables the highest quality and resolution full-scene antialiasing (processes graphics instructions on behalf of the data processing device for process intensive tasks)*);

e. using energy supplied by [the power source] to process the acquired graphics instruction (*see NVIDIA, page 20, disclosing the power supply of the graphics system (for processing the instructions)*); and

f. transferring to the data processing device, utilizing the [interface], a result of the processing of the acquired graphics instruction (*see NVIDIA, p.16, disclosing that the graphics system (portable graphics cards) is connected to the host system (data processing device) and operates as the host system's graphics card (i.e., results of processing graphics instructions are transferred to the data processing device)*).

43. Although *NVIDIA*, on page 17, discloses USB patch cables and USB ports, *NVIDIA* is understood to be silent on the limitation that, the interface is "Universal Serial Bus (USB) protocol," as recited in claim 17. However, *Sahdra* teaches the interface is Universal Serial Bus

(USB) protocol (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor) for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*).

44. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of the USB video device, as proposed by *Sahdra*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. The artisan of ordinary skill would have been motivated to combine *Sahdra* with *NVIDIA*, as proposed above, in order to couple the system "to a range of host devices" (*see Sahdra, ¶0025, fig.2*) and at least because both *NVIDIA* and *Sahdra* are similarly drawn to graphics processing.

45. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of *Sahdra* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

46. Although *NVIDIA*, on page 6, discloses the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, *NVIDIA* does not expressly teach the remaining limitations recited in claim 17. However, *Gelf* teaches:

a. [implementing] with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*);

b. providing a rechargeable battery within the portable graphics card (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion (within) of the USB device, the power module being connected to the processor module 415 (graphics processing device) that receives and processes data*); and

c. [using energy supplied by] the rechargeable battery… (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion of the USB device, the power module being connected to (i.e., uses the energy supplied by the rechargeable battery) the processor module 415*

(graphics processing device) that receives and processes data (i.e., according to the acquired graphics instruction)).

47. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of having a modularly designed USB 3.0 device with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of a modular, USB 3.0 design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *NVIDIA*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *NVIDIA* and *Gelf* are similarly drawn to external extension devices.

48. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source by utilizing a modular, USB 3.0 design and a removable, rechargeable battery.

49. **Regarding claim 18**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the method of claim 17. *Gelf* further teaches wherein the USB protocol can be a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

50. The motivation for combining *Gelf* with *NVIDIA* for claim 18 is the same as described above in claim 17.

51. **Regarding claim 19**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the method of claim 17. *Gelf* further teaches storing the energy in the rechargeable battery prior to the supplying of the energy (*see Gelf, ¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data, and the battery capable of being recharged (storing energy) by power control 315 prior to the supplying of energy*).

52. The motivation for combining *Gelf* with *NVIDIA* for claim 19 is the same as described above in claim 17.

53. **Claims 5, 13, and 20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *NVIDIA* in view of *Sahdra*, and further in view of *Gelf*, and further in view of *Sherman*.**

54. **Regarding claim 5**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the card of claim 1.

55. *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* is understood to be silent on the limitation, "wherein the battery is a lithium ion battery," as recited in claim 5. However,

Sherman teaches wherein the battery is a lithium ion battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

56. The artisan of ordinary skill, starting with the rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Gelf* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

57. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

58. **Regarding claim 13**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the system of claim 7.

59. *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery," as recited in claim 13. However, *Sherman* teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

60. The artisan of ordinary skill, starting with the rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Gelf* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

61. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

62. **Regarding claim 20**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* teaches the method of claim 17.

63. *NVIDIA* in view of *Sahdra*, and further in view of *Gelf* is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery," as recited in claim 20. However, *Sherman* teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

64. The artisan of ordinary skill, starting with the rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply

substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Gelf* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

65. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

66. **Claim 15 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *NVIDIA* in view of *Sahdra*, and further in view of *Gelf*, and further in view of *Smith*.**

67. **Regarding independent claim 15**, *NVIDIA* teaches A graphics processing system comprising:

a. a portable graphics card external to the data processing device and communicatively coupled with the data processing device using a[n interface] cable (*see NVIDIA, p.6, disclosing that the graphics system (graphics cards) can be deployed (communicatively coupled) using a PCI Express x16 (interface) interconnect cable connected to a PCI Express x16 (interface) card installed in a host system (data processing device)*)…, and the portable graphics card including:

i. one or more graphics processors (*see NVIDIA, p.6, disclosing graphics systems containing multiple GPU (graphics processor) cards (one or more graphics processors) combined in a single external unit*),

ii. a [power source]…, the [power source] being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction (*see NVIDIA, page 20, disclosing the power supply of (at least partially powering) the graphics system (for processing the instructions)*), and

iii. a second [interface] communicatively coupled with the one or more graphics processors and configured to communicatively couple the first [interface] with the second [interface] using the [interface cables] (*see NVIDIA, p.6, p.9 figure, p.10 figure, p.11 figure, p.12, pp.16-17, figure, disclosing two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card and the two interconnect cable connectors (first and second interfaces) of the graphics system*),

iv. the second [interface] being configured to receive a graphics instruction … from the data processing device via the [interface cables] and to provide the graphics instruction for the one or more graphics processors (*see NVIDIA, p.1 para.1, p.5 para.1, p.6, p.9 figure, p.10 figure, p.11 figure, p.12 figure, pp.16-17, disclosing a graphics system having multiple graphics processing units for graphics computing (processing graphics instructions) having including two (first and second) interconnect cables for interfacing between the PCI Express x16*

interface card in the host system (data processing device) and the two interconnect cable connectors (first and second interfaces) of the graphics system), and

v. the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card and to transfer a result of the processed graphics instruction to the data processing device (*see NVIDIA, p.1 para.1, disclosing the system is designed for graphics computing (i.e., transferring graphics instructions) via any NVIDIA-certified PCI Express (interface) platform (data processing device)*) using the second [interface] (*see NVIDIA, p.6, p.9 figure, p.10 figure, p.11 figure, p.12, pp.16-17, figure, disclosing two (first and second) interconnect cables for interfacing between the PCI Express x16 interface card and the two interconnect cable connectors (first and second interfaces) of the graphics system*).

68. Although *NVIDIA*, on pages 5-6 and 16-17, discloses a host system, USB patch cables and USB ports, and the graphics processor equipment box, configured into four models having different combinations of GPUs and sync boards, thereby indicating that the individual GPUs and sync boards may be upgraded or replaced without having to replace the entire unit, *NVIDIA* does not expressly teach the remaining limitations recited in claim 15. However, *Sahdra* teaches:

a. a data processing device (*see Sahdra, ¶0021, fig.2, disclosing a video processing system including a personal computer (data processing device)*) comprising:

i. one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

ii. a memory coupled with the one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

iii. a video display device configured to display graphical data generated by the one or more system processors (*see Sahdra, ¶0027, disclosing a display screen or monitor associated with the system*),

iv. a first USB interface coupled with the one or more system processors (*see Sahdra, ¶0022, the USB (first USB interface) dongle device is coupled to the host device (computer system including one or more system processors)*), and

v. an audio device configured to generate audio data generated by the one or more system processors (*see Sahdra, ¶¶0024, 0041, 0062, disclosing that video signal being processed by the device may include audio signals*); and

69. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of the USB video device, as proposed by *Sahdra*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of an external USB device, which would produce the well-known, predictable and expected results and benefits of allowing the external graphics processing system to be used with laptop computers through the USB port, since laptop computers do not typically have room for a PCI Express x16 card to be installed. The artisan of ordinary skill would have been motivated to combine *Sahdra* with *NVIDIA*, as proposed above, in order to couple the system "to a range of host devices" (*see*

Sahdra, ¶0025, fig.2) and at least because both *NVIDIA* and *Sahdra* are similarly drawn to graphics processing.

70. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB video device of *Sahdra* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of allowing the graphics processing system to be coupled to a range of host devices, including laptop computers, by means of a USB connection.

71. However, *Gelf* teaches:

i. [the power source is a] rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable (removably coupled and field replaceable), rechargeable battery 1145 for powering the device (i.e., the USB device processing the graphics instructions), the power module being connected to the processor module 415 that receives and processes data*)…;

ii. … that [the graphics instruction] is encoded by a USB 3.0 communication protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*) …; and

iii. the portable graphics card being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is*

modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device),

72. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of having a modularly designed USB 3.0 device with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of a modular, USB 3.0 design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available throughput and a self-contained, rechargeable, replaceable power source, thereby yielding a multifunction, high performance USB graphics processing system which does not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *NVIDIA*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *NVIDIA* and *Gelf* are similarly drawn to external extension devices.

73. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of having an easily-extendable graphics processing system utilizing a USB protocol with the highest available

throughput and a self-contained, rechargeable, replaceable power source by utilizing a modular, USB 3.0 design and a removable, rechargeable battery.

74. However, *Smith* teaches:

a. [the interface cable is] a USB cable (*see Smith, ¶0041, discloses an external audio device coupled to a host computer by a USB cable, and an external video capture device (graphics processor) also coupled to the host computer by USB cable (communicatively coupled via the computer system)*).

75. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of connecting external video and audio cards to a host computer with USB cables, as proposed by *Smith*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having an audio device in communication with a video device via USB cables, which would produce the well-known, predictable and expected results and benefits of processing of audio and video data encoded and synchronized in the same signal (*see Smith, ¶0006)*. The artisan of ordinary skill would have been motivated to combine *Smith* with *NVIDIA*, as proposed above, at least because both *NVIDIA* and *Smith* are similarly drawn to external image processing devices.

76. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the connecting external video and audio cards to a host computer with USB cables of *Smith* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal.

77. **Claim 16 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *NVIDIA* in view of *Sahdra*, and further in view of *Gelf*, and further in view of *Smith*, and further in view of *Nugent*.**

78. **Regarding claim 16**, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf*, and further in view of *Smith* teaches the system of claim 15.

79. Although *NVIDIA*, on page 6, discloses that the graphics system may contain multiple Quadro FX 5500, 4500, and 5600 graphics processing units, *NVIDIA* in view of *Sahdra*, and further in view of *Gelf*, and further in view of *Smith* does not expressly teach, "wherein the one or more graphics processors include at least one multi-core processor," as recited in claim 16. However, *Nugent* teaches wherein the one or more graphics processors include at least one multi-core processor (*see Nugent, ¶0019, discloses that the processor of an external graphics-processing device may include one or more cores of a multi-core processing unit*).

80. The artisan of ordinary skill, starting with the external graphics processing system of *NVIDIA*, would have appreciated the benefits of multi-core graphics-processing units, as proposed by *Nugent*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of multi-core graphics-processing units, which would produce the well-known, predictable and expected results and benefits of increased graphics processing speed. The artisan of ordinary skill would have been motivated to combine *Nugent* with *NVIDIA*, as proposed above, in order to in order to provide high-performance graphics while reducing the power drawn (see *Nugent, ¶¶0002, 0004*), and at least because both *NVIDIA* and *Nugent* are similarly drawn to external graphics processing systems.

81. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the multi-core graphics-processing units of *Nugent* with the external graphics processing system of *NVIDIA* to achieve the well-known and expected benefits of providing high-performance graphics while reducing the power drawn by using multi-core graphics-processing units.

Conclusion

82. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

83. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

84. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG RABURN whose telephone number is (571)270-1936. The examiner can normally be reached on M-F 8:00-5:00.

85. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on 571-272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

86. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GREG RABURN/

Examiner, Art Unit 2613

/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2613

Notice of References Cited	Application/Control No. 12/824,423	Applicant(s)/Patent Under Reexamination SOMA, SRINIVAS	
	Examiner GREG RABURN	Art Unit 2613	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	NVIDIA Quadro Plex 1000 Installation Guide, DI-02500-001_V03, NVIDIA Corporation (2007)
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	1	(soma near2 srinivas).in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:44
S3	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/01 09:45
S4	0	S2 not S3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:45
S5	747	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/01 09:46
S6	689	S5 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:47
S7	1	("20110316865").PN.	DERWENT	OR	OFF	2012/10/01 12:02
S8	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:12
S9	977904	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/10/26 20:16
S10	38836	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/10/26 20:19

		light light$1weight (light adj weight))	DERWENT			
S11	11921	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:24
S12	1184	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S13	306	S10 and S11 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S14	4	S13 and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S15	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/26 20:27
S16	692	S15 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:27
S18	208	S13 and S9	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:28
S19	898	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S20	38893	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S21	11939	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S22	1185	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S23	306	S20 and S21 and S22	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53

S24	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:53
S25	692	S24 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S26	5	S23 and S25	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S27	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:58
S28	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S29	4	S23 and S28	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S30	0	(S19 and (S26 S29)) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S31	978671	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:59
S32	208	S23 and S31	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:59
S33	11	(S19 and S32) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:59
S34	745	(startech iogear aten).as.	US-	OR	ON	2012/10/31

			PGPUB; USPAT; EPO; JPO; DERWENT			10:09
S35	1	S19 and S34	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:10
S36	276	S19 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:11
S37	7	(S36 and S25) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:11
S40	70	(S36 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:25
S42	7	S40 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:26
S43	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:28
S44	63	S40 not S42	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:30
S45	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:49
S46	42	S45 not (S43 S44 S42 S40 S37)	US-PGPUB;	OR	ON	2012/10/31 10:50

			USPAT; EPO; JPO; DERWENT			
S47	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" | "7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:56
S48	53	S47 not (S43 S44 S42 S40 S37 S45)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:57
S49	231	("20010029556" | "20020015055" | "20020059302" | "20020085007" | "20020118308" | "20020145612" | "20020180740" | "20020196259" | "20030020720" | "20030034975" | "20030038808" | "20030080959" | "20030103054" | "20030112245" | "20030112246" | "20030117971" | "20030128197" | "20030151606" | "20030164832" | "20030164834" | "20030171907" | "20030179220" | "20030188075" | "20030189565" | "20030212735" | "20040012600" | "20040036159" | "20040153778" | "20040169651" | "20040179019" | "20040196289" | "20040207618" | "20040210788" | "20040223003" | "20050041031" | "20050081115" | "20050122330" | "20050162437" | "20050166207" | "20050190189" | "20050190190" | "20050195186" | "20050195187" | "20050206646" | "20050223124" | "20050225558" | "20050237327" | "20050237329" | "20050243096" | "20050243215" | "20050259103" | "20050265064" | "20050275760" | "20060005178" | "20060028478" | "20060055695" | "20060059494" | "20060101218" | "20060114260" | "20060119607" | "20060120376" | "20060123142" | "20060156399" | "20060202941" | "20060208960" | "20060221086" | "20060221087" | "20060225061" | "20060248241" | "20060267987" | "20060268005" | "20060271713" | "20060274073" | "20060282604" | "20060290700" | "20070159488" | "20070195099" | "20080007559" | "20080143731" | "5475856" | "5535410" | "5687357" | "5740464" | "5745762" | "5754866" | "5757385" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 11:00

		"5758182" | "5794016" | "5841444" | "5909595" | "6118462" | "6169553" | "6181352" | "6184908" | "6188412" | "6191800" | "6201545" | "6212261").PN. OR ("6212617" | "6259460" | "6288418" | "6292200" | "6333744" | "6337686" | "6352479" | "6362825" | "6415345" | "6442656" | "6462737" | "6473086" | "6473089" | "6477687" | "6492987" | "6496187" | "6496404" | "6502173" | "6529198" | "6532013" | "6532525" | "6535209" | "6542971" | "6557065" | "6577309" | "6577320" | "6578068" | "6593923" | "6633296" | "6636212" | "6636215" | "6646639" | "6650330" | "6650331" | "6657635" | "6662257" | "6664960" | "6664963" | "6670958" | "6677953" | "6683614" | "6690372" | "6691180" | "6700583" | "6704025" | "6724394" | "6725457" | "6728820" | "6731298" | "6734861" | "6734874" | "6741243" | "6744433" | "6753878" | "6774895" | "6778176" | "6778177" | "6778181" | "6778189" | "6779069" | "6789154" | "6797998" | "6801202" | "6812927" | "6825843" | "6828980" | "6828987" | "6831652" | "6842180" | "6844879" | "6856320" | "6864893" | "6864984" | "6870540" | "6876362" | "6885376" | "6894687" | "6894689" | "6900810" | "6938176" | "6940515" | "6947047" | "6947865" | "6952206" | "6956579" | "6959110" | "6961057" | "6975319" | "6980209" | "6982718" | "6985152" | "6989840" | "6992667" | "6995767" | "6999076" | "7002588" | "7015915" | "7023437" | "7027972" | "7038678" | "7038685" | "7038692" | "7051139" | "7053901" | "7064763" | "7068272" | "7068278" | "7075541" | "7080194" | "7081895" | "7091971" | "7095414" | "7098922" | "7119808" | "7120816" | "7123266" | "7129909" | "7130316" | "7142215" | "7145565" | "7170513" | "7170515" | "7224359" | "7248261" | "7289125").PN. OR ("7324111" | "7324547" | "7325086" | "7372465" | "7388581" | "7477256" | "7525547" | "7598958").PN. OR ("7796129").URPN.				
S50	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/10/31 11:02
S51	1	S50 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:02

S53	283	(usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:31
S56	282	((usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:33
S57	144	S56 and power	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:34
S58	37	S56 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:34
S60	44	S56 and "3."$1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:35
S62	10	S56 and recharg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:36
S63	0	S57 and S58 and S60 and S62	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:36
S64	10	(S57 and S60 and S62) (S57 and S58 and S62) (S57 and S58 and S60)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:37
S65	40	((S60 and S62) (S57 and S62) (S57 and S60) (S58 and S62) (S57 and S58) (S58 and S60)) not S64	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:40
S66	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/31 11:46
S67	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:26
S68	76	S67 and (((battery$1power$3 (battery adj power$3)) near2 (usb (universal adj serial adj bus))) near40 (device unit))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:27
S69	20	(S68 and (usb external video graphics	US-	OR	ON	2012/10/31

		process$3 gpu).ti.) not S27	PGPUB; USPAT; EPO; JPO; DERWENT			12:27
S70	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 12:31
S72	99	(S67 and (((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same recharg$5)) not (S70 S69)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:39
S73	0	S72 and "USB 3.0"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:44
S74	0	S72 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:45
S75	4	S67 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:45
S76	0	("2011/0022826").URPN.	USPAT	OR	ON	2012/10/31 12:50
S78	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S75	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:52
S79	7	S78 and $2charg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:53
S80	0	("2011/0307724").URPN.	USPAT	OR	ON	2012/10/31 13:36
S81	44702	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 13:38
S84	243	S81 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 13:54
S85	29	S84 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT;	OR	ON	2012/10/31 13:54

			EPO; JPO; DERWENT			
S86	20	S85 and $2charg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 14:02
S87	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/10/31 16:38
S88	2	S87 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 16:40
S89	18	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$ or US-20050108763-$ or US-20060147185-$ or US-20040143686-$ or US-20110307724-$ or US-20090144456-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$ or US-7624202-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 10:27
S91	0	S89 and (lithium li$2on (li adj ion))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:28
S92	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:28
S94	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:29
S95	2	(S92 and battery near40 (lithium li$2on (li adj ion))) not S94	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:29
S96	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT;	OR	ON	2012/11/01 10:32

			EPO; JPO; DERWENT			
S97	39001	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S98	11978	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S99	1189	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S100	306	S97 and S98 and S99	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S101	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S102	692	S101 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S103	5	S100 and S102	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S104	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S105	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S106	208	S100 and S105	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S107	11	(S96 and S106) not S104	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S108	277	S96 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S109	7	(S108 and S102) not S104	US-PGPUB;	OR	ON	2012/11/01 10:32

			USPAT; EPO; JPO; DERWENT			
S110	70	(S108 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S104	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S111	7	S110 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S112	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S113	63	S110 not S111	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S114	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S115	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" | "7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S116	53	S115 not (S112 S113 S111 S110 S109 S114)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32

S117	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 10:32
S118	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S119	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S120	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S121	4	S119 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S122	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S121	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S123	44812	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S124	244	S123 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S125	29	S124 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S126	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/11/01 10:32
S127	2	S126 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S129	8	(((S127 S125 S122 S120 S118 S117 S116 S109 S107 S103) and battery near40 (lithium li$2on (li adj ion))) not	US-PGPUB; USPAT;	OR	ON	2012/11/01 10:38

		S94) and @ad<"20100628."	EPO; JPO; DERWENT			
S130	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S131	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S132	39001	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S133	11978	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S134	1189	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S135	306	S132 and S133 and S134	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S136	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S137	692	S136 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S138	5	S135 and S137	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S139	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S140	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S141	208	S135 and S140	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S142	11	(S131 and S141) not S139	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/11/01 11:39

			DERWENT			
S143	277	S131 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S144	7	(S143 and S137) not S139	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S145	70	(S143 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S139	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S146	7	S145 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S147	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S148	63	S145 not S146	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S149	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S150	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39

		"7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.				
S151	53	S150 not (S147 S148 S146 S145 S144 S149)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S152	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 11:39
S153	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S154	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S155	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S156	4	S154 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S157	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S156	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S158	44812	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S159	244	S158 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S160	29	S159 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S161	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/11/01 11:39

S162	2	S161 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S163	8	(((S162 S160 S157 S155 S153 S152 S151 S144 S142 S138) and battery near40 (lithium li$2on (li adj ion))) not S130) and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S164	37	(usb adj2 cable) and ((multi$1core (multi adj core)) adj2 process$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:18
S165	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 15:19
S167	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 15:23
S168	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:23
S169	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 15:23
S170	10	(S164 and (S168 S169)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:23
S172	386	((multi$1core (multi adj core)) adj2 process$3) near40 (gpu (graphic$1 adj process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:39
S173	111	S172 and (usb (universal adj serial adj bus$3))	US-PGPUB;	OR	ON	2012/11/01 15:48

			USPAT; EPO; JPO; DERWENT			
S174	49	(S173 and (S168 S169)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:53
S175	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:11
S177	3	(S172 and S175) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:12
S178	0	S177 and (usb (universal adj serial adj bus$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:13
S179	24	(S175 and (usb adj2 cable)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:17
S181	4	S179 and ((usb adj2 cable) same audio same video)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:20
S182	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/03/22 17:13
S183	1	(US-6507172-$).did.	USPAT	OR	ON	2013/03/22 17:21
S184	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S185	1	(US-20090144456-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S186	1	(US-20100091025-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S187	1	(US-20060171689-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S188	1	S184 and ((graphic video) near40 ((processing adj (module device)) "230"))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/03/22 17:23
S189	1	S184 and ((graphic) near40 (process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/03/22 18:06
S190	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/04/01 17:28

S191	1	S190 and (application program software)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 17:28
S192	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/04/01 18:50
S193	303	((usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.) not S192	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S194	157	S193 and power	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S195	38	S193 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S196	47	S193 and "3."$1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S197	10	S193 and recharg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S198	10	(S194 and S196 and S197) (S194 and S195 and S197) (S194 and S195 and S196)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S199	42	((S196 and S197) (S194 and S197) (S194 and S196) (S195 and S197) (S194 and S195) (S195 and S196)) not S198	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S200	2913	((graphic adj processor) gpu (graphic adj process$3 adj unit)) with (intensive rigorous exhaustive demanding extensive complex involved complicated intricate difficult)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:34
S201	3	((graphic adj processor) gpu (graphic adj process$3 adj unit)) same ((modular) with (upgrad$3 replac$5 arrang$4 rearrang$4 relocat$3 substitut$4 swap$4 interchang$6 chang$6 exchang$6))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:39
S202	3230	((graphic adj processor) gpu (graphic adj process$3 adj unit)) with ((modular upgrad$3 replac$5 arrang$4 rearrang$4 relocat$3 substitut$4 swap$4 interchang$6 chang$6	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:41

		exchang$6))				
S203	754	S200 and S202	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:42
S204	21	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$ or US-20050108763-$ or US-20060147185-$ or US-20040143686-$ or US-20110307724-$ or US-20090144456-$ or US-20100086111-$ or US-20100091025-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$ or US-7624202-$ or US-6507172-$).did.	US-PGPUB; USPAT	OR	ON	2013/07/25 15:43
S205	3	S203 and S204	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:44
S206	2	S205 and (task work$4 load)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:46
S207	4642	nvidia.as.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:49
S208	30	S207 and ((gpu (graphic adj process$3))) with (usb (universal adj serial))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:50
S209	590	((external usb) adj2 ((video adj card) gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:53
S212	33672	((235/440) or (24/553) or (345/422) or (345/501) or (345/502) or (345/505) or (345/520) or (345/522) or (345/553) or (345/561) or (358/1.1) or (361/679.32) or (361/679.6) or (361/754) or (361/759) or (361/801) or (375/E7.211) or (382/254) or (70/58) or (710/5) or (710/8) or (711/E12.02) or (712/11) or (712/15) or (712/16)).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2013/07/25 15:58
S214	828	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2013/07/25 15:59
S215	721	S214 and @ad<"20100628."	US-PGPUB;	OR	ON	2013/07/25 15:59

			USPAT; EPO; JPO; DERWENT			
S216	19	S209 and S215	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:59
S218	14	((external usb) adj2 ((video adj card) gpu (graphic adj process$3))) near40 (usb (serial adj bus))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:03
S220	1	(US-20080117220-$).did.	US-PGPUB	OR	ON	2013/07/25 16:10
S221	0	S200 and S220	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:10
S222	0	S201 and S220	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:10
S223	1	S202 and S220	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:11
S224	1	("2008/0117220").URPN.	USPAT	OR	ON	2013/07/25 16:12
S225	1	S220 and (large intensive rigorous exhaustive demanding extensive complex involved complicated intricate difficult)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:21
S226	85247	(modular flexible) adj (architecture design construction scheme arrangement structure layout)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:26
S227	22	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$ or US-20050108763-$ or US-20060147185-$ or US-20040143686-$ or US-20110307724-$ or US-20090144456-$ or US-20100086111-$ or US-20100091025-$ or US-20080117220-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$ or US-7624202-$ or US-6507172-$).did.	US-PGPUB; USPAT	OR	ON	2013/07/25 16:26
S228	0	S226 and S227	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2013/07/25 16:27

			DERWENT			
S229	111	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:27
S230	2	S226 and S229	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:27
S231	5	(S226 and S215) not S230	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:29
S232	402	(S226 and S212) not (S230 S231)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:41
S233	230	S232 and modular	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:41
S234	19	S233 and (gpu (graphic adj process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:42
S235	5315	(gpu (graphic adj process$3)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:46
S236	29	S235 and modular	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:46
S237	252	S235 and (upgrad$6 scal$1able scalability expand$1ble extensible extend$1ble)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:53

S238	1630	S235 and (replac$5 substitut$4 swap$5 interchang$6 chang$6 exchang$6)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:54
S239	194	S237 and S238	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:54
S240	119	S239 and replac$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:55
S241	125	S235 and ((upgrad$6 scal$1able scalability expand$1ble extensible extend$1ble) near40 (gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:56
S242	625	S235 and ((replac$5 substitut$4 swap$5 interchang$6 chang$6 exchang$6) near40 (gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:57
S243	75	S241 and S242	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:57
S245	67	(S241 and S242) and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:59
S246	0	(S241 S242) and (modular adj architecture)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:07
S247	1	(S235) and (modular adj architecture)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:08
S248	1	(S235) and (modular adj structure)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:08
S249	3	(S235) and (modular adj design)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:16
S251	1142	((modular) near40 (architecture structure)) same ((replac$5 upgrad$3 switch$3 substitut$3 swap$4 interchang$6) near40 (module))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:08

S252	829	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2013/07/30 13:10
S253	722	S252 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:10
S254	111	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:10
S255	1036617	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2013/07/30 13:10
S256	33791	((235/440) or (24/553) or (345/422) or (345/501) or (345/502) or (345/505) or (345/520) or (345/522) or (345/553) or (345/561) or (358/1.1) or (361/679.32) or (361/679.6) or (361/754) or (361/759) or (361/801) or (375/E7.211) or (382/254) or (70/58) or (710/5) or (710/8) or (711/E12.02) or (712/11) or (712/15) or (712/16)).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2013/07/30 13:10
S260	189	(S251 and (S255 S256 S253 S254)) and @ad<"201000628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:12
S261	14	S251 and (S256 S253 S254) and @ad<"201000628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:12
S262	175	(S260 not S261)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:23
S263	0	S262 and (modular same external same (gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:23

S264	39	S262 and (modular same (external (gpu (graphic adj process$3))))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:25
S265	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/07/30 14:15
S266	0	S265 and intensive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 14:15
S267	6	nvidia and "quadro plex"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 15:18
S268	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/07/30 16:18
S269	0	S268 and intensive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 16:18
S270	0	S269 and task	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 16:18
S271	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/07/30 16:32
S272	1	S271 and process$3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 16:32
S274	1	(US-20090144456-$).did.	US-PGPUB	OR	ON	2013/07/30 17:17
S275	1	S274 and replac$6	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 17:17
S277	1	S274 and (replac$5 substitut$4 swap$5 interchang$6 chang$6 exchang$6)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 17:18
S278	1	(US-5949438-$).did.	USPAT	OR	ON	2013/07/30 17:34
S281	1	(US-6507172-$).did.	USPAT	OR	ON	2013/11/18 11:06
S282	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/11/18 11:06
S283	1	(US-20090144456-$).did.	US-PGPUB	OR	ON	2013/11/18 11:06

S284	1	(US-20100091025-$).did.	US-PGPUB	OR	ON	2013/11/18 11:06
S285	1	(US-20060171689-$).did.	US-PGPUB	OR	ON	2013/11/18 11:06
S286	1	(US-20080117220-$).did.	US-PGPUB	OR	ON	2013/11/18 11:06
S287	1	(US-5949438-$).did.	USPAT	OR	ON	2013/11/18 11:06
S288	5	(S282 S283 S285 S281 S284 S286 S287) and card	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/11/18 11:06

11/ 19/ 2013 4:33:01 PM
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	GREG RABURN	2678

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/02/2012	04/01/2013	07/30/2013	11/19/2013					
	1	✓	✓	✓	✓					
	2	✓	✓	✓	✓					
	3	✓	✓	✓	✓					
	4	✓	✓	✓	✓					
	5	✓	✓	✓	✓					
	6	✓	✓	✓	✓					
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	15	✓	✓	✓	✓					
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	18	✓	✓	✓	✓					
	19	✓	✓	✓	✓					
	20	✓	✓	✓	✓					

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	Art Unit
	GREG RABURN	2678

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST text search of PGPUB, PAT with terms GPU, battery, rechargeable, lithium, USB 3.0, external, cable, multi-core, processor	11/2/2012	/G.R./
PLUS search	11/2/2012	/G.R./
Double-patenting search	11/2/2012	/G.R./
Google/Google Patents Search	11/2/2012	/G.R./
Search of foreign EPO, JPO, DERWENT databases	11/2/2012	/G.R./
Updated EAST text search	4/1/2013	/G.R./
Updated EAST text search	7/30/2013	/G.R./
Updated Google Patents search	7/30/2013	/G.R./
Updated EAST text search	11/19/2013	/G.R./

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/G.R./ Examiner.Art Unit 2678	

S/N. 12/824,423 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Srinivas Soma Examiner: Raburn, Greg A.

Serial No.: 12/824,423 Group Art Unit: 2678

Filed: June 28, 2010 Docket No.: 00108.00020US1

Title: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

RESPONSE TO NON-FINAL OFFICE ACTION

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Applicant has reviewed the Non-Final Office Action mailed on August 8, 2013. Please consider the following Amendments and the following Remarks.

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A portable graphics card ~~processing device~~ of a data processing device, comprising:

a graphics processor;

a battery; and

a Universal Serial Bus (USB) interface communicatively coupled with the graphics processor,

the USB interface being configured to transfer a graphics instruction from the data processing device to the graphics processor, the data processing device being external to the portable graphics card ~~processing device~~,

the graphics processor being configured to:

process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card ~~processing device~~, and

transfer a result of processing the graphics instruction to the data processing device using the USB interface, and

the battery being configured to at least partially power the graphics processor to process the graphics instruction,

wherein the portable graphics card ~~processing device~~ is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card ~~processing device~~.

2. (Currently Amended) The graphics card ~~processing device~~ of claim 1, wherein the USB interface utilizes a USB 3.0 protocol.

3. (Currently Amended) The graphics card ~~processing device~~ of claim 1, wherein the graphics instruction is associated with a graphics application executing on the data processing device.

4. (Currently Amended) The graphics card ~~processing device~~ of claim 1, wherein the battery is rechargeable.

5. (Currently Amended) The graphics card ~~processing device~~ of claim 1, wherein the battery is a lithium ion battery.

6. (Currently Amended) The graphics card ~~processing device~~ of claim 1, wherein the battery is user-attachable with the graphics card ~~processing device~~ and user-detachable from the graphics card ~~processing device~~ such that the battery is field replaceable.

7. (Currently Amended) A data processing system comprising:

a data processing device;

a portable external graphics card ~~processing device~~ including a graphics processor and a battery configured to provide power to the graphics processor, the portable external graphics card ~~processing device~~ being external to the data processing device, and the portable external graphics card ~~processing device~~ being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual

functional modules thereof without a need to entirely replace the portable external graphics card ~~processing device~~; and

a USB module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device,

the USB module being configured to transfer an instruction originating from the data processing device to the graphics processor, and

the graphics processor being configured to:

process the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card ~~processing device~~, and

transfer a result of the processed instruction to the data processing device using the USB module.

8. (Currently Amended) The data processing system of claim 7, wherein the portable external graphics card ~~processing device~~ is configured to provide auxiliary graphics processing for the data processing device.

9. (Previously Presented) The data processing system of claim 7, wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device.

10. (Previously Presented) The data processing system of claim 7, wherein the battery is configured to at least partially power the processor to process the instruction.

11. (Currently Amended) The data processing ~~s~~system of claim 7, wherein the battery is user-detachable from the portable external graphics card ~~processing device~~ and user-attachable with the portable external graphics card ~~processing device~~.

12. (Previously Presented) The data processing system of claim 7, wherein the battery is rechargeable.

13. (Previously Presented) The data processing system of claim 7, wherein the battery is a lithium ion rechargeable battery.

14. (Previously Presented) The data processing system of claim 7, wherein the USB module utilizes a USB 3.0 protocol.

15. (Currently Amended) A graphics processing system comprising:

a data processing device comprising:

one or more system processors,

a memory coupled with the one or more system processors,

a video display device configured to display graphical data generated by the one or more system processors,

a first USB interface coupled with the one or more system processors, and

an audio device configured to generate audio data generated by the one or more system processors; and

a portable graphics card ~~processing device~~ external to the data processing device and communicatively coupled with the data processing device using a USB cable, the

portable graphics card ~~processing device~~ being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card ~~processing device~~, and the portable graphics card ~~processing device~~ including:

one or more graphics processors,

a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction, and

a second USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable,

the second USB interface being configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the data processing device via the USB cable and to provide the graphics instruction for the one or more graphics processors, and

the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics card ~~processing device~~ and to transfer a result of the processed graphics instruction to the data processing device using the second USB interface.

16. (Previously Presented) The graphics processing system of claim 15, wherein the one or more graphics processors include at least one multi-core processor.

17. (Currently Amended) A method comprising:

implementing a portable graphics card ~~processing device~~ with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics card ~~processing device~~;

indicating to a data processing device, utilizing a Universal Serial Bus (USB) protocol, that the portable graphics card ~~processing device~~ is active, the portable graphics card ~~processing device~~ being portable by a user and external to the data processing device;

acquiring, utilizing the USB protocol, a graphics instruction from the ~~portable~~ data processing device, based at least in part on the indication[[ng]] that the portable graphics card ~~processing device~~ is active;

processing the acquired graphics instruction using a graphics processor ~~on behalf of the data processing device~~ within the portable graphics card ~~processing device~~ to perform a process intensive task through the portable graphics card ~~processing device~~ on behalf of the data processing device;

providing a rechargeable battery within the portable graphics card ~~processing device~~;

using energy supplied by the rechargeable battery to process the acquired graphics instruction; and

transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction.

18. (Original) The method of claim 17, wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol.

19. (Original) The method of claim 17, comprising:

storing the energy in the rechargeable battery prior to the supplying of the energy.

20. (Previously Presented) The method of claim 17, wherein the battery is a lithium ion rechargeable battery.

REMARKS

Please reconsider this Application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this Application.

Disposition of Claims

Claims 1-20 are currently pending in this application. Claims 1, 7, 15 and 17 are independent. The other claims depend, directly or indirectly, on independent claims 1, 7, 15 and 17.

Claim Amendment(s)

Independent claims 1, 7, 15 and 17 have been amended to recite a "graphics card" instead of a "graphics processing device." Support for this amendment may be found, for example, in paragraphs [0033] and [0002] of U.S. Patent Publication No. 2011/0316865 (hereinafter "Published Application"). Other amendments including amendments to dependent claims have been made merely for clarity and consistency purposes. No new matter has been added.

Claim Rejection(s)

Rejection(s) under 35 U.S.C. 103

Claims 1-4, 6-12, 14 and 17-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra in view of Gelf. To the extent that this rejection may still apply to the amended claims, this rejection is respectfully traversed.

As discussed above, amended independent claims 1, 7, 15 and 17 now recite a "graphics card" instead of a "graphics processing device"; "Graphics card" is an industry term utilized to denote video adapters or graphics/video cards including GPUs. The "graphics card" provides for auxiliary processing capability and may include a display processing pipeline of a data processing device therein. "Graphics card," by itself, connotes a high level of processing capability. The processing module of Sahdra is merely implemented in a dongle. Nowhere does Sahdra or Gelf, whether considered separately or in combination, show or suggest that the processing module may be implemented as a graphics card. Even though paragraph [0029] of Sahdra shows some example alternate implementations, a graphics card implementation is non-obvious because one would use a graphics card only through an expansion slot in a motherboard (including, say, PCIe slots) of a computing/data processing device. A USB based graphics card is completely non-obvious.

In view of the above, amended independent claims 1, 7, 15 and 17 are patentable over Sahdra and Gelf, whether considered separately or in combination. Claims 2-4, 6, 8-12, 14 and 18-19, directly or indirectly dependent on amended independent claims 1, 7, 15 and 17, are also

patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 5, 13 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra and Gelf in view of Sherman. Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra and Gelf in view of Smith. Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra, Gelf and Smith in view of Nugent. The additional references fail to supply that which Sahdra and/or Gelf lack with regard to amended independent claims 1, 7, 15 and 17. Thus, Sahdra, Gelf and/or one or more of the additional references do not show or suggest all of the limitations of amended independent claims 1, 7, 15 and 17. Amended independent claims 1, 7, 15 and 17 are, therefore, patentable over Sahdra, Gelf and/or the one or more of the additional references. Claims 5, 13, 20 and 16, directly or indirectly dependent on amended independent claims 1, 7, 15 and 17, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicant respectfully submits that the Claims are in condition for allowance and notification to that effect is requested. If any additional fees are due for this submission, the fees may be charged to Deposit Account number 505934. The Examiner is invited to telephone the attorney of the Applicant at 650-965-8731 to facilitate prosecution of this application.

Respectfully submitted,

nVIDIA Corporation

By their Representatives,
Raj Abhyanker P.C.
Customer No. 102288
Ph.: 650-965-8731

Date: November 8, 2013

By: /Raj Abhyanker/
Raj Abhyanker
Reg. No. 45,474

Electronic Acknowledgement Receipt

EFS ID:	17360049
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	102288
Filer:	Raj Vasant Abhyanker/Seema Taile
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	08-NOV-2013
Filing Date:	28-JUN-2010
Time Stamp:	23:59:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	RTNFOA_00108_00020US1.pdf	68555 06a1ae021685aa404490d58561bcb56200d94aaa	no	12

Warnings:	
Information:	

Total Files Size (in bytes):	68555

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/824,423	Filing Date 06/28/2010	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	11/08/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/MINNIE JACKSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1	9884

102288 7590 08/08/2013

Raj Abhyanker, P.C.
1580 W. El Camino Real, Suite 8
Mountain View, CA 94040

EXAMINER	
RABURN, GREG A	

ART UNIT	PAPER NUMBER
2678	

NOTIFICATION DATE	DELIVERY MODE
08/08/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@rajpatent.com

Office Action Summary	Application No. 12/824,423	Applicant(s) SOMA, SRINIVAS	
	Examiner GREG RABURN	Art Unit 2678	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 4/16/2013 and 7/10/2013 have been entered.

Response to Applicant's Remarks

35 U.S.C. §103

2. **Claims 1-4, 6-12, 14, and 17-19 were rejected under 35 U.S.C. 103(a)** as being unpatentable over Sahdra et al., U.S. Patent Publication 2009/0141894 (filed Dec. 4, 2007) (*Sahdra*) in view of Gelf et al., U.S. U.S. Patent Publication 2009/0144456 (filed Nov. 29, 2008) (*Gelf*) in the final Office Action mailed 4/10/2013. **Claim 15 was rejected under 35 U.S.C. 103(a)** as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Smith, U.S. Patent Publication 2006/0171689 (filed Mar. 8, 2006) (*Smith*). Applicant has amended independent claim 1 to read that the graphics processor of the portable graphics processing device is configured "to perform a process intensive task," which Applicant asserts is not shown by the cited prior art references. Claims 7, 15, and 17 are similarly amended.

3. Claims must be given their broadest reasonable interpretation in light of the specification. See MPEP § 2111. The term, "process intensive task," is undefined in the specification and is reasonably interpreted to include processing by encoding, transrating, transcaling, or transcoding

video signals, and *Sahdra*, in ¶¶0028-29, discloses that its invention can be implemented with one or more of a "microprocessor, co-processors, a micro-controller, digital signal processor, microcomputer, central processing unit, field programmable gate array, programmable logic device, state machine, logic circuitry, analog circuitry, digital circuitry, and/or any device that manipulates signals (analog and/or digital) based on operational instructions that are stored in a memory," and performs encoding, transrating, transcaling, transcoding, encryption, and decryption of video signals to produce a processed video signal. Therefore, *Sahdra* teaches performing a process intensive task.

4. Claim 1 has been further amended to recite, "wherein the portable graphics processing device is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device," which Applicant asserts is not shown by the cited prior art references. Claims 7, 15, and 17 are similarly amended.

5. Claims must be given their broadest reasonable interpretation in light of the specification. See MPEP § 2111. *Gelf*, in ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (*i.e.*, upgrading and replacing without the need to replace the entire device), such as storage, security, communication, input, or output, and may operate as a single device. Therefore, *Gelf* teaches wherein the portable graphics processing device is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device.

6. Therefore, *Sahdra* in view of *Gelf* still renders the amended limitations of the independent claims obvious.

Claim Rejections - 35 USC § 103

7. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claims 1-4, 6-12, 14, and 17-19 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*.**

10. **Regarding independent claim 1**, *Sahdra* teaches a portable graphics processing device of a data processing device, comprising:

a. a graphics processor (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-*

computer, or central processing unit; interpreted as a reasonable analog to a graphics processor);

b. a Universal Serial Bus (USB) interface communicatively coupled with the graphics processor (*see Sahdra, ¶0022, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor)*), the USB interface being configured to transfer a graphics instruction from the data processing device to the graphics processor (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated from the data processing device)*), the data processing device being external to the portable graphics processing device (*see Sahdra, ¶¶0021-22, figs.1-2, the USB device (portable graphics processing device) being coupled (external) to the host (data processing) device*), the graphics processor being configured to:

i. process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics processing device (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing that the command (graphics instruction) is processed by the USB device (graphics processor)to provide additional graphics processing functionality, such as encoding, transrating, transcaling, transcoding, encryption, and decryption (process intensive tasks; see also Response to Applicant's Remarks), on behalf of the host device (data processing device)*), and transfer a result of processing the graphics instruction to the data processing device using the USB interface (*see Sahdra,*

¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (data processing device) via the USB interface).

11. *Sahdra* is understood to be silent on the remaining limitations recited in claim 1. However, *Gelf* teaches:

a. a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery*); and

b. the battery being configured to at least partially power the graphics processor to process the graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing that the removable, rechargeable battery 1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data*):

i. wherein the portable graphics processing device is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*).

12. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a modular design with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily

see the benefits of having a modular design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable USB video device with a self-contained, rechargeable, replaceable power source, yielding multifunction USB video device which needs not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

13. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

14. **Regarding claim 2**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

15. *Sahdra* is understood to be silent on the limitation, “wherein the USB interface utilizes a USB 3.0 protocol” as recited in claim 2. However, *Gelf* teaches wherein the USB interface utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

16. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary

skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

17. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

18. **Regarding claim 3**, *Sahdra* in view of *Gelf* teaches the device of claim 1. *Sahdra* further teaches wherein the graphics instruction is associated with a graphics application executing on the data processing device (*see Sahdra, ¶¶0037, 0052, disclosing software applications running on the host device (data processing device) that operate in conjunction with the processing module*).

19. **Regarding claim 4**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

20. *Sahdra* is understood to be silent on the limitation, "wherein the battery is rechargeable" as recited in claim 3. However, *Gelf* teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

21. The motivation for combining *Gelf* with *Sahdra* for claim 4 is the same as described above in claim 1.

22. **Regarding claim 6**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

23. *Sahdra* is understood to be silent on the limitation, "wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable" as recited in claim 6. However, *Gelf* teaches wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and field replaceable)*).

24. The motivation for combining *Gelf* with *Sahdra* for claim 6 is the same as described above in claim 1.

25. **Regarding independent claim 7**, *Sahdra* teaches a data processing system comprising:

a. a data processing device (*see Sahdra, ¶0022, figs.1, 10, disclosing a USB interface between a host device (data processing device) and a USB device containing a processor module*);

b. a portable external graphics processing device including a graphics processor (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*)… the portable external graphics processing device being external to the data processing device (*see Sahdra, ¶¶0021-22, figs.1-2, the USB device (portable graphics processing device) being coupled (external) to the host (data processing) device*);

c. a USB module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device (*see Sahdra,*

¶0022, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor)), the USB module being configured to transfer an instruction originating from the data processing device to the graphics processor (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated from the data processing device)*), and the graphics processor being configured to:

i. process the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics processing device (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing that the command (graphics instruction) is processed by the USB device (graphics processor)to provide additional graphics processing functionality, such as encoding, transrating, transcaling, transcoding, encryption, and decryption (process intensive tasks; see also Response to Applicant's Remarks), on behalf of the host device (data processing device)*), and transfer a result of the processed instruction to the data processing device using the USB module (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (data processing device) via the USB interface*).

26. *Sahdra* is understood to be silent on the remaining limitations recited in claim 7. However, *Gelf* teaches:

a. a battery configured to provide power to the graphics processor (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing that the removable, rechargeable battery*

1145 powers (at least partially) the USB device (graphics processor) processing the graphics instructions; the power module being connected to the processor module 415 that receives and processes data); and

b. the portable graphics processing device being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*).

27. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a modular design with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a modular design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable USB video device with a self-contained, rechargeable, replaceable power source, yielding multifunction USB video device which needs not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an

external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices. \

28. **Regarding claim 8**, *Sahdra* in view of *Gelf* teaches the system of claim 7. *Sahdra* further teaches wherein the portable external graphics processing device is configured to provide auxiliary graphics processing for the data processing device (*see Sahdra, ¶¶0027, 0029, disclosing that the USB device (portable external graphics processing device), which includes a processing module (graphics processor) receives video signals for further processing (auxiliary graphics processing) when coupled to the host device (data processing device)*).

29. The motivation for combining *Gelf* with *Sahdra* for claim 8 is the same as described above in claim 7.

30. **Regarding claim 9**, *Sahdra* in view of *Gelf* teaches the system of claim 7. *Sahdra* further teaches wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device (*see Sahdra, ¶0052, disclosing that the device can be implemented with Microsoft Media Center Edition 2005 (graphics application executing on the data processing device)*).

31. **Regarding claim 10**, *Sahdra* in view of *Gelf* teaches the system of claim 7. *Sahdra* further teaches wherein the battery is configured to at least partially power the processor to process the instruction (*see Sahdra, ¶0046, figs.1, 7, 8 11, disclosing generating a processed video signal, and receiving a power signal to power modules of the video device (at least partially powering the processor to process the instruction)*).

32. **Regarding claim 11**, *Sahdra* in view of *Gelf* teaches the system of claim 7.

33. *Sahdra* is understood to be silent on the limitation, "wherein the battery is user-detachable from the portable external graphics processing device and user-attachable with the portable external graphics processing device", as recited in claim 11. However, *Gelf* teaches wherein the battery is user-detachable from the portable external graphics processing device and user-attachable with the portable external graphics processing device (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and user-attachable) from the interface device (portable external graphics processing device)*).

34. The motivation for combining *Gelf* with *Sahdra* for claim 11 is the same as described above in claim 7.

35. **Regarding claim 12**, *Sahdra* in view of *Gelf* teaches the system of claim 7.

36. *Sahdra* is understood to be silent on the limitation, "wherein the battery is rechargeable" as recited in claim 12. However, *Gelf* teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

37. The motivation for combining *Gelf* with *Sahdra* for claim 12 is the same as described above in claim 7.

38. **Regarding claim 14**, *Sahdra* in view of *Gelf* teaches the system of claim 7.

39. *Sahdra* is understood to be silent on the limitation, "wherein the USB module utilizes a USB 3.0 protocol" as recited in claim 14. However, *Gelf* teaches wherein the USB module utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

40. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary

skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

41. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

42. **Regarding independent claim 17**, *Sahdra* teaches a method comprising:

a. indicating to a data processing device, utilizing a Universal Serial Bus (USB) protocol, that the portable graphics processing device is active (*see Sahdra, ¶0022, fig.1, disclosing that when the USB dongle device is coupled to the host device it processes video signals received from the host device; the host device is inherently aware that the USB dongle device is available to process the video signals*), the portable graphics processing device being portable by a user and external to the data processing device (*see Sahdra, ¶¶0021-22, figs.1-2, the USB device (portable graphics processing device) being coupled (external) to the host (data processing) device*);

b. acquiring, utilizing the USB protocol, a graphics instruction from the portable data processing device (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated from*

the data processing device)), based at least in part on the indicating that the portable graphics processing device is active (*see Sahdra, in order for the command (graphics instruction) to be processed, it is inherently based at least in part on the USB device being active*);

c. processing the acquired graphics instruction using a graphics processor on behalf of the data processing device within the portable graphics processing device to perform a process intensive task through the portable graphics processing device (*see Sahdra, ¶¶0022, 0028-29, 0054, figs.1, 10, disclosing that the command (graphics instruction) is processed by the USB device (graphics processor)to provide additional graphics processing functionality, such as encoding, transrating, transcaling, transcoding, encryption, and decryption (process intensive tasks; see also Response to Applicant's Remarks), on behalf of the host device (data processing device)*); and

d. transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (data processing device) via the USB interface*).

43. *Sahdra* is understood to be silent on the remaining limitations recited in claim 7. However, *Gelf* teaches:

a. implementing a portable graphics processing device with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is*

modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device);

b. providing a rechargeable battery within the portable graphics processing device (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion (within) of the USB device, the power module being connected to the processor module 415 (graphics processing device) that receives and processes data*); and

c. using energy supplied by the rechargeable battery to process the acquired graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion of the USB device, the power module being connected to (i.e., uses the energy supplied by the rechargeable battery) the processor module 415 (graphics processing device) that receives and processes data (i.e., according to the acquired graphics instruction)*).

44. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a modular design with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a modular design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-extendable USB video device with a self-contained, rechargeable, replaceable power source, yielding multifunction USB video device which needs not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of

ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

45. **Regarding claim 18**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

46. *Sahdra* is understood to be silent on the limitation, "wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol" as recited in claim 18. However, *Gelf* teaches wherein the USB protocol can be a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

47. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

48. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of

Sahdra to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

49. **Regarding claim 19**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

50. *Sahdra* is understood to be silent on the limitation, "storing the energy in the rechargeable battery prior to the supplying of the energy" as recited in claim 19. However, *Gelf* teaches storing the energy in the rechargeable battery prior to the supplying of the energy (*see Gelf, ¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data, and the battery capable of being recharged (storing energy) by power control 315 prior to the supplying of energy*).

51. The motivation for combining *Gelf* with *Sahdra* for claim 19 is the same as described above in claim 17.

52. **Claims 5, 13, and 20 rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Sherman, U.S. Patent No. 6,507,172 (filed Mar. 19, 2001) (*Sherman*).**

53. **Regarding claim 5**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

54. *Sahdra* is understood to be silent on the on the limitation, "wherein the battery is a lithium ion battery" as recited in claim 5. However, *Sherman* teaches wherein the battery is a lithium ion battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

55. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

56. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

57. **Regarding claim 13**, *Sahdra* in view of *Gelf* teaches the system of claim 7.

58. *Sahdra* is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery" as recited in claim 13. However, *Sherman* teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

59. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery

of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

60. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

61. **Regarding claim 20**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

62. *Sahdra* is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery" as recited in claim 20. However, *Sherman* teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

63. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above,

in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

64. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

65. **Claim 15 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of *Smith*.**

66. **Regarding independent claim 15**, *Sahdra* teaches a graphics processing system comprising:

a. a data processing device (*see Sahdra, ¶0021, fig.2, disclosing a video processing system including a personal computer (data processing device)*) comprising:

i. one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*), a memory coupled with the one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*), a video display device configured to display graphical data generated by the one or more system processors (*see Sahdra, ¶0027, disclosing a display screen or monitor associated with the system*), a first USB interface coupled with the one or more system processors (*see Sahdra, ¶0022, the USB (first USB interface) dongle device is coupled to the host device (computer system including one or more system processors)*), and an audio device configured to

generate audio data generated by the one or more system processors (*see Sahdra, ¶¶0024, 0041, 0062, disclosing that video signal being processed by the device may or may not include audio signals*); and

b. a portable graphics processing device external to the data processing device and communicatively coupled with the data processing device (*see Sahdra, ¶¶0021-22, figs.1-2, disclosing a USB device (portable graphics processing device) being (communicatively) coupled (external) to the host (data processing) device*)… the portable graphics processing device including:

ii. one or more graphics processors (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*)…

iii. a… USB interface communicatively coupled with the one or more graphics processors (*see Sahdra, ¶0022, disclosing the dongle device (containing one or more graphics processors) coupled (communicatively) to the host device through the USB interface*)…

iv. the… USB interface being configured to receive a graphics instruction that is encoded by a… communication protocol from the data processing device via the USB cable and to provide the graphics instruction for the one or more graphics processors (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction via the USB*

communication protocol) from the host device (originated by the computer system)),

v. the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics processing device and to transfer a result of the processed graphics instruction to the data processing device using the… USB interface *see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (computer system) via the USB interface*).

67. *Sahdra* is understood to be silent on the limitation, "a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction," as recited in claim 15. However, *Gelf* teaches a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable (removably coupled and field replaceable), rechargeable battery 1145 for powering the device (i.e., the USB device processing the graphics instructions), the power module being connected to the processor module 415 that receives and processes data*).

68. *Sahdra* is understood to be silent on the limitation, "a USB 3.0 communication protocol," as recited in claim 15. However, *Gelf* teaches a USB 3.0 communication protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

69. Although *Sahdra*, at *¶¶0024, 0041, and 0062*, discloses that a video signal being processed by the USB device may or may not include audio signals, *Sahdra* does not expressly teach having a separate first USB interface and second USB interface as recited in claim 15, as recited in claim 15. However, *Gelf* teaches a first and second USB interface (*see Gelf, ¶¶0004, 0006, disclosing a USB device having a first communication port and a second communication port (first and second USB interfaces)*).

a. and the portable graphics processing device being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device (*see Gelf, ¶¶0003, 0050-55 and figs.5 and 7, discloses that the USB interface device is modular and may be extended to mix and match modules with other features (i.e., upgrading and replacing without the need to entirely replace the device), such as storage, security, communication, input, or output, and may operate as a single device*).

70. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a modular design with a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a modular design and a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having an easily-

extendable USB video device with a self-contained, rechargeable, replaceable power source, yielding multifunction USB video device which needs not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

71. Although *Sahdra* discloses a USB dongle (defined as a "small module that plugs in and sticks out of a socket" which may or may not have "a short cable" (*see http://encyclopedia2.thefreedictionary.com/dongle*)) device, *Sahdra* does not expressly teach, "using a USB cable" and "configured to communicatively couple the first USB interface with the second USB interface using the USB cable," as recited in claim 15. However, *Smith* teaches using a USB cable and configured to communicatively couple the first USB interface with the second USB interface using the USB cable (*see Smith, ¶0041, discloses an external audio device coupled to a host computer by a USB cable, and an external video capture device (graphics processor) also coupled to the host computer by USB cable (communicatively coupled via the computer system)*).

72. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of connecting external video and audio cards to a host computer with USB cables, as proposed by *Smith*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having an audio device in communication with a video device

via USB cables, which would produce the well-known, predictable and expected results and benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal (see Smith, *¶0006)*. The artisan of ordinary skill would have been motivated to combine *Smith* with *Sahdra*, as proposed above at least because both *Sahdra* and *Smith* are similarly drawn to external video devices.

73. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the connecting of external video and audio cards to a host computer with USB cables of *Smith* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal.

74. **Claim 16 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of *Smith*, and further in view of Nugent et al., U.S. Patent Publication 2012/0162235 (filed Oct. 13, 2008) (*Nugent*).**

75. **Regarding claim 16**, *Sahdra* in view of *Gelf*, and further in view of *Smith* teaches the system of claim 15.

76. *Sahdra* is understood to be silent on the limitation, "wherein the one or more graphics processors include at least one multi−core processor" as recited in claim 16. However, *Nugent* teaches wherein the one or more graphics processors include at least one multi−core processor (*see Nugent, ¶0019, discloses that the processor of an external graphics-processing device may include one or more cores of a multi-core processing unit*).

77. The artisan having ordinary skill, starting with the processing module of *Sahdra*, would have appreciated the benefits of the multi-core graphics-processing unit, as proposed by *Nugent*.

The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known the processing module disclosed in *Sahdra* for the known the multi-core graphics-processing unit of *Nugent*, which would produce the predictable results of increasing the speed of graphics processing over the speed of the known the processing module. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Nugent*, as proposed above, in order to provide high-performance graphics while reducing the power drawn by the internal GPU (see *Nugent, ¶¶0002, 0004*).

78. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the processing module of *Sahdra* for the multi-core graphics processing unit of *Nugent* to achieve the predictable result of increasing the speed of graphics processing.

Conclusion

79. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Cyman et al., U.S. Patent No. 5,949,438 (filed Dec. 23, 1997), col.11 ll.42-54, relevant to independent claims 1, 7, 15, and 17;

b. Gorchetchnikov et al., U.S. Patent Publication 2008/0117220 (filed Sep. 24, 1997), ¶¶0023, 0027, relevant to independent claims 1, 7, 15, and 17; and

c. White, *NVIDIA Announces Quadro Plex, Monster Graphics for Pros*, HTTP://GIZMODO.COM/191187/NVIDIA-ANNOUNCES-QUADRO-PLEX-MONSTER-GRAPHICS-FOR-PROS, Gawker Media (Aug. 1, 2006), relevant to independent claims 1, 7, 15, and 17.

80. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG RABURN whose telephone number is (571)270-1936. The examiner can normally be reached on M-F 8:00-5:00.

81. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571)272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

82. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. If you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GREG RABURN/

Examiner, Art Unit 2678

/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2678

Notice of References Cited	Application/Control No. 12/824,423	Applicant(s)/Patent Under Reexamination SOMA, SRINIVAS	
	Examiner GREG RABURN	Art Unit 2678	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,949,438 A	09-1999	Cyman et al.	345/502
*	B	US-2008/0117220 A1	05-2008	Gorchetchnikov et al.	345/503
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	White, NVIDIA Announces Quadro Plex, Monster Graphics for Pros, HTTP://GIZMODO.COM/191187/NVIDIA-ANNOUNCES-QUADRO-PLEX-MONSTER-GRAPHICS-FOR-PROS, Gawker Media (Aug. 1, 2006)
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	GREG RABURN	2678

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/02/2012	04/01/2013	07/30/2013						
	1	✓	✓	✓						
	2	✓	✓	✓						
	3	✓	✓	✓						
	4	✓	✓	✓						
	5	✓	✓	✓						
	6	✓	✓	✓						
	7	✓	✓	✓						
	8	✓	✓	✓						
	9	✓	✓	✓						
	10	✓	✓	✓						
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	14	✓	✓	✓						
	15	✓	✓	✓						
	16	✓	✓	✓						
	17	✓	✓	✓						
	18	✓	✓	✓						
	19	✓	✓	✓						
	20	✓	✓	✓						

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
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CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST text search of PGPUB, PAT with terms GPU, battery, rechargeable, lithium, USB 3.0, external, cable, multi-core, processor	11/2/2012	/G.R./
PLUS search	11/2/2012	/G.R./
Double-patenting search	11/2/2012	/G.R./
Google/Google Patents Search	11/2/2012	/G.R./
Search of foreign EPO, JPO, DERWENT databases	11/2/2012	/G.R./
Updated EAST text search	4/1/2013	/G.R./
Updated EAST text search	7/30/2013	/G.R./
Updated Google Patents search	7/30/2013	/G.R./

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/G.R./ Examiner.Art Unit 2678	

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	1	(soma near2 srinivas).in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:44
S3	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/01 09:45
S4	0	S2 not S3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:45
S5	747	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/01 09:46
S6	689	S5 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:47
S7	1	("20110316865").PN.	DERWENT	OR	OFF	2012/10/01 12:02
S8	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:12
S9	977904	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/10/26 20:16
S10	38836	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/10/26 20:19

		light light$1weight (light adj weight))	DERWENT			
S11	11921	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:24
S12	1184	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S13	306	S10 and S11 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S14	4	S13 and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S15	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/26 20:27
S16	692	S15 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:27
S18	208	S13 and S9	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:28
S19	898	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S20	38893	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S21	11939	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S22	1185	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S23	306	S20 and S21 and S22	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53

S24	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:53
S25	692	S24 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S26	5	S23 and S25	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S27	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:58
S28	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S29	4	S23 and S28	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S30	0	(S19 and (S26 S29)) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S31	978671	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:59
S32	208	S23 and S31	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:59
S33	11	(S19 and S32) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:59
S34	745	(startech iogear aten).as.	US-	OR	ON	2012/10/31

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S35	1	S19 and S34	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:10
S36	276	S19 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:11
S37	7	(S36 and S25) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:11
S40	70	(S36 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:25
S42	7	S40 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:26
S43	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:28
S44	63	S40 not S42	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:30
S45	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:49
S46	42	S45 not (S43 S44 S42 S40 S37)	US-PGPUB;	OR	ON	2012/10/31 10:50

			USPAT; EPO; JPO; DERWENT			
S47	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" | "7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:56
S48	53	S47 not (S43 S44 S42 S40 S37 S45)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:57
S49	231	("20010029556" | "20020015055" | "20020059302" | "20020085007" | "20020118308" | "20020145612" | "20020180740" | "20020196259" | "20030020720" | "20030034975" | "20030038808" | "20030080959" | "20030103054" | "20030112245" | "20030112246" | "20030117971" | "20030128197" | "20030151606" | "20030164832" | "20030164834" | "20030171907" | "20030179220" | "20030188075" | "20030189565" | "20030212735" | "20040012600" | "20040036159" | "20040153778" | "20040169651" | "20040179019" | "20040196289" | "20040207618" | "20040210788" | "20040223003" | "20050041031" | "20050081115" | "20050122330" | "20050162437" | "20050166207" | "20050190189" | "20050190190" | "20050195186" | "20050195187" | "20050206646" | "20050223124" | "20050225558" | "20050237327" | "20050237329" | "20050243096" | "20050243215" | "20050259103" | "20050265064" | "20050275760" | "20060005178" | "20060028478" | "20060055695" | "20060059494" | "20060101218" | "20060114260" | "20060119607" | "20060120376" | "20060123142" | "20060156399" | "20060202941" | "20060208960" | "20060221086" | "20060221087" | "20060225061" | "20060248241" | "20060267987" | "20060268005" | "20060271713" | "20060274073" | "20060282604" | "20060290700" | "20070159488" | "20070195099" | "20080007559" | "20080143731" | "5475856" | "5535410" | "5687357" | "5740464" | "5745762" | "5754866" | "5757385" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 11:00

		"5758182" | "5794016" | "5841444" | "5909595" | "6118462" | "6169553" | "6181352" | "6184908" | "6188412" | "6191800" | "6201545" | "6212261").PN. OR ("6212617" | "6259460" | "6288418" | "6292200" | "6333744" | "6337686" | "6352479" | "6362825" | "6415345" | "6442656" | "6462737" | "6473086" | "6473089" | "6477687" | "6492987" | "6496187" | "6496404" | "6502173" | "6529198" | "6532013" | "6532525" | "6535209" | "6542971" | "6557065" | "6577309" | "6577320" | "6578068" | "6593923" | "6633296" | "6636212" | "6636215" | "6646639" | "6650330" | "6650331" | "6657635" | "6662257" | "6664960" | "6664963" | "6670958" | "6677953" | "6683614" | "6690372" | "6691180" | "6700583" | "6704025" | "6724394" | "6725457" | "6728820" | "6731298" | "6734861" | "6734874" | "6741243" | "6744433" | "6753878" | "6774895" | "6778176" | "6778177" | "6778181" | "6778189" | "6779069" | "6789154" | "6797998" | "6801202" | "6812927" | "6825843" | "6828980" | "6828987" | "6831652" | "6842180" | "6844879" | "6856320" | "6864893" | "6864984" | "6870540" | "6876362" | "6885376" | "6894687" | "6894689" | "6900810" | "6938176" | "6940515" | "6947047" | "6947865" | "6952206" | "6956579" | "6959110" | "6961057" | "6975319" | "6980209" | "6982718" | "6985152" | "6989840" | "6992667" | "6995767" | "6999076" | "7002588" | "7015915" | "7023437" | "7027972" | "7038678" | "7038685" | "7038692" | "7051139" | "7053901" | "7064763" | "7068272" | "7068278" | "7075541" | "7080194" | "7081895" | "7091971" | "7095414" | "7098922" | "7119808" | "7120816" | "7123266" | "7129909" | "7130316" | "7142215" | "7145565" | "7170513" | "7170515" | "7224359" | "7248261" | "7289125").PN. OR ("7324111" | "7324547" | "7325086" | "7372465" | "7388581" | "7477256" | "7525547" | "7598958").PN. OR ("7796129").URPN.				
S50	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/10/31 11:02
S51	1	S50 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:02

S53	283	(usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:31
S56	282	((usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:33
S57	144	S56 and power	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:34
S58	37	S56 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:34
S60	44	S56 and "3."$1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:35
S62	10	S56 and recharg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:36
S63	0	S57 and S58 and S60 and S62	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:36
S64	10	(S57 and S60 and S62) (S57 and S58 and S62) (S57 and S58 and S60)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:37
S65	40	((S60 and S62) (S57 and S62) (S57 and S60) (S58 and S62) (S57 and S58) (S58 and S60)) not S64	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:40
S66	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/31 11:46
S67	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:26
S68	76	S67 and (((battery$1power$3 (battery adj power$3)) near2 (usb (universal adj serial adj bus))) near40 (device unit))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:27
S69	20	(S68 and (usb external video graphics	US-	OR	ON	2012/10/31

		process$3 gpu).ti.) not S27	PGPUB; USPAT; EPO; JPO; DERWENT			12:27
S70	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 12:31
S72	99	(S67 and (((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same recharg$5)) not (S70 S69)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:39
S73	0	S72 and "USB 3.0"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:44
S74	0	S72 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:45
S75	4	S67 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:45
S76	0	("2011/0022826").URPN.	USPAT	OR	ON	2012/10/31 12:50
S78	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S75	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:52
S79	7	S78 and $2charg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:53
S80	0	("2011/0307724").URPN.	USPAT	OR	ON	2012/10/31 13:36
S81	44702	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 13:38
S84	243	S81 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 13:54
S85	29	S84 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT;	OR	ON	2012/10/31 13:54

			EPO; JPO; DERWENT			
S86	20	S85 and $2charg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 14:02
S87	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/10/31 16:38
S88	2	S87 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 16:40
S89	18	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$ or US-20050108763-$ or US-20060147185-$ or US-20040143686-$ or US-20110307724-$ or US-20090144456-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$ or US-7624202-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 10:27
S91	0	S89 and (lithium li$2on (li adj ion))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:28
S92	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:28
S94	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:29
S95	2	(S92 and battery near40 (lithium li$2on (li adj ion))) not S94	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:29
S96	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT;	OR	ON	2012/11/01 10:32

			EPO; JPO; DERWENT			
S97	39001	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S98	11978	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S99	1189	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S100	306	S97 and S98 and S99	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S101	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S102	692	S101 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S103	5	S100 and S102	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S104	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S105	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S106	208	S100 and S105	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S107	11	(S96 and S106) not S104	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S108	277	S96 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S109	7	(S108 and S102) not S104	US-PGPUB;	OR	ON	2012/11/01 10:32

			USPAT; EPO; JPO; DERWENT			
S110	70	(S108 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S104	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S111	7	S110 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S112	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S113	63	S110 not S111	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S114	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S115	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" | "7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S116	53	S115 not (S112 S113 S111 S110 S109 S114)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32

S117	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 10:32
S118	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S119	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S120	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S121	4	S119 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S122	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S121	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S123	44812	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S124	244	S123 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S125	29	S124 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S126	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/11/01 10:32
S127	2	S126 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S129	8	(((S127 S125 S122 S120 S118 S117 S116 S109 S107 S103) and battery near40 (lithium li$2on (li adj ion))) not	US-PGPUB; USPAT;	OR	ON	2012/11/01 10:38

		S94) and @ad<"20100628."	EPO; JPO; DERWENT			
S130	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S131	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S132	39001	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S133	11978	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S134	1189	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S135	306	S132 and S133 and S134	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S136	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S137	692	S136 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S138	5	S135 and S137	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S139	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S140	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S141	208	S135 and S140	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S142	11	(S131 and S141) not S139	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/11/01 11:39

			DERWENT			
S143	277	S131 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S144	7	(S143 and S137) not S139	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S145	70	(S143 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S139	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S146	7	S145 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S147	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S148	63	S145 not S146	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S149	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S150	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39

		"7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.				
S151	53	S150 not (S147 S148 S146 S145 S144 S149)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S152	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 11:39
S153	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S154	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S155	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S156	4	S154 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S157	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S156	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S158	44812	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S159	244	S158 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S160	29	S159 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S161	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/11/01 11:39

S162	2	S161 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S163	8	(((S162 S160 S157 S155 S153 S152 S151 S144 S142 S138) and battery near40 (lithium li$2on (li adj ion))) not S130) and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S164	37	(usb adj2 cable) and ((multi$1core (multi adj core)) adj2 process$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:18
S165	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 15:19
S167	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 15:23
S168	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:23
S169	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 15:23
S170	10	(S164 and (S168 S169)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:23
S172	386	((multi$1core (multi adj core)) adj2 process$3) near40 (gpu (graphic$1 adj process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:39
S173	111	S172 and (usb (universal adj serial adj bus$3))	US-PGPUB;	OR	ON	2012/11/01 15:48

			USPAT; EPO; JPO; DERWENT			
S174	49	(S173 and (S168 S169)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:53
S175	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:11
S177	3	(S172 and S175) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:12
S178	0	S177 and (usb (universal adj serial adj bus$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:13
S179	24	(S175 and (usb adj2 cable)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:17
S181	4	S179 and ((usb adj2 cable) same audio same video)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:20
S182	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/03/22 17:13
S183	1	(US-6507172-$).did.	USPAT	OR	ON	2013/03/22 17:21
S184	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S185	1	(US-20090144456-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S186	1	(US-20100091025-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S187	1	(US-20060171689-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S188	1	S184 and ((graphic video) near40 ((processing adj (module device)) "230"))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/03/22 17:23
S189	1	S184 and ((graphic) near40 (process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/03/22 18:06
S190	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/04/01 17:28

S191	1	S190 and (application program software)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 17:28
S192	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/04/01 18:50
S193	303	((usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.) not S192	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S194	157	S193 and power	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S195	38	S193 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S196	47	S193 and "3."$1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S197	10	S193 and recharg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S198	10	(S194 and S196 and S197) (S194 and S195 and S197) (S194 and S195 and S196)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S199	42	((S196 and S197) (S194 and S197) (S194 and S196) (S195 and S197) (S194 and S195) (S195 and S196)) not S198	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S200	2913	((graphic adj processor) gpu (graphic adj process$3 adj unit)) with (intensive rigorous exhaustive demanding extensive complex involved complicated intricate difficult)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:34
S201	3	((graphic adj processor) gpu (graphic adj process$3 adj unit)) same ((modular) with (upgrad$3 replac$5 arrang$4 rearrang$4 relocat$3 substitut$4 swap$4 interchang$6 chang$6 exchang$6))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:39
S202	3230	((graphic adj processor) gpu (graphic adj process$3 adj unit)) with ((modular upgrad$3 replac$5 arrang$4 rearrang$4 relocat$3 substitut$4 swap$4 interchang$6 chang$6	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:41

		exchang$6))				
S203	754	S200 and S202	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:42
S204	21	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$ or US-20050108763-$ or US-20060147185-$ or US-20040143686-$ or US-20110307724-$ or US-20090144456-$ or US-20100086111-$ or US-20100091025-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$ or US-7624202-$ or US-6507172-$).did.	US-PGPUB; USPAT	OR	ON	2013/07/25 15:43
S205	3	S203 and S204	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:44
S206	2	S205 and (task work$4 load)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:46
S207	4642	nvidia.as.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:49
S208	30	S207 and ((gpu (graphic adj process$3))) with (usb (universal adj serial))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:50
S209	590	((external usb) adj2 ((video adj card) gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:53
S212	33672	((235/440) or (24/553) or (345/422) or (345/501) or (345/502) or (345/505) or (345/520) or (345/522) or (345/553) or (345/561) or (358/1.1) or (361/679.32) or (361/679.6) or (361/754) or (361/759) or (361/801) or (375/E7.211) or (382/254) or (70/58) or (710/5) or (710/8) or (711/E12.02) or (712/11) or (712/15) or (712/16)).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2013/07/25 15:58
S214	828	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2013/07/25 15:59
S215	721	S214 and @ad<"20100628."	US-PGPUB;	OR	ON	2013/07/25 15:59

			USPAT; EPO; JPO; DERWENT			
S216	19	S209 and S215	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 15:59
S218	14	((external usb) adj2 ((video adj card) gpu (graphic adj process$3))) near40 (usb (serial adj bus))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:03
S220	1	(US-20080117220-$).did.	US-PGPUB	OR	ON	2013/07/25 16:10
S221	0	S200 and S220	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:10
S222	0	S201 and S220	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:10
S223	1	S202 and S220	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:11
S224	1	("2008/0117220").URPN.	USPAT	OR	ON	2013/07/25 16:12
S225	1	S220 and (large intensive rigorous exhaustive demanding extensive complex involved complicated intricate difficult)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:21
S226	85247	(modular flexible) adj (architecture design construction scheme arrangement structure layout)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:26
S227	22	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$ or US-20050108763-$ or US-20060147185-$ or US-20040143686-$ or US-20110307724-$ or US-20090144456-$ or US-20100086111-$ or US-20100091025-$ or US-20080117220-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$ or US-7624202-$ or US-6507172-$).did.	US-PGPUB; USPAT	OR	ON	2013/07/25 16:26
S228	0	S226 and S227	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2013/07/25 16:27

			DERWENT			
S229	111	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:27
S230	2	S226 and S229	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:27
S231	5	(S226 and S215) not S230	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:29
S232	402	(S226 and S212) not (S230 S231)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:41
S233	230	S232 and modular	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:41
S234	19	S233 and (gpu (graphic adj process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:42
S235	5315	(gpu (graphic adj process$3)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:46
S236	29	S235 and modular	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:46
S237	252	S235 and (upgrad$6 scal$1able scalability expand$1ble extensible extend$1ble)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:53

S238	1630	S235 and (replac$5 substitut$4 swap$5 interchang$6 chang$6 exchang$6)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:54
S239	194	S237 and S238	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:54
S240	119	S239 and replac$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:55
S241	125	S235 and ((upgrad$6 scal$1able scalability expand$1ble extensible extend$1ble) near40 (gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:56
S242	625	S235 and ((replac$5 substitut$4 swap$5 interchang$6 chang$6 exchang$6) near40 (gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:57
S243	75	S241 and S242	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:57
S245	67	(S241 and S242) and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 16:59
S246	0	(S241 S242) and (modular adj architecture)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:07
S247	1	(S235) and (modular adj architecture)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:08
S248	1	(S235) and (modular adj structure)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:08
S249	3	(S235) and (modular adj design)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/25 17:16
S251	1142	((modular) near40 (architecture structure)) same ((replac$5 upgrad$3 switch$3 substitut$3 swap$4 interchang$6) near40 (module))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:08

S252	829	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2013/07/30 13:10
S253	722	S252 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:10
S254	111	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:10
S255	1036617	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2013/07/30 13:10
S256	33791	((235/440) or (24/553) or (345/422) or (345/501) or (345/502) or (345/505) or (345/520) or (345/522) or (345/553) or (345/561) or (358/1.1) or (361/679.32) or (361/679.6) or (361/754) or (361/759) or (361/801) or (375/E7.211) or (382/254) or (70/58) or (710/5) or (710/8) or (711/E12.02) or (712/11) or (712/15) or (712/16)).CCLS.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2013/07/30 13:10
S260	189	(S251 and (S255 S256 S253 S254)) and @ad<"201000628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:12
S261	14	S251 and (S256 S253 S254) and @ad<"201000628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:12
S262	175	(S260 not S261)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:23
S263	0	S262 and (modular same external same (gpu (graphic adj process$3)))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:23

S264	39	S262 and (modular same (external (gpu (graphic adj process$3))))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 13:25
S265	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/07/30 14:15
S266	0	S265 and intensive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 14:15
S267	6	nvidia and "quadro plex"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 15:18
S268	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/07/30 16:18
S269	0	S268 and intensive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 16:18
S270	0	S269 and task	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 16:18
S271	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/07/30 16:32
S272	1	S271 and process$3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 16:32
S274	1	(US-20090144456-$).did.	US-PGPUB	OR	ON	2013/07/30 17:17
S275	1	S274 and replac$6	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 17:17
S277	1	S274 and (replac$5 substitut$4 swap$5 interchang$6 chang$6 exchang$6)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/07/30 17:18
S278	1	(US-5949438-$).did.	USPAT	OR	ON	2013/07/30 17:34

7/ 30/ 2013 10:05:20 PM
C:\ Users\ graburn\ Documents\ EAST\ Workspaces\ 12824423.wsp

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UNITED STATES DEPARTMENT OF COMMERCE
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BIB DATA SHEET

CONFIRMATION NO. 9884

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/824,423	06/28/2010	345	2678	00108.00020US1

APPLICANTS
Srinivas Soma, Hyderabad, INDIA;

** **CONTINUING DATA** **********

** **FOREIGN APPLICATIONS** **********

** **IF REQUIRED, FOREIGN FILING LICENSE GRANTED** ** SMALL ENTITY **
07/08/2010

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /GREG A RABURN/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		INDIA	6	20	4

ADDRESS

Raj Abhyanker, P.C.
1580 W. El Camino Real, Suite 8
Mountain View, CA 94040
UNITED STATES

TITLE

RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

FILING FEE RECEIVED		
572	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	12/824,423	Filing Date	2010-06-28	Docket Number (if applicable)	00108.00020US1	Art Unit	2678
First Named Inventor	Srinivas Soma			Examiner Name	Raburn, Greg A.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☑ Enclosed

- ☐ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☑ Other Amendment and response to an Advisory action mailed on April 26, 2013.

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☑ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 505934

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☉ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Raj Abhyanker/	Date (YYYY-MM-DD)	2013-07-10
Name	Raj Abhyanker	Registration Number	45474

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	12824423
Filing Date:	28-Jun-2010
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Filer:	Raj Vasant Abhyanker/Rubina Anthony
Attorney Docket Number:	00108.00020US1

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for Continued Examination	1801	1	1200	1200
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt

EFS ID:	16283227
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	102288
Filer:	Raj Vasant Abhyanker/Rubina Anthony
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	10-JUL-2013
Filing Date:	28-JUN-2010
Time Stamp:	23:30:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1200
RAM confirmation Number	8004
Deposit Account	505934
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Supplemental Response or Supplemental Amendment	RTAA_00108_00020US1.pdf	63163 4f1ddd1d471ae47dfa4710acfd3d077bd32811e6	no	11
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	RCE_00108_00020US1.pdf	31823 f0ef81097985a6f3fcaf461ef9cb28e872d1d2a6	no	3
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30476 f79f6a9e222a0e2cf5d581459333845c39ade573	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	125462		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

<u>New Applications Under 35 U.S.C. 111</u>
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

S/N 12/824,423 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Srinivas Soma

Examiner: Raburn, Greg A

Serial No.: 12/824,423

Group Art Unit: 2678

Filed: June 28, 2010

Docket No.: 00108.00020US1

Title: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

RESPONSE TO ADVISORY ACTION

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Applicant has reviewed the Advisory Action mailed on April 26, 2013. Please consider the following Amendments and the following Remarks.

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A portable graphics processing device of a data processing device, comprising:

a graphics processor;

a battery; and

a Universal Serial Bus (USB) interface communicatively coupled with the graphics processor,

the USB interface being configured to transfer a graphics instruction from the data processing device to the graphics processor, the data processing device being external to the portable graphics processing device,

the graphics processor being configured to:

process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics processing device, and

transfer a result of processing the graphics instruction to the data processing device using the USB interface, and

the battery being configured to at least partially power the graphics processor to process the graphics instruction,

wherein the portable graphics processing device is implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device.

2. (Original) The graphics processing device of claim 1, wherein the USB interface utilizes a USB 3.0 protocol.

3. (Previously Presented) The graphics processing device of claim 1, wherein the graphics instruction is associated with a graphics application executing on the data processing device.

4. (Original) The graphics processing device of claim 1, wherein the battery is rechargeable.

5. (Previously Presented) The graphics processing device of claim 1, wherein the battery is a lithium ion battery.

6. (Original) The graphics processing device of claim 1, wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable.

7. (Currently Amended) A data processing system comprising:

a data processing device;

a portable external graphics processing device including a graphics processor and a battery configured to provide power to the graphics processor, the portable external graphics processing device being external to the data processing device, and the portable graphics processing device being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device; and

a USB module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device,

the USB module being configured to transfer an instruction originating from the data processing device to the graphics processor, and

the graphics processor being configured to:

process the instruction on behalf of the data processing device to perform a process intensive task through the portable graphics processing device, and

transfer a result of the processed instruction to the data processing device using the USB module.

8. (Previously Presented) The data processing system of claim 7, wherein the portable external graphics processing device is configured to provide auxiliary graphics processing for the data processing device.

9. (Previously Presented) The data processing system of claim 7, wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device.

10. (Previously Presented) The data processing system of claim 7, wherein the battery is configured to at least partially power the processor to process the instruction.

11. (Previously Presented) The data processing system of claim 7, wherein the battery is user-detachable from the portable external graphics processing device and user-attachable with the portable external graphics processing device.

12. (Previously Presented) The data processing system of claim 7, wherein the battery is rechargeable.

13. (Previously Presented) The data processing system of claim 7, wherein the battery is a lithium ion rechargeable battery.

14. (Previously Presented) The data processing system of claim 7, wherein the USB module utilizes a USB 3.0 protocol.

15. (Currently Amended) A graphics processing system comprising:

a data processing device comprising:

one or more system processors,

a memory coupled with the one or more system processors,

a video display device configured to display graphical data generated by the one or more system processors,

a first USB interface coupled with the one or more system processors, and

an audio device configured to generate audio data generated by the one or more system processors; and

a portable graphics processing device external to the data processing device and communicatively coupled with the data processing device using a USB cable, the portable graphics processing device being implemented with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules

thereof without a need to entirely replace the portable graphics processing device, and

the portable graphics processing device including:

one or more graphics processors,

a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction, and

a second USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable,

the second USB interface being configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the data processing device via the USB cable and to provide the graphics instruction for the one or more graphics processors, and

the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device to perform a process intensive task through the portable graphics processing device and to transfer a result of the processed graphics instruction to the data processing device using the second USB interface.

16. (Previously Presented) The graphics processing system of claim 15, wherein the one or more graphics processors include at least one multi-core processor.

17. (Currently Amended) A method comprising:

implementing a portable graphics processing device with a modular architecture to allow for at least one of upgrading and replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device;

indicating to a data processing device, utilizing a Universal Serial Bus (USB) protocol, that [[a]] the portable graphics processing device is active, the portable graphics processing device being portable by a user and external to the data processing device;

acquiring, utilizing the USB protocol, a graphics instruction from the portable data processing device, based at least in part on the indicating that the portable graphics processing device is active;

processing the acquired graphics instruction using a graphics processor on behalf of the data processing device within the portable graphics processing device to perform a process intensive task through the portable graphics processing device;

providing a rechargeable battery within the portable graphics processing device;

using energy supplied by the rechargeable battery to process the acquired graphics instruction; and

transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction.

18. (Original) The method of claim 17, wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol.

19. (Original) The method of claim 17, comprising:

storing the energy in the rechargeable battery prior to the supplying of the energy.

20. (Previously Presented) The method of claim 17, wherein the battery is a lithium ion rechargeable battery.

REMARKS

Please reconsider this Application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this Application.

Disposition of Claims

Claims 1-20 are currently pending in this application. Claims 1, 7, 15 and 17 are independent. The other claims depend, directly or indirectly, on independent claims 1, 7, 15 and 17.

Claim Amendment(s)

Independent claims 1, 7, 15 and 17 have been amended to recite that the portable graphics processing device is implemented with a modular architecture to allow for upgrading and/or replacement of individual functional modules thereof without a need to entirely replace the portable graphics processing device and that the portable graphics processing device processes the graphics instruction to perform a process intensive task therethrough. Support for these amendments may be found, for example, in paragraphs [0002] and [0031]-[0032] of U.S. Patent Publication No. 2011/0316865 (hereinafter "Published Application"). No new matter has been added.

COMMENTS

Applicant respectfully submits that the Examiner's comments in the Continuation Sheet of the Advisory Action dated 04/26/2013 have been attended to. Specifically, the independent claims now clearly recite that ***the portable graphics processing device performs a process intensive task***, and that ***the portable graphics processing device is implemented with a modular architecture to allow for replacement and/or upgrading of functional modules thereof without a need to entirely replace the portable graphics processing device***. None of the prior art references show or suggest at least the aforementioned limitations. Accordingly, claims 1-20 are patentable over the prior art references.

CONCLUSION

Applicant respectfully submits that the Claims are in condition for allowance and notification to that effect is requested. If any additional fees are due for this submission, the fees may be charged to Deposit Account number 505934. The Examiner is invited to telephone the attorney of the Applicant at 650-965-8731 to facilitate prosecution of this application.

Respectfully submitted,

nVIDIA Corporation

By their Representatives,
Raj Abhyanker, P.C.
Customer No. 102288
Ph.: 650-965-8731

Date: July 10, 2013

By: /Raj Abhyanker/
Raj Abhyanker
Reg. No. 45,474

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/824,423	Filing Date 06/28/2010	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **07/10/2013**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/DELEACHES YOUNG/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1	9884

102288 7590 04/26/2013

Raj Abhyanker, P.C.
1580 W. El Camino Real, Suite 8
Mountain View, CA 94040

EXAMINER	
RABURN, GREG A	

ART UNIT	PAPER NUMBER
2678	

NOTIFICATION DATE	DELIVERY MODE
04/26/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@rajpatent.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 12/824,423	**Applicant(s)** SOMA, SRINIVAS
	Examiner GREG RABURN	**Art Unit** 2678

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 16 April 2013 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance;

(2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:

a) ☐ The period for reply expires _____months from the mailing date of the final rejection.

b) ☒ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT'S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☒ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because

a) ☒ They raise new issues that would require further consideration and/or search (see NOTE below);

b) ☐ They raise the issue of new matter (see NOTE below);

c) ☒ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or

d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: *See Continuation Sheet*. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).

5. ☐ Applicant's reply has overcome the following rejection(s): _____.

6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).

7. ☒ For purposes of appeal, the proposed amendment(s): (a) ☒ will not be entered, or (b) ☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).

9. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).

10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.

12. ☐ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____

13. ☐ Other: _____.

STATUS OF CLAIMS

14. The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: .
Claim(s) objected to: .
Claim(s) rejected: .
Claim(s) withdrawn from consideration: .

/XIAO M. WU/ Supervisory Patent Examiner, Art Unit 2678	

Neural AI, LLC, Exhibit 2018
IPR2025-00608, NVIDIA Corporation v. Neural AI, LLC

Continuation of 3. NOTE: The newly amended claims require consideration of the prior art of record and an additional search since they were not presented earlier for examination.

Continuation of 11. does NOT place the application in condition for allowance because: As Examiner understands Applicant's arguments on pages 9-10 of the response filed 4/16/2013, Applicant is claiming that the use of the word "behalf" in the limitation, "process the graphics instruction on behalf of the data processing device," clearly implies that the data processing device has the capability to perform the function of the external graphics processor, but that the external graphics processor augments those capabilities. However, the claims do not specify that the features possessed by the external graphics processor are capabilities which are necessarily "BUILT INTO THE DATA PROCESSING DEVICE BY THE MANUFACTURER THEREOF", as applicant states on pages 9-10.

The Examiner disagrees that the term "behalf" in the limitation necessarily involves, or even clearly implies, that the external graphics processor extends capabilities which are already built into the data processing device by the manufacturer. Claims must be given their broadest reasonable interpretation in light of the specification (see MPEP § 2111). The word "behalf" is synonymous with "for the benefit of" (see http://dictionary.reference.com/browse/behalf). The claimed graphics processor, which thereby processes a graphics instruction for the benefit of the data processing device, actually more strongly implies that the graphics processor provides graphics processing functionality which the data processing device does not already possess or could not perform well without assistance. The dongle device of Sahdra et al., U.S. Patent Publication 2009/0141894 (filed Dec. 4, 2007) (Sahdra) extends the capabilities of the host device by providing additional functionality; whether the host device extends capabilities of the data processing device which were or were not already built into the data processing device by the manufacturer is immaterial to the proposed amendment to the claim as it is currently worded.

Neural AI, LLC, Exhibit 2018
Page 2018 - 326
IPR2025-00608, NVIDIA Corporation v. Neural AI, LLC

Application No.: 12/824,423 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Srinivas Soma Examiner: Raburn, Greg A

Serial No.: 12/824,423 Group Art Unit: 2678

Filed: June 28, 2010 Docket No.: 00108.00020US1

Title: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

RESPONSE TO FINAL OFFICE ACTION

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

DO NOT ENTER

/Greg Raburn/ (04/19/2013)

Applicant has reviewed the Final Office Action mailed on April 10, 2013. Please consider the following Amendments and the following Remarks.

Application No.: 12/824,423 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Srinivas Soma Examiner: Raburn, Greg A

Serial No.: 12/824,423 Group Art Unit: 2678

Filed: June 28, 2010 Docket No.: 00108.00020US1

Title: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

RESPONSE TO FINAL OFFICE ACTION

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Applicant has reviewed the Final Office Action mailed on April 10, 2013. Please consider the following Amendments and the following Remarks.

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A portable ~~external~~ graphics processing device of a data processing device, comprising:

a graphics processor;

a battery; and

a Universal Serial Bus (USB) interface communicatively coupled with the graphics processor,

the USB interface being configured to transfer a graphics instruction from the data processing device to the graphics processor, the data processing device being external to the portable graphics processing device,

the graphics processor being configured to:

process the graphics instruction on behalf of the data processing device, and

transfer a result of processing the graphics instruction to the data processing device using the USB interface, and

the battery being configured to at least partially power the graphics processor to process the graphics instruction.

2. (Original) The graphics processing device of claim 1, wherein the USB interface utilizes a USB 3.0 protocol.

3. (Previously Presented) The graphics processing device of claim 1, wherein the graphics instruction is associated with a graphics application executing on the data processing device.

4. (Original) The graphics processing device of claim 1, wherein the battery is rechargeable.

5. (Previously Presented) The graphics processing device of claim 1, wherein the battery is a lithium ion battery.

6. (Original) The graphics processing device of claim 1, wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable.

7. (Currently Amended) A data processing ~~device~~ system comprising:

a data processing device;

a portable external graphics processing device including a graphics processor and a battery configured to provide power to the graphics processor, the portable external graphics processing device being external to the data processing device; and

a USB module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device,

the USB module being configured to transfer an instruction originating from the data processing device to the graphics processor, and

the graphics processor being configured to:

process the instruction on behalf of the data processing device, and

transfer a result of the processed instruction to the data processing device using the USB module.

8. (Currently Amended) The data processing ~~device~~ system of claim 7, wherein the portable external graphics processing device is configured to provide auxiliary graphics processing for the ~~computer system~~ data processing device.

9. (Currently Amended) The data processing ~~device~~ system of claim 7, wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device.

10. (Currently Amended) The data processing ~~device~~ system of claim 7, wherein the battery is configured to at least partially power the processor to process the instruction.

11. (Currently Amended) The data processing ~~device~~ system of claim 7, wherein the battery is user-detachable from the portable external graphics processing device and user-attachable with the portable external graphics processing device.

12. (Currently Amended) The data processing ~~device~~ system of claim 7, wherein the battery is rechargeable.

13. (Currently Amended) The data processing ~~device~~ system of claim 7, wherein the battery is a lithium ion rechargeable battery.

14. (Currently Amended) The data processing ~~device~~ system of claim 7, wherein the USB module utilizes a USB 3.0 protocol.

15. (Currently Amended) A graphics processing system comprising:

a data processing device comprising:

one or more system processors,

a memory coupled with the one or more system processors,

a video display device configured to display graphical data generated by the one or more system processors,

a first USB interface coupled with the one or more system processors, and

an audio device configured to generate audio data generated by the one or more system processors; and

a portable graphics processing device external to the data processing device and communicatively coupled with the data processing device using a USB cable, the portable graphics processing device including:

one or more graphics processors,

a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction, and

a second USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable,

the second USB interface being configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the data processing device

via the USB cable and to provide the graphics instruction for the one or more graphics processors, and

the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device and to transfer a result of the processed graphics instruction to the data processing device using the second USB interface.

16. (Currently Amended) The ~~data processing device~~ graphics processing system of claim 15, wherein the one or more graphics processors include at least one multi-core processor.

17. (Currently Amended) A method comprising:

indicating to a data processing device, utilizing a Universal Serial Bus (USB) protocol, that a graphics processing device is active, the graphics processing device being portable by a user and external to the data processing device;

acquiring, utilizing the USB protocol, a graphics instruction from the data processing device, based at least in part on the indicating that the graphics processing device is active;

processing the acquired graphics instruction using a graphics processor on behalf of the data processing device within the graphics processing device;

providing a rechargeable battery within the graphics processing device;

using energy supplied by the rechargeable battery to process the acquired graphics instruction; and

transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction.

18. (Original) The method of claim 17, wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol.

19. (Original) The method of claim 17, comprising:

storing the energy in the rechargeable battery prior to the supplying of the energy.

20. (Previously Presented) The method of claim 17, wherein the battery is a lithium ion rechargeable battery.

REMARKS

Please reconsider this Application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this Application.

Disposition of Claims

Claims 1-20 are pending in this application. Claims 1, 7, 15 and 17 are independent. The other claims depend directly on independent claims 1, 7, 15 and 17.

Claim Amendment(s)

Independent claims 1, 7, 15 and 17 have been amended to recite that the graphics processing device is external to the data processing device. Support for this amendment may be found, for example, in Figs. 1-3 of U.S. Patent Publication No. 2011/0316865 (hereinafter "Published Application").

Other amendments have been made merely for clarity and consistency purposes, and to attend to the claim objections. No new matter has been added.

Claim Objection(s)

Claims 8 and 10 stand objected to for miscellaneous informalities. As seen above, the informalities have been attended to. Accordingly, withdrawal of this objection is respectfully requested.

Claim Rejection(s)

Rejection(s) under 35 U.S.C. §103

Claims 1-4, 6-12, 14 and 17-19 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2009/0141894 (hereinafter "Sahdra") in view of U.S. Patent Publication No. 2009/0144456 (hereinafter "Gelf"). To the extent that this rejection may still apply to the amended claims, this rejection is respectfully traversed.

Amended independent claims 1, 7, 15 and 17 now clearly recite that the graphics processing device is external to the data processing device. The Examiner alleges that "the device for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller…" of Sahdra is analogous to the graphics processor of amended independent claims 1, 7, 15 and 17. The aforementioned device cited by the Examiner is a USB dongle device 10 (*see* paragraph [0029] of Sahdra). A USB dongle is well known to one of ordinary skill in the art as being utilized to add features to a data processing device that were ***NOT BUILT INTO THE DATA PROCESSING DEVICE BY THE MANUFACTURER THEREOF***. In contrast, amended independent claims 1, 7, 15 and 17 clearly recite that the external graphics processor executes a graphics instruction ***on behalf of the data processing device***, thereby clearly implying that the external graphics processor is utilized to extend capabilities of the data processing device that ***ARE BUILT INTO THE DATA***

PROCESSING DEVICE BY THE MANUFACTURER THEREOF. Therefore, ***Sahdra does not show or suggest at least a graphics processor configured to execute a graphics instruction ON BEHALF of a data processing device external thereto, as required by amended independent claims 1, 7, 15 and 17***.

Moreover, the Examiner cites paragraph [0029] of Sahdra as allegedly disclosing an analogous graphics processor. However, paragraph [0029] of Sahdra merely discloses that processing module 230 is part of USB dongle device 10. USB dongle device 10 is powered by the computer coupled thereto. Therefore, USB dongle device 10 does not require a battery, for which Gelf has been cited by the Examiner. In contrast, the aforementioned external graphics processing unit is powered by an independent power source such as a battery. Even if USB dongle device 10 were to be at least partially powered by an independent battery, Sahdra and/or Gelf fail to show or suggest at least ***a graphics processor external to a data processing device that is configured to execute a graphics instruction ON BEHALF of the data processing device***, as required by amended independent claims 1, 7, 15 and 17.

In view of the above, Sahdra and Gelf, whether considered separately or in combination, do not show or suggest all of the limitations of amended independent claims 1, 7, 15 and 17. Amended independent claims 1, 7, 15 and 17 are, therefore, patentable over Sahdra and Gelf. Claims 2-4, 6, 8-12, 14 and 18-19, directly or indirectly dependent on amended independent claims 1, 7 and 17, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Further, Applicant respectfully requests the Examiner to note that one of ordinary skill in the art would not be motivated to utilize USB dongle device 10 of Sahdra (*or* processing module 230 thereof) in conjunction with the battery power of Gelf to arrive at the limitations of amended independent claims 1, 7, 15 and 17 precisely because of limited capabilities and functionalities of USB dongle device 10. External graphics processors perform computationally intensive tasks such as executing shader algorithms *et al.* Also, exemplary embodiments requiring the aforementioned external graphics processor dispense with a need to modify a motherboard of the data processing device to provide supplementary processing power.

Claims 5, 13 and 20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra and Gelf in view of U.S. Patent No. 6,507,172 (hereinafter "Sherman"). Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra and Gelf, and further in view of U.S. Patent Publication No. 2006/0171689 (hereinafter "Smith"). Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra, Gelf and Smith, in view of U.S. Patent Publication No. 2012/0162235 (hereinafter "Nugent"). The additional references, *viz.* Sherman, Smith and Nugent, fail to supply that which Sahdra and Gelf lack with regard to amended independent claims 1, 7, 15 and 17, which, therefore, are patentable over Sahdra, Gelf and/or one or more of the additional references. Claims 5, 13, 16 and 20, directly dependent on amended independent claims 1, 7, 15 and 17 respectively, are also patentable for at least the same reasons. Accordingly, withdrawal of these rejections is respectfully requested.

CONCLUSION

Applicant respectfully submits that the Claims are in condition for allowance and notification to that effect is requested. The Examiner is invited to telephone the attorney of the Applicant at 650-965-8731 to facilitate prosecution of this application.

Respectfully submitted,

nVIDIA Corporation

By their Representatives,
Raj Abhyanker P.C.
Customer No. 102288
Ph.: 650-965-8731

Date: April 16, 2013

By: /Raj Abhyanker/
Raj Abhyanker
Reg. No. 45,474

Electronic Acknowledgement Receipt

EFS ID:	15536177
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	102288
Filer:	Raj Vasant Abhyanker/Meenakshi Chaudhari
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	16-APR-2013
Filing Date:	28-JUN-2010
Time Stamp:	23:54:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment After Final	RTFOA_00108_00020US1.pdf	75965 7c9d14b6bba46d0c3242917c1a3dd830e8ee2332	no	12

Warnings:	
Information:	

Total Files Size (in bytes):	75965

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/824,423	Filing Date 06/28/2010	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **04/16/2013**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/KAREN VESTAL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1	9884

102288 7590 04/10/2013

Raj Abhyanker, P.C.
1580 W. El Camino Real, Suite 8
Mountain View, CA 94040

EXAMINER	
RABURN, GREG A	

ART UNIT	PAPER NUMBER
2678	

NOTIFICATION DATE	DELIVERY MODE
04/10/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@rajpatent.com

Office Action Summary	Application No.	Applicant(s)	
	12/824,423	SOMA, SRINIVAS	
	Examiner	Art Unit	
	GREG RABURN	2678	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2013*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment

1. Applicant's amendments and remarks filed 2/11/2013 have been entered and considered, but are not found convincing. Claims 2, 4, 6, 18, and 19 have not been amended. Applicant's amendments have necessitated the new grounds of rejection set forth herein; accordingly, this action is made final.

Response to Applicant's Remarks

35 U.S.C. §101

2. Applicant's amendment of claim 20 overcomes the rejection of claim 20 under 35 U.S.C. 101 in the non-final Office Action mailed 11/9/2012.

35 U.S.C. §103

3. **Claims 1-4, 6-12, 14, and 17-20 were rejected under 35 U.S.C. 103(a)** as being unpatentable over Sahdra et al., U.S. Patent Publication 2009/0141894 (filed Dec. 4, 2007) (*Sahdra*) in view of Gelf et al., U.S. U.S. Patent Publication 2009/0144456 (filed Nov. 29, 2008) (*Gelf*) in the non-final Office Action mailed 11/9/2012. Applicant traverses this rejection. Specifically, on page 10 of remarks filed 2/11/2013, Applicant argues that because the "USB dongle device 10 is powered by the computer that it is coupled to," that there would be no motivation to combine the dongle device in *Sahdra* with the rechargeable battery of *Gelf*. However, in the case that the computer is a laptop computer running on battery power, the laptop battery will drain prematurely if the laptop must also power the dongle device of *Sahdra*, should

the dongle device not have its own power source. Therefore, the it would be obvious to the ordinarily-skilled artisan to combine *Sahdra* with *Gelf* is to obtain the benefit of a USB device that need not drain the power of the computer to which it is coupled.

4. On page 10 of remarks filed 2/11/2013, Applicant further argues that processing module 230 of *Sahdra* is not an analogue to a graphic processor. Claims must be given their broadest reasonable interpretation in light of the specification. See MPEP § 2111. The dongle device in *Sahdra* is for processing video (graphics) and *Sahdra* in paragraph 0029 notes that processing module 230 "may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, [or] central processing unit…." The examiner interprets a microprocessor, co-processor, or central processing unit that processes video images (i.e., graphics) as a reasonable analogue to a graphics processor.

Claim Objections

5. **Claims 8 and 10 are objected to because of the following informalities:**

a. Claim 8, line 4, recites the limitation, "the computer system." There is insufficient antecedent basis for this limitation. Based on amendments made to other claims, the examiner understands that claim 8 should be amended to recite, "the ~~computer system~~ data processing device."

b. Claim 10 begins, "data processing device". Based on amendments made to other claims, the examiner understands that claim 10 should be amended to recite, "The data processing device".

6. Appropriate correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. **Claims 1-4, 6-12, 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*.**

10. **Regarding independent claim 1**, *Sahdra* teaches a portable external graphics processing device of a data processing device comprising:

a. a graphics processor (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*).

b. a Universal Serial Bus (USB) interface communicatively coupled with the graphics processor (*see Sahdra, ¶0022, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor)*), the USB interface being configured to transfer a graphics instruction, which originating from the data processing device to the graphics processor (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated from the data processing device)*), the graphics processor being configured to:

i. process the graphics instruction on behalf of the data processing device (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the command (graphics instruction) is processed by the USB device (graphics processor on behalf of the data processing device) according to the command*), and transfer a result of processing the graphics instruction to the data processing device using the USB interface (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (data processing device) via the USB interface*).

11. *Sahdra* is understood to be silent on the limitation, "a battery" and "the battery being configured to at least partially power the graphics processor to process the graphics instruction", as recited in claim 1. However, *Gelf* teaches a battery, with the battery being configured to at least partially power the graphics processor to process the graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device (i.e., the USB device*

processing the graphics instructions), the power module being connected to the processor module 415 that receives and processes data).

12. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source, yielding a USB video device which need not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

13. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

14. **Regarding claim 2**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

15. *Sahdra* is understood to be silent on the limitation, "wherein the USB interface utilizes a USB 3.0 protocol" as recited in claim 2. However, *Gelf* teaches wherein the USB interface

utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

16. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

17. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

18. **Regarding claim 3**, *Sahdra* in view of *Gelf* teaches the device of claim 1. *Sahdra* further teaches wherein the graphics instruction is associated with a graphics application executing on the data processing device (*see Sahdra, ¶¶0037, 0052, disclosing software applications running on the host device (data processing device) that operate in conjunction with the processing module*).

19. **Regarding claim 4**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

20. *Sahdra* is understood to be silent on the limitation, "wherein the battery is rechargeable" as recited in claim 3. However, *Gelf* teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

21. The motivation for combining *Gelf* with *Sahdra* for claim 4 is the same as described above in claim 1.

22. **Regarding claim 6**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

23. *Sahdra* is understood to be silent on the limitation, "wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable" as recited in claim 6. However, *Gelf* teaches wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and field replaceable)*).

24. The motivation for combining *Gelf* with *Sahdra* for claim 6 is the same as described above in claim 1.

25. **Regarding independent claim 7**, *Sahdra* teaches a data processing device comprising:

a. a portable external graphics processing device including a graphics processor (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*); and

b. a USB module communicatively coupled with the graphics processor and configured to be communicatively coupled with the data processing device (*see Sahdra,*

¶0022, figs.1, 10, disclosing a USB interface (communicatively coupled) between a host device and the USB device containing a processor module (graphics processor)), the USB module being configured to transfer an instruction originating from the data processing device to the graphics processor (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated from the data processing device)*), and the graphics processor being configured to:

i. process the instruction on behalf of the data processing device (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the command (graphics instruction) is processed by the USB device (graphics processor on behalf of the data processing device) according to the command*), and transfer a result of the processed instruction to the data processing device using the USB module (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (data processing device) via the USB interface*).

26. *Sahdra* is understood to be silent on the limitation, "a battery configured to provide power to the graphics processor", as recited in claim 7. However, *Gelf* teaches a battery configured to provide power to the graphics processor (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data*).

27. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The

artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source, yielding a USB video device which need not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

28. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

29. **Regarding claim 8**, *Sahdra* in view of *Gelf* teaches the device of claim 7. *Sahdra* further teaches wherein the portable external graphics processing device is configured to provide auxiliary graphics processing for the computer system (*see Sahdra, ¶¶0027, 0029, disclosing that the USB device (portable external graphics processing device), which includes a processing module (graphics processor) receives video signals for further processing (auxiliary graphics processing) when coupled to the host device (computer system)*).

30. The motivation for combining *Gelf* with *Sahdra* for claim 8 is the same as described above in claim 7.

31. **Regarding claim 9**, *Sahdra* in view of *Gelf* teaches the device of claim 7. *Sahdra* further teaches wherein the instruction includes a graphics instruction associated with a graphics application executing on the data processing device (*see Sahdra, ¶0052, disclosing that the device can be implemented with Microsoft Media Center Edition 2005 (graphics application executing on the data processing device)*).

32. **Regarding claim 10**, *Sahdra* in view of *Gelf* teaches the device of claim 7. *Sahdra* further teaches wherein the battery is configured to at least partially power the processor to process the instruction (*see Sahdra, ¶0046, figs.1, 7, 8 11, disclosing generating a processed video signal, and receiving a power signal to power modules of the video device (at least partially powering the processor to process the instruction)*).

33. **Regarding claim 11**, *Sahdra* in view of *Gelf* teaches the device of claim 7.

34. *Sahdra* is understood to be silent on the limitation, "wherein the battery is user-detachable from the portable external graphics processing device and user-attachable with the portable external graphics processing device", as recited in claim 11. However, *Gelf* teaches wherein the battery is user-detachable from the portable external graphics processing device and user-attachable with the portable external graphics processing device (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and user-attachable) from the interface device (portable external graphics processing device)*).

35. The motivation for combining *Gelf* with *Sahdra* for claim 11 is the same as described above in claim 7.

36. **Regarding claim 12**, *Sahdra* in view of *Gelf* teaches the device of claim 7.

37. *Sahdra* is understood to be silent on the limitation, "wherein the battery is rechargeable" as recited in claim 12. However, *Gelf* teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

38. The motivation for combining *Gelf* with *Sahdra* for claim 12 is the same as described above in claim 7.

39. **Regarding claim 14**, *Sahdra* in view of *Gelf* teaches the device of claim 7.

40. *Sahdra* is understood to be silent on the limitation, "wherein the USB module utilizes a USB 3.0 protocol" as recited in claim 14. However, *Gelf* teaches wherein the USB module utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

41. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

42. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of

Sahdra to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

43. **Regarding independent claim 17**, *Sahdra* teaches a method comprising:

a. indicating to a data processing device, utilizing a Universal Serial Bus (USB) protocol, that a graphics processing device is active (*see Sahdra, ¶0022, fig.1, disclosing that when the USB dongle device is coupled to the host device it processes video signals received from the host device; the host device is inherently aware that the USB dongle device is available to process the video signals*), the graphics processing device being portable by a user (*see Sahdra, a USB dongle device by definition, supra, is inherently portable by a user*);

b. acquiring, utilizing the USB protocol, a graphics instruction from the data processing device (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (data processing device)*), based at least in part on the indicating that the graphics processing device is active (*see Sahdra, for the command (graphics instruction) to be processed, it is inherently based at least in part on the USB device being active*);

c. processing the acquired graphics instruction using a graphics processor within the graphics processing device (*see Sahdra, ¶¶0022, 0037, 0054, figs.1, 10, disclosing that the USB device, having a processing module (graphics processor), processes the video signal according to the received command (graphics instruction)*);

d. using energy supplied by a power source to process the acquired graphics instruction (*see Sahdra, ¶0046, figs.7, 1,8 11, disclosing that the device may optionally*

receive a power signal to supply energy to modules of the video device (providing power to the processor for processing the instruction); and

c. transferring to the data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device sends the result (transferred) back to the host device (data processing device) via the USB interface*).

44. *Sahdra* is understood to be silent on the limitation that the power source can be a rechargeable battery and "providing a rechargeable battery within the graphics processing device", as recited in claim 17. However, *Gelf* teaches that the power source can be a rechargeable battery and providing a rechargeable battery within the graphics processing device (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion of the USB device, the power module being connected to the processor module 415 (graphics processing device) that receives and processes data*).

45. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source, yielding a USB video device which need not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed

above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

46. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

47. **Regarding claim 18**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

48. *Sahdra* is understood to be silent on the limitation, "wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol" as recited in claim 18. However, *Gelf* teaches wherein the USB protocol can be a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

49. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine

Gelf with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

50. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

51. **Regarding claim 19**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

52. *Sahdra* is understood to be silent on the limitation, "storing the energy in the rechargeable battery prior to the supplying of the energy" as recited in claim 19. However, *Gelf* teaches storing the energy in the rechargeable battery prior to the supplying of the energy (*see Gelf, ¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data, and the battery capable of being recharged (storing energy) by power control 315 prior to the supplying of energy*).

53. The motivation for combining *Gelf* with *Sahdra* for claim 19 is the same as described above in claim 17.

54. **Claims 5, 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Sherman, U.S. Patent No. 6,507,172 (filed Mar. 19, 2001) (*Sherman*).**

55. **Regarding claim 5**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

56. *Sahdra* is understood to be silent on the on the limitation, "wherein the battery is a lithium ion battery" as recited in claim 5. However, *Sherman* teaches wherein the battery is a lithium ion battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

57. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

58. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

59. **Regarding claim 13**, *Sahdra* in view of *Gelf* teaches the device of claim 7.

60. *Sahdra* is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery" as recited in claim 13. However, *Sherman* teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

61. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

62. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

63. **Regarding claim 20**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

64. *Sahdra* is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery" as recited in claim 20. However, *Sherman* teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

65. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery

of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

66. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

67. **Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Smith, U.S. Patent Publication 2006/0171689 (filed Mar. 8, 2006) (*Smith*)**

68. **Regarding independent claim 15**, *Sahdra* teaches a graphics processing system comprising:

a. a data processing device (*see Sahdra, ¶0021, fig.2, disclosing a video processing system including a personal computer (data processing device)*) comprising :

i. one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

ii. a memory coupled with the one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

iii. a video display device configured to display graphical data generated by the one or more system processors (*see Sahdra, ¶0027, disclosing a display screen or monitor associated with the system*),

iv. a first USB interface coupled with the one or more system processors (*see Sahdra, ¶0022, the USB (first USB interface) dongle device is coupled to the host device (computer system including one or more system processors)*), and

v. an audio device configured to generate audio data generated by the one or more system processors (*see Sahdra, ¶¶0024, 0041, 0062, disclosing that video signal being processed by the device may or may not include audio signals*); and

b. a portable graphics processing device communicatively coupled with the data processing device (*see Sahdra, ¶0022, disclosing the USB dongle device coupled to the host device (computer system)*), the portable graphics processing device including:

i. one or more graphics processors (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device for processing video (graphics) comprising a processor module, which may be a microprocessor, co-processors, a micro-controller, digital signal processor, micro-computer, or central processing unit; interpreted as a reasonable analog to a graphics processor*),

ii. a USB interface communicatively coupled with the one or more graphics processors (*see Sahdra, ¶0022, disclosing the dongle device (containing one or more graphics processors) coupled to the host device through the USB interface*),

iii. the USB interface being configured to receive a graphics instruction that is encoded by a USB communication protocol from the data processing device via

the USB cable and to provide the graphics instruction for the one or more graphics processors (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated by the computer system)*), and

iv. the one or more graphics processors being configured to process the graphics instruction on behalf of the data processing device and to transfer a result of the processed graphics instruction to the data processing device using the USB interface (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (computer system) via the USB interface*).

69. *Sahdra* is understood to be silent on the limitation, "rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction", as recited in claim 15. However, *Gelf* teaches rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable (removably coupled and field replaceable), rechargeable battery 1145 for powering the device (i.e., the USB device processing the graphics instructions) , the power module being connected to the processor module 415 that receives and processes data*).

70. *Sahdra* is understood to be silent on the limitation that the USB communication protocol is a "USB 3.0 communication protocol", as recited in claim 15. However, *Gelf* teaches a USB 3.0 communication protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

71. Although *Sahdra*, at *¶¶0024, 0041, and 0062*, discloses that a video signal being processed by the USB device may or may not include audio signals, *Sahdra* does not expressly teach having a separate first USB interface and second USB interface as recited in claim 15, as recited in claim 15. However, *Gelf* teaches a first and second USB interface (*see Gelf, ¶¶0004, 0006, disclosing a USB device having a first communication port and a second communication port (first and second USB interfaces)*).

72. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source, yielding a USB video device which need not unduly drain the power of the device to which it is coupled, such as a laptop computer running on battery power. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device, such as "providing power to different portions of [the] interface device" (*see Gelf, ¶0002, 0032*) without requiring an external power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

73. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

74. Although *Sahdra* discloses a USB dongle (defined as a "small module that plugs in and sticks out of a socket" which may or may not have "a short cable" (*see* http://encyclopedia2.thefreedictionary.com/dongle)) device, *Sahdra* does not expressly teach, "using a USB cable" and "a USB interface… configured to communicatively couple the first USB interface with the second USB interface using the USB cable", as recited in claim 15. However, *Smith* teaches using a USB cable and a USB interface configured to communicatively couple the first USB interface with the second USB interface using the USB cable (*see Smith, ¶0041, discloses an external audio device coupled to a host computer by a USB cable, and an external video capture device (graphics processor) also coupled to the host computer by USB cable (communicatively coupled via the computer system)*).

75. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of connecting external video and audio cards to a host computer with USB cables, as proposed by *Smith*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having an audio device in communication with a video device via USB cables, which would produce the well-known, predictable and expected results and benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal (see Smith, *¶0006)*. The artisan of ordinary skill would have

been motivated to combine *Smith* with *Sahdra*, as proposed above at least because both *Sahdra* and *Smith* are similarly drawn to external video devices.

76. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the connecting of external video and audio cards to a host computer with USB cables of *Smith* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal.

77. **Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of *Smith*, and further in view of Nugent et al., U.S. Patent Publication 2012/0162235 (filed Oct. 13, 2008) (*Nugent*).**

78. **Regarding claim 16**, *Sahdra* in view of *Gelf*, and further in view of *Smith* teaches the device of claim 15.

79. *Sahdra* is understood to be silent on the limitation, "wherein the one or more graphics processors include at least one multi−core processor" as recited in claim 16. However, *Nugent* teaches wherein the one or more graphics processors include at least one multi−core processor (*see Nugent, ¶0019, discloses that the processor of an external graphics-processing device may include one or more cores of a multi-core processing unit*).

80. The artisan having ordinary skill, starting with the processing module of *Sahdra*, would have appreciated the benefits of the multi-core graphics-processing unit, as proposed by *Nugent*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known the processing module disclosed in *Sahdra* for the known the multi-core graphics-processing unit of *Nugent*, which would produce the predictable results of

increasing the speed of graphics processing over the speed of the known the processing module. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Nugent*, as proposed above, in order to provide high-performance graphics while reducing the power drawn by the internal GPU (see *Nugent, ¶¶0002, 0004*).

81. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the processing module of *Sahdra* for the multi-core graphics processing unit of *Nugent* to achieve the predictable result of increasing the speed of graphics processing.

Conclusion

82. The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

a. Reimer, *Coming Soon: An External Video Card Near You?*, ARS TECHNICA (http://arstechnica.com/uncategorized/2006/08/7409/) (Aug. 2, 2006).

83. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

84. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

85. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG RABURN whose telephone number is (571)270-1936. The examiner can normally be reached on M-F 8:00-5:00.

86. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on 571-272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

87. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GREG RABURN/

Examiner, Art Unit 2678

/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2678

Notice of References Cited	Application/Control No. 12/824,423	Applicant(s)/Patent Under Reexamination SOMA, SRINIVAS	
	Examiner GREG RABURN	Art Unit 2678	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Reimer, Coming Soon: An External Video Card Near You?, ARS TECHNICA (http://arstechnica.com/uncategorized/2006/08/7409/) (Aug. 2, 2006)
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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BIB DATA SHEET

CONFIRMATION NO. 9884

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/824,423	06/28/2010	345	2678	00108.00020US1

APPLICANTS
Srinivas Soma, Hyderabad, INDIA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
07/08/2010

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /GREG A RABURN/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		INDIA	6	20	4

ADDRESS

Raj Abhyanker, P.C.
1580 W. El Camino Real, Suite 8
Mountain View, CA 94040
UNITED STATES

TITLE

RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

FILING FEE RECEIVED		
572	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	GREG RABURN	2678

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/02/2012	04/01/2013							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	✓							
	15	✓	✓							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	✓							
	20	✓	✓							

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2013/04/01 18:50
L2	303	((usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.) not L1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
L3	157	L2 and power	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
L4	38	L2 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
L5	47	L2 and "3."$1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
L6	10	L2 and recharg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
L7	10	(L3 and L5 and L6) (L3 and L4 and L6) (L3 and L4 and L5)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
L8	42	((L5 and L6) (L3 and L6) (L3 and L5) (L4 and L6) (L3 and L4) (L4 and L5)) not L7	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2013/04/01 18:50
S3	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/01 09:45
S4	0	S2 not S3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:45
S6	689	S5 and @ad<"20100628."	US-PGPUB; USPAT;	OR	ON	2012/10/01 09:47

			EPO; JPO; DERWENT			
S7	1	("20110316865").PN.	DERWENT	OR	OFF	2012/10/01 12:02
S8	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:12
S9	977904	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/10/26 20:16
S183	1	(US-6507172-$).did.	USPAT	OR	ON	2013/03/22 17:21
S184	1	(US-20090141894-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S185	1	(US-20090144456-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S186	1	(US-20100091025-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21
S187	1	(US-20060171689-$).did.	US-PGPUB	OR	ON	2013/03/22 17:21

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C:\Users\graburn\Documents\EAST\Workspaces\12824423.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	Art Unit
	GREG RABURN	2678

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST text search of PGPUB, PAT with terms GPU, battery, rechargeable, lithium, USB 3.0, external, cable, multi-core, processor	11/2/2012	/G.R./
PLUS search	11/2/2012	/G.R./
Double-patenting search	11/2/2012	/G.R./
Google/Google Patents Search	11/2/2012	/G.R./
Search of foreign EPO, JPO, DERWENT databases	11/2/2012	/G.R./
Updated EAST text search	4/1/2013	/G.R./

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/G.R./ Examiner.Art Unit 2678	

S/N 12/824,323 **PATENT**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Srinivas Soma Examiner: Raburn, Greg A

Serial No.: 12/824,323 Group Art Unit: 2678

Filed: June 28, 2010 Docket No.: 00108.00020US1

Title: RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

RESPONSE TO NON-FINAL OFFICE ACTION

Mail Stop Amendment

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Applicant has reviewed the Non-Final Office Action mailed on November 9, 2012. Please consider the following Amendments and the following Remarks.

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) A ~~graphics~~ portable external graphics processing device ~~that is portable and provides graphics processing for a computer system, the graphics processing device~~ of a data processing device comprising:

a graphics processor;

a battery; and

a Universal Serial Bus (USB) interface ~~that is~~ communicatively coupled with the graphics processor ~~and is configured to be communicatively coupled with the computer system~~[[;]],

the USB interface being ~~further~~ configured to transfer a graphics instruction~~, which was~~ originating~~ed by~~ from the ~~computer system,~~ data processing device to the graphics processor, [[and]]

the graphics processor being configured to[[,]]:

process the graphics instruction on behalf of the data processing device ~~computer system~~, and

transfer a result of processing the graphics instruction to the ~~computer system~~ data processing device[[,]] using the USB interface[[;]], and

~~a battery coupled with the graphics processor, and configured to~~ the battery being configured to at least partially power the graphics processor to process the graphics instruction.

2. (Original) The graphics processing device of claim 1, wherein the USB interface utilizes a USB 3.0 protocol.

3. (Currently Amended) The graphics processing device of claim 1, wherein the graphics instruction is associated with a graphics application ~~operated by the computer system~~ executing on the data processing device.

4. (Original) The graphics processing device of claim 1, wherein the battery is rechargeable.

5. (Currently Amended) The graphics processing device of claim [[4]] 1, wherein the battery is a lithium ion battery.

6. (Original) The graphics processing device of claim 1, wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable.

7. (Currently Amended) A ~~portable processing system to provide processing for a computer system, the portable processing system~~ data processing device comprising:

a portable external graphics processing device including a graphics processor[[;]] and a battery ~~coupled with the processor and~~ configured to provide power to the graphics processor; and

a ~~Universal Serial Bus (~~USB[[)]] module communicatively coupled with the graphics processor and configured to be communicatively coupled with the ~~computer system~~ data processing device,

the USB module being configured to transfer an instruction~~, which was~~ originating~~d~~ ~~by~~ from the ~~computer system,~~ data processing device to the graphics processor, and

the graphics processor being configured to[[,]]:

process the instruction on behalf of the ~~computer system~~ data processing device, and

transfer a result of the processed instruction to the ~~computer system,~~ data processing device using the USB module.

8. (Currently Amended) The ~~portable processing system~~ data processing device of claim 7, wherein the ~~processor includes a graphics processor, and the portable processing system~~ portable external graphics processing device is configured to provide auxiliary graphics processing for the computer system.

9. (Currently Amended) The ~~portable processing system~~ data processing device of claim [[8]] 7, wherein the instruction includes a graphics instruction associated with a graphics application ~~operated by the computer system~~ executing on the data processing device.

10. (Currently Amended) ~~The portable processing system~~ data processing device of claim 7, wherein the battery is configured to at least partially power the processor to process the instruction.

11. (Currently Amended) The ~~portable processing system~~ data processing device of claim 7, wherein the battery is user-detachable from the portable external graphics processing device ~~processing system~~ and user-attachable with the portable external graphics processing device ~~processing system~~.

12. (Currently Amended) The ~~portable processing system~~ data processing device of claim 7, wherein the battery is rechargeable.

13. (Currently Amended) The ~~portable processing system~~ data processing device of claim [[12]] 7, wherein the battery is a lithium ion rechargeable battery.

14. (Currently Amended) The ~~portable processing system~~ data processing device of claim 7, wherein the USB module utilizes a USB 3.0 protocol.

15. (Currently Amended) A graphics processing system comprising:

a ~~computer system~~ data processing device comprising ~~including,~~:

one or more system processors,

a memory coupled with the one or more system processors,

a video display device configured to display graphical data generated by the one or more system processors,

a first ~~Universal Serial Bus (~~USB[[)]] interface coupled with the one or more system processors, and

an audio device configured to generate audio data generated by the one or more system processors; and

a portable graphics processing device communicatively coupled with the ~~computer system~~ data processing device using a USB cable, the portable graphics processing device including[[,]]:

one or more graphics processors,

a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes a graphics instruction, and

a second USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable,

the second USB interface being configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the ~~computer system~~ data processing device via the USB cable[[,]] and to provide the graphics instruction for the one or more graphics processors, and

the one or more graphics processors being configured to process the graphics instruction on behalf of the ~~computer system,~~ data processing device and to transfer a result of the processed graphics instruction to the ~~computer system,~~ data processing device using the second USB interface~~; and~~

~~a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes the graphics instruction~~.

16. (Currently Amended) The ~~graphics processing system~~ data processing device of claim 15, wherein the one or more graphics processors include at least one multi-core processor.

17. (Currently Amended) A method comprising:

indicating to a ~~computer system~~ data processing device, utilizing a Universal Serial Bus (USB) protocol, that a graphics processing device is active, the graphics processing device being portable by a user;

acquiring, utilizing the USB protocol, a graphics instruction from the data processing device ~~computer system~~, based at least in part on the indicating that the graphics processing device is active;

processing the acquired graphics instruction using a graphics processor within the graphics processing device;

providing a rechargeable battery within the graphics processing device;

using energy supplied by [[a]] the rechargeable battery to process the acquired graphics instruction~~, the rechargeable battery forming a portion of the graphics processing device~~; and

transferring to the ~~computer system~~ data processing device, utilizing the USB protocol, a result of the processing of the acquired graphics instruction.

18. (Original) The method of claim 17, wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol.

19. (Original) The method of claim 17, comprising:

storing the energy in the rechargeable battery prior to the supplying of the energy.

20. (Currently Amended) The method of claim 17, wherein the battery is a lithium ion rechargeable battery ~~A machine readable medium including instructions that when executed by a machine, cause the machine to perform the method of claim 19~~.

REMARKS

Please reconsider this Application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this Application.

Disposition of Claims

Claims 1-20 are pending in this application. Claims 1, 7, 15 and 17 are independent. The other claims depend directly on independent claims 1, 7, 15 and 17.

Claim Amendment(s)

Independent claims 1, 7, 15 and 17 have been amended to recite that the graphics processing device is external and portable and that the battery is part of the graphics processing device. Support for this amendment may be found, for example, in Figs. 1-2 of U.S. Patent Publication No. 2011/0316865 (hereinafter "Published Application").

Other amendments have been made merely for clarity and consistency purposes, and to overcome the 101 rejection. No new matter has been added.

Claim Rejection(s)

Rejection(s) under 35 U.S.C. §101

Claim 20 stands rejected for allegedly being directed to non-statutory subject matter. As seen above, the "machine-readable medium" aspect of the claim has been dispensed with. Accordingly, withdrawal of this rejection is respectfully requested.

Rejection(s) under 35 U.S.C. §103

Claims 1-4, 6-12, 14 and 17-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2009/0141894 (hereinafter "Sahdra") in view of U.S. Patent Publication No. 2009/0144456 (hereinafter "Gelf"). To the extent that this rejection may still apply to the amended claims, this rejection is respectfully traversed.

As discussed above, amended independent claims 1, 7, 15 and 17 now recite that the graphics processing device is portable and external to the graphics processing device, and that the graphics processing device includes a local battery. The Examiner cites paragraph [0029] of Sahdra as allegedly disclosing an analogous graphics processor. However, paragraph [0029] of Sahdra merely discloses that the processing module 230 is part of USB dongle device 10. USB dongle device 10 is powered by the computer that it is coupled to. Therefore, USB dongle device 10 does not require a battery, for which Gelf has been cited by the Examiner. Secondly, processing module 230 that is part of USB dongle device 10 cannot be regarded as an analogue to the graphics processor because of limited capabilities and functionalities thereof.

Exemplary embodiments disclose a data processing device to which a portable external graphics processing device is coupled to through a USB interface. The portable external graphics processing device includes a graphics processor and a local battery and provides for auxiliary processing power. The external graphics processing device dispenses with a need to modify a motherboard of the data processing device to provide supplementary processing power.

Thus, Sahdra and Gelf, whether considered separately or in combination, do not show or suggest all of the limitations of amended independent claims 1, 7, 15 and 17. Amended independent claims 1, 7, 15 and 17 are, therefore, patentable over Sahdra and Gelf. Claims 2-4, 6, 8-12, 14 and 18-20, directly dependent on amended independent claims 1, 7 and 17, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 5 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra and Gelf in view of U.S. Patent No. 6,507,172 (hereinafter "Sherman"). Claim 15 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra and Gelf in view of U.S. Patent Publication No. 2006/0171689 (hereinafter "Smith"). Claim 16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra, Gelf and Smith, in view of U.S. Patent Publication No. 2012/0162235 (hereinafter "Nugent"). The additional references, *viz.* Sherman, Smith and Nugent fail to supply that which Sahdra and Gelf lack with regard to amended independent claims 1, 7, 15 and 17, which, therefore, are patentable over Sahdra, Gelf and/or the additional references. Claims 5, 13 and 16, directly dependent on amended independent claims 1 and 15, are also patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

CONCLUSION

Applicant respectfully submits that the Claims are in condition for allowance and notification to that effect is requested. If any additional fees are due for this submission, the fees may be charged to Deposit Account number 505934. The Examiner is invited to telephone the attorney of the Applicant at 650-965-8731 to facilitate prosecution of this application.

Respectfully submitted,

nVIDIA Corporation

By their Representatives,
Raj Abhyanker, P.C.
Customer No. 102288
Ph.: 650-965-8731

Date: February 11, 2013

By: /Raj Abhyanker/
Raj Abhyanker
Reg. No. 45,474

Electronic Acknowledgement Receipt

EFS ID:	14933353
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	102288
Filer:	Raj Vasant Abhyanker/Anjal Dhomane
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	11-FEB-2013
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Time Stamp:	23:28:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	RTNFOA_00108_00020US1.pdf	71955 bb6ccc58988b7f9d0b4bea50988d85c838bf6e73	no	12

Warnings:	
Information:	

Total Files Size (in bytes):	71955

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
12/824,423	06/28/2010	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	02/11/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $31 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $125 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/ANNETTE SMITH/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1	9884

102288 7590 11/09/2012

Raj Abhyanker, P.C.
1580 W. El Camino Real, Suite 8
Mountain View, CA 94040

EXAMINER	
RABURN, GREG A	

ART UNIT	PAPER NUMBER
2678	

NOTIFICATION DATE	DELIVERY MODE
11/09/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@rajpatent.com

Office Action Summary	Application No.	Applicant(s)	
	12/824,423	SOMA, SRINIVAS	
	Examiner	Art Unit	
	GREG RABURN	2678	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-20* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-20* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Neural AI, LLC, Exhibit 2018
Page 2018 - 393
IPR2025-00608, NVIDIA Corporation v. Neural AI, LLC

DETAILED ACTION

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. **Claim 20 is rejected under 35 U.S.C. § 101 because the claim is directed to non-statutory subject matter in the form of a "machine-readable medium".** The claim falls outside the scope of patent-eligible subject matter at least because the claimed machine-readable medium is broad enough to encompass non-transitory embodiments (e.g., one of ordinary skill in the art could reasonably be expected to interpret the claimed machine-readable medium as a carrier wave onto which instructions could be coded).

3. See also the Official Gazette Notice 1351 OG 212 February 23, 2010 "Subject Matter Eligibility of Computer Readable Media" which states in relevant part "[i]n an effort to assist the patent community in overcoming a rejection or potential rejection under 35 U.S.C. § 101 in this situation, the USPTO suggests the following approach. A claim drawn to such a machine-readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation 'non-transitory' to the claim."

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1-4, 6-12, 14, and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sahdra et al., U.S. Patent Publication 2009/0141894 (filed Dec. 4, 2007) ("*Sahdra*") in view of Gelf et al., U.S. Patent Publication 2009/0144456 (filed Nov. 29, 2008) ("*Gelf*").

7. **Regarding independent claim 1**, *Sahdra* teaches a graphics processing device that is portable and provides graphics processing for a computer system, the graphics processing device comprising:

a. a graphics processor (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device comprising a processor module 230 (graphics processor)*);

b. a Universal Serial Bus (USB) interface that is communicatively coupled with the graphics processor and is configured to be communicatively coupled with the computer system (*see Sahdra, ¶0022, figs.1, 10, disclosing a USB interface between a host device*

(computer system) and the USB device containing a processor module (graphics processor));

c. the USB interface being further configured to transfer a graphics instruction, which was originated by the computer system, to the graphics processor, and the graphics processor being configured to, process the graphics instruction on behalf of the computer system, and transfer a result of processing the graphics instruction to the computer system, using the USB interface (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated by the computer system), where it is processed according to the command and the result is sent (transferred) back to the host device (computer system) via the USB interface*); and

d. the graphics processor configured to at least partially power the graphics processor to process the graphics instruction (*see Sahdra, ¶0046, figs.7, 1, 8, 11, disclosing receiving a video signal based on a selection command (graphics instruction), generating a processed video signal, and receiving a power signal to power modules of the video device (at least partially powering the processor to process the graphics instruction)*).

8. *Sahdra* is understood to be silent on the limitation of "a battery" as recited in claim 1. However, *Gelf* teaches a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data*).

9. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device (*see Gelf, ¶0002*) without requiring an additional power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

10. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

11. **Regarding claim 2**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

12. *Sahdra* is understood to be silent on the limitation, "wherein the USB interface utilizes a USB 3.0 protocol" as recited in claim 2. However, *Gelf* teaches wherein the USB interface utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

13. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the

known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

14. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

15. **Regarding claim 3**, *Sahdra* in view of *Gelf* teaches the device of claim 1. *Sahdra* further teaches wherein the graphics instruction is associated with a graphics application operated by the computer system (*see Sahdra, ¶¶0037, 0052, disclosing software applications that operate in conjunction with the processing module*).

16. **Regarding claim 4**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

17. *Sahdra* is understood to be silent on the limitation, "wherein the battery is rechargeable" as recited in claim 3. However, *Gelf* teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

18. The motivation for combining *Gelf* with *Sahdra* for claim 4 is the same as described above in claim 1.

19. **Regarding claim 6**, *Sahdra* in view of *Gelf* teaches the device of claim 1.

20. *Sahdra* is understood to be silent on the limitation, "wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing

device such that the battery is field replaceable" as recited in claim 6. However, *Gelf* teaches wherein the battery is user−attachable with the graphics processing device and user−detachable from the graphics processing device such that the battery is field replaceable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and field replaceable)*).

21. The motivation for combining *Gelf* with *Sahdra* for claim 6 is the same as described above in claim 1.

22. **Regarding independent claim 7**, *Sahdra* teaches:

a. a processor (*see Sahdra, ¶¶0029, 0037, disclosing a device comprising a processor module 230 (processor)*);

b. a power source coupled with the processor and configured to provide power to the processor (*see Sahdra, ¶0046, figs.7, 1,8 11, disclosing that the device may optionally receive a power signal to power modules of the video device (providing power to the processor*); and

c. a Universal Serial Bus (USB) module communicatively coupled with the processor and configured to be communicatively coupled with the computer system (*see Sahdra, ¶0022, figs.1, 10, disclosing a USB device with a processor module (processor) coupled to a host device (computer system)*), the USB module being configured to transfer an instruction, which was originated by the computer system, to the processor, and the processor being configured to, process the instruction on behalf of the computer system, and transfer a result of the processed instruction to the computer system, using the USB module (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated by the*

computer system), where it is processed according to the command and the result is sent (transferred) back to the host device (computer system) via the USB interface).

23. *Sahdra* is understood to be silent on the limitation that the power source can be "a battery" as recited in claim 7. However, *Gelf* teaches a battery (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data*).

24. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device (*see Gelf, ¶0002*) without requiring an additional power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

25. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

26. **Regarding claim 8**, *Sahdra* in view of *Gelf* teaches the system of claim 7. *Sahdra* further teaches wherein the processor includes a graphics processor, and the portable processing system is configured to provide auxiliary graphics processing for the computer system (*see Sahdra, ¶¶0027, 0029, disclosing that the USB device, which includes a processing module (graphics processor) receives video signals for further processing (auxiliary graphics processing) when coupled to the host device (computer system)*).

27. **Regarding claim 9**, *Sahdra* in view of *Gelf* teaches the system of claim 8. *Sahdra* further teaches wherein the instruction includes a graphics instruction associated with a graphics application operated by the computer system (*see Sahdra, ¶0052, disclosing that the device can be implemented with Microsoft Media Center Edition 2005 (graphics application)*).

28. **Regarding claim 10**, *Sahdra* in view of *Gelf* teaches the system of claim 7. *Sahdra* further teaches wherein the battery is configured to at least partially power the processor to process the instruction (*see Sahdra, ¶0046, figs.7, 1,8 11, disclosing generating a processed video signal, and receiving a power signal to power modules of the video device (at least partially powering the processor to process the instruction)*).

29. **Regarding claim 11**, *Sahdra* in view of *Gelf* teaches the system of claim 7.

30. *Sahdra* is understood to be silent on the limitation, "wherein the battery is user−detachable from the portable processing system and user−attachable with the portable processing system" as recited in claim 11. However, *Gelf* teaches wherein the battery is user−detachable from the portable processing system and user−attachable with the portable processing system (*see Gelf, ¶0087, fig.11A, disclosing that the battery is removable (user-detachable and user-attachable)*).

31. The motivation for combining *Gelf* with *Sahdra* for claim 11 is the same as described above in claim 7.

32. **Regarding claim 12**, *Sahdra* in view of *Gelf* teaches the system of claim 7.

33. *Sahdra* is understood to be silent on the limitation, "wherein the battery is rechargeable" as recited in claim 12. However, *Gelf* teaches wherein the battery is rechargeable (*see Gelf, ¶0087, fig.11A, disclosing that the battery is rechargeable*).

34. The motivation for combining *Gelf* with *Sahdra* for claim 12 is the same as described above in claim 7.

35. **Regarding claim 14**, *Sahdra* in view of *Gelf* teaches the system of claim 7.

36. *Sahdra* is understood to be silent on the limitation, "wherein the USB module utilizes a USB 3.0 protocol" as recited in claim 14. However, *Gelf* teaches wherein the USB module utilizes a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

37. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

38. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

39. **Regarding independent claim 17**, *Sahdra* teaches a method comprising:

a. indicating to a computer system, utilizing a Universal Serial Bus (USB) protocol, that a graphics processing device is active (*see Sahdra, ¶0022, fig.1, disclosing that when the USB dongle device is coupled to the host device it processes video signals received from the host device; the host device is inherently aware that the USB dongle device is available to process the video signals*), the graphics processing device being portable by a user (*see Sahdra, a USB dongle device by definition, supra, is inherently portable by a user*);

b. acquiring, utilizing the USB protocol, a graphics instruction from the computer system (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (from the computer system)*), based at least in part on the indicating that the graphics processing device is active (*see Sahdra, for the command (graphics instruction) to be processed, it is inherently based at least in part on the USB device being active*);

c. processing the acquired graphics instruction using a graphics processor within the graphics processing device (*see Sahdra, ¶¶0022, 0037, 0054, figs.1, 10, disclosing that the USB device, having a processing module (graphics processor), processes the video signal according to the received command (graphics instruction)*);

d. using energy supplied by a power source to process the acquired graphics instruction (*see Sahdra, ¶0046, figs.7, 1,8 11, disclosing that the device may optionally receive a power signal to supply energy to modules of the video device (providing power to the processor for processing the instruction*); and

e. transferring to the computer system, utilizing the USB protocol, a result of the processing of the acquired graphics instruction (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device sends the result (transferred) back to the host device (computer system) via the USB interface*).

40. *Sahdra* is understood to be silent on the limitation that the power source can be a rechargeable battery, "the rechargeable battery forming a portion of the graphics processing device" as recited in claim 17. However, *Gelf* teaches a rechargeable battery, the rechargeable battery forming a portion of the USB device (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a power module 430 containing a removable, rechargeable battery 1145 forming a portion of the USB device, the power module being connected to the processor module 415 that receives and processes data*).

41. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small,

portable device (*see Gelf, ¶0002*) without requiring an additional power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

42. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

43. **Regarding claim 18**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

44. *Sahdra* is understood to be silent on the limitation, "wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol" as recited in claim 18. However, *Gelf* teaches wherein the USB protocol can be a USB 3.0 protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*).

45. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

46. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

47. **Regarding claim 19**, *Sahdra* in view of *Gelf* teaches the method of claim 17.

48. *Sahdra* is understood to be silent on the limitation, "storing the energy in the rechargeable battery prior to the supplying of the energy" as recited in claim 19. However, *Gelf* teaches storing the energy in the rechargeable battery prior to the supplying of the energy (*see Gelf, ¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable, rechargeable battery 1145 for powering the device, the power module being connected to the processor module 415 that receives and processes data, and the battery capable of being recharged (storing energy) by power control 315 prior to the supplying of energy*).

49. The motivation for combining *Gelf* with *Sahdra* for claim 19 is the same as described above in claim 17.

50. **Regarding claim 20**, *Sahdra* in view of *Gelf* teaches the method of claim 19. *Sahdra* further teaches a machine−readable medium including instructions that when executed by a machine, cause the machine to perform the method (*see Sahdra, ¶0030, disclosing that software implementations of the invention can be stored on a tangible, computer-readable, storage medium*).

51. **Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Sherman, U.S. Patent No. 6,507,172 (filed Mar. 19, 2001) ("*Sherman*").**

52. **Regarding claim 5**, *Sahdra* in view of *Gelf* teaches the device of claim 4.

53. *Sahdra* is understood to be silent on the on the limitation, "wherein the battery is a lithium ion battery" as recited in claim 5. However, *Sherman* teaches wherein the battery is a lithium ion battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

54. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

55. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

56. **Regarding claim 13**, *Sahdra* in view of *Gelf* teaches the system of claim 12.

57. *Sahdra* is understood to be silent on the limitation, "wherein the battery is a lithium ion rechargeable battery" as recited in claim 13. However, *Sherman* teaches wherein the battery is a lithium ion rechargeable battery (*see Sherman, col.1 ll.51-56, disclosing charging lithium-ion batteries in USB-connected devices*).

58. The artisan having ordinary skill, starting with rechargeable battery of *Gelf*, would have appreciated the benefits of a lithium-ion rechargeable battery, as proposed by *Sherman*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known rechargeable battery disclosed in *Gelf* for the known lithium-ion battery of *Sherman*, which would produce the predictable results of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Sherman*, as proposed above, in order to increase the amount of power transferred at low current "to conform to the universal serial bus current supply limit set in the USB specification" (*Sherman, Abstract*).

59. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the rechargeable battery of *Gelf* for the lithium-ion battery of *Sherman* to achieve the predictable result of having a lightweight, rechargeable battery without a memory effect in the place of the known rechargeable battery.

60. **Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of Smith, U.S. Patent Publication 2006/0171689 (filed Mar. 8, 2006) ("*Smith*").**

61. **Regarding independent claim 15**, *Sahdra* teaches A graphics processing system comprising:

a. a computer system (*see Sahdra, ¶0021, fig.2, disclosing a video processing system including a personal computer*) including,

i. one or more system processors (*see Sahdra, ¶0021, fig.2, disclosing a video processing system including a personal computer, which inherently contains one or more processors*),

ii. a memory coupled with the one or more system processors (*see Sahdra, ¶0029, disclosing a plurality of memory devices available to store instructions for the USB video device*),

iii. a video display device configured to display graphical data generated by the one or more system processors (*see Sahdra, ¶0027, disclosing a display screen or monitor associated with the system*),

iv. a Universal Serial Bus (USB) interface coupled with the one or more system processors (*see Sahdra, ¶0022, the USB dongle device is coupled to the host device (computer system including one or more system processors)*), and

v. an audio device configured to generate audio data generated by the one or more system processors (*see Sahdra, ¶¶0024, 0041, 0062, disclosing that video signal being processed by the device may or may not include audio signals*);

b. a graphics processing device communicatively coupled with the computer system (*see Sahdra, ¶0022, disclosing the USB dongle device coupled to the host device (computer system)*), the graphics processing device including,

i. one or more graphics processors (*see Sahdra, ¶¶0029, 0037, fig.3, disclosing a device comprising a processor module 230 (one or more graphics processors)*),

ii. a USB interface communicatively coupled with the one or more graphics processors (*see Sahdra, ¶0022, disclosing the dongle device (containing one or more graphics processors) coupled to the host device through the USB interface*),

(1) the second USB interface being configured to receive a graphics instruction that is encoded by a USB communication protocol from the computer system, and to provide the graphics instruction for the one or more graphics processors (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the USB device receives a command (graphics instruction) from the host device (originated by the computer system)*), and

(2) the one or more graphics processors being configured to process the graphics instruction on behalf of the computer system (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that command (graphics instruction) is processed (behalf of the computer system)*), and to transfer a result of the processed graphics instruction to the computer system, using the second USB interface (*see Sahdra, ¶¶0022, 0054, figs.1, 10, disclosing that the result is sent (transferred) back to the host device (computer system) via the USB interface*); and

(3) a power source configured to at least partially power the one or more graphics processors when the one or more graphics processors

processes the graphics instruction (*see Sahdra, ¶0046, figs.7, 1,8 11, disclosing that the device may optionally receive a power signal to power modules of the video device (providing power to the processor*).

62. *Sahdra* is understood to be silent on the limitation that the power source is "a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable" as recited in claim 15. However, *Gelf* teaches a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable (*see Gelf, ¶¶0044, 0046, 0087, figs.4, 11A, disclosing a portable USB device having a power module 430 containing a removable (removably coupled and field replaceable), rechargeable battery 1145 for powering the device*).

63. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of having a removable, rechargeable battery, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having a removable, rechargeable battery, which would produce the well-known, predictable and expected results and benefits of having a USB video device with a self-contained, rechargeable, replaceable power source. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to integrate additional functionality into a small, portable device (*see Gelf, ¶0002*) without requiring an additional power source, and at least because both *Sahdra* and *Gelf* are similarly drawn to USB devices.

64. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the removable, rechargeable battery of *Gelf* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of having a USB video

device with a self-contained, rechargeable, replaceable power source by utilizing a removable, rechargeable battery.

65. *Sahdra* is understood to be silent on the limitation that the USB communication protocol is "a USB 3.0 communication protocol" as recited in claim 15. However, *Gelf* teaches a USB 3.0 communication protocol (*see Gelf, ¶0050, disclosing that USB 3.0 interface protocol may be implemented with the device*)

66. Additionally, although *Sahdra* discloses using a USB interface for both video and audio signals (*see Sahdra, ¶¶0024, 0041, 0062, disclosing that video signal being processed by the USB device may or may not include audio signals*), *Sahdra* is understood to be silent on the limitation of having a separate first USB interface and second USB interface as recited in claim 15. However, *Gelf* teaches a first and second USB interface (*see Gelf, ¶¶0004, 0006, disclosing a USB device having a first communication port and a second communication port (first and second USB interfaces)*).

67. The ordinarily-skilled artisan, starting with the USB video device of *Sahdra*, would have appreciated the benefits of using USB 3.0 protocol, as proposed by *Gelf*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known USB interface disclosed in *Sahdra* with the known USB 3.0 protocol of *Gelf*, which would produce the predictable results of having a USB video device that is compatible with modern interface standards. The artisan of ordinary skill would have been motivated to combine *Gelf* with *Sahdra*, as proposed above, in order to implement plugs and receptacles of standard interface devices (see *Gelf, ¶0050*).

68. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the USB 3.0 protocol of *Gelf* with the USB video device of *Sahdra* to achieve the predictable result of having a USB video device that is compatible with modern interface standards.

69. Although *Sahdra* discloses a USB dongle device, which is defined as a "small module that plugs in and sticks out of a socket" which may or may not have "a short cable" (*see http://encyclopedia2.thefreedictionary.com/dongle*), *Sahdra* is understood to be silent on the limitation of "a USB cable" and "a USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable" as recited in claim 15. However, *Smith* teaches a USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable (*see Smith, ¶0041, discloses an external audio device coupled to a host computer by a USB cable, and an external video capture device (graphics processor) also coupled to the host computer by USB cable (communicatively coupled via the computer system)*).

70. The artisan of ordinary skill, starting with the USB video device of *Sahdra*, would have appreciated the benefits of connecting external video and audio cards to a host computer with USB cables, as proposed by *Smith*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of having an audio device in communication with a video device via USB cables, which would produce the well-known, predictable and expected results and benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal (see Smith, *¶0006)*. The artisan of ordinary skill would have

been motivated to combine *Smith* with *Sahdra*, as proposed above at least because both *Sahdra* and *Smith* are similarly drawn to external video devices.

71. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to combine the connecting of external video and audio cards to a host computer with USB cables of *Smith* with the USB video device of *Sahdra* to achieve the well-known and expected benefits of facilitating the simultaneous processing of audio and video data encoded and synchronized in the same signal.

72. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Sahdra* in view of *Gelf*, and further in view of *Smith*, and further in view of Nugent et al., U.S. Patent Publication 2012/0162235 (filed Oct. 13, 2008) ("*Nugent*").

73. **Regarding claim 16**, *Sahdra* in view of *Gelf*, and further in view of *Smith* teaches the system of claim 15.

74. *Sahdra* is understood to be silent on the limitation, "wherein the one or more graphics processors include at least one multi−core processor" as recited in claim 16. However, *Nugent* teaches wherein the one or more graphics processors include at least one multi−core processor (*see Nugent, ¶0019, discloses that the processor of an external graphics-processing device may include one or more cores of a multi-core processing unit*).

75. The artisan having ordinary skill, starting with the processing module of *Sahdra*, would have appreciated the benefits of the multi-core graphics-processing unit, as proposed by *Nugent*. The artisan of ordinary skill, with recourse to common sense, would readily see the benefits of simply substituting the known the processing module disclosed in *Sahdra* for the known the multi-core graphics-processing unit of *Nugent*, which would produce the predictable results of

increasing the speed of graphics processing over the speed of the known the processing module. The artisan of ordinary skill would have been motivated to substitute *Sahdra* for *Nugent*, as proposed above, in order to provide high-performance graphics while reducing the power drawn by the internal GPU (see *Nugent, ¶¶0002, 0004*).

76. Therefore, a person having ordinary skill in the art at the time of the invention would have found it obvious to substitute the processing module of *Sahdra* for the multi-core graphics processing unit of *Nugent* to achieve the predictable result of increasing the speed of graphics processing.

Conclusion

77. Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREG RABURN whose telephone number is (571)270-1936. The examiner can normally be reached on M-F 8:00-5:00.

78. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Xiao Wu can be reached on (571)272-7761. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

79. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. If you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/GREG RABURN/

Examiner, Art Unit 2678

/XIAO M. WU/

Supervisory Patent Examiner, Art Unit 2678

Notice of References Cited	Application/Control No. 12/824,423	Applicant(s)/Patent Under Reexamination SOMA, SRINIVAS	
	Examiner GREG RABURN	Art Unit 2678	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,507,172 B2	01-2003	Sherman, Leonard Harris	320/134
*	B	US-2006/0171689 A1	08-2006	SMITH, Chris A.	386/125
*	C	US-2009/0144456 A1	06-2009	Gelf et al.	710/8
*	D	US-2009/0141894 A1	06-2009	Sahdra et al.	380/239
*	E	US-2010/0091025 A1	04-2010	Nugent et al.	345/502
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
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	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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BIB DATA SHEET

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SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/824,423	06/28/2010	345	2678	00108.00020US1

APPLICANTS
Srinivas Soma, Hyderabad, INDIA;

** **CONTINUING DATA** **********

** **FOREIGN APPLICATIONS** **********

** **IF REQUIRED, FOREIGN FILING LICENSE GRANTED** ** SMALL ENTITY **
07/08/2010

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /GREG A RABURN/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		INDIA	6	20	4

ADDRESS

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UNITED STATES

TITLE

RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

FILING FEE RECEIVED		
572	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	GREG RABURN	2678

SEARCHED

Class	Subclass	Date	Examiner

SEARCH NOTES

Search Notes	Date	Examiner
EAST text search of PGPUB, PAT with terms GPU, battery, rechargeable, lithium, USB 3.0, external, cable, multi-core, processor	11/2/2012	/G.R./
PLUS search	11/2/2012	/G.R./
Double-patenting search	11/2/2012	/G.R./
Google/Google Patents Search	11/2/2012	/G.R./
Search of foreign EPO, JPO, DERWENT databases	11/2/2012	/G.R./

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

/G.R./ Examiner.Art Unit 2678	

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	12824423	SOMA, SRINIVAS
	Examiner	**Art Unit**
	GREG RABURN	2678

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	11/02/2012								
	1	✓								
	2	✓								
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	19	✓								
	20	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	1	(soma near2 srinivas).in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:44
S3	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/01 09:45
S4	0	S2 not S3	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:45
S5	747	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/01 09:46
S6	689	S5 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/01 09:47
S7	1	("20110316865").PN.	DERWENT	OR	OFF	2012/10/01 12:02
S8	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:12
S9	977904	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/10/26 20:16
S10	38836	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/10/26 20:19

		light$1weight (light adj weight))	DERWENT			
S11	11921	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:24
S12	1184	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S13	306	S10 and S11 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S14	4	S13 and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:26
S15	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/26 20:27
S16	692	S15 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:27
S18	208	S13 and S9	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/26 20:28
S19	898	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S20	38893	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S21	11939	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S22	1185	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S23	306	S20 and S21 and S22	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53

S24	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:53
S25	692	S24 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S26	5	S23 and S25	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:53
S27	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:58
S28	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S29	4	S23 and S28	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S30	0	(S19 and (S26 S29)) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:58
S31	978671	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/10/31 09:59
S32	208	S23 and S31	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:59
S33	11	(S19 and S32) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 09:59
S34	745	(startech iogear aten).as.	US-	OR	ON	2012/10/31

			PGPUB; USPAT; EPO; JPO; DERWENT			10:09
S35	1	S19 and S34	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:10
S36	276	S19 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:11
S37	7	(S36 and S25) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:11
S40	70	(S36 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:25
S42	7	S40 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:26
S43	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:28
S44	63	S40 not S42	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:30
S45	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:49
S46	42	S45 not (S43 S44 S42 S40 S37)	US-PGPUB;	OR	ON	2012/10/31 10:50

			USPAT; EPO; JPO; DERWENT			
S47	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" | "7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 10:56
S48	53	S47 not (S43 S44 S42 S40 S37 S45)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 10:57
S49	231	("20010029556" | "20020015055" | "20020059302" | "20020085007" | "20020118308" | "20020145612" | "20020180740" | "20020196259" | "20030020720" | "20030034975" | "20030038808" | "20030080959" | "20030103054" | "20030112245" | "20030112246" | "20030117971" | "20030128197" | "20030151606" | "20030164832" | "20030164834" | "20030171907" | "20030179220" | "20030188075" | "20030189565" | "20030212735" | "20040012600" | "20040036159" | "20040153778" | "20040169651" | "20040179019" | "20040196289" | "20040207618" | "20040210788" | "20040223003" | "20050041031" | "20050081115" | "20050122330" | "20050162437" | "20050166207" | "20050190189" | "20050190190" | "20050195186" | "20050195187" | "20050206646" | "20050223124" | "20050225558" | "20050237327" | "20050237329" | "20050243096" | "20050243215" | "20050259103" | "20050265064" | "20050275760" | "20060005178" | "20060028478" | "20060055695" | "20060059494" | "20060101218" | "20060114260" | "20060119607" | "20060120376" | "20060123142" | "20060156399" | "20060202941" | "20060208960" | "20060221086" | "20060221087" | "20060225061" | "20060248241" | "20060267987" | "20060268005" | "20060271713" | "20060274073" | "20060282604" | "20060290700" | "20070159488" | "20070195099" | "20080007559" | "20080143731" | "5475856" | "5535410" | "5687357" | "5740464" | "5745762" | "5754866" | "5757385" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 11:00

		"5758182" | "5794016" | "5841444" | "5909595" | "6118462" | "6169553" | "6181352" | "6184908" | "6188412" | "6191800" | "6201545" | "6212261").PN. OR ("6212617" | "6259460" | "6288418" | "6292200" | "6333744" | "6337686" | "6352479" | "6362825" | "6415345" | "6442656" | "6462737" | "6473086" | "6473089" | "6477687" | "6492987" | "6496187" | "6496404" | "6502173" | "6529198" | "6532013" | "6532525" | "6535209" | "6542971" | "6557065" | "6577309" | "6577320" | "6578068" | "6593923" | "6633296" | "6636212" | "6636215" | "6646639" | "6650330" | "6650331" | "6657635" | "6662257" | "6664960" | "6664963" | "6670958" | "6677953" | "6683614" | "6690372" | "6691180" | "6700583" | "6704025" | "6724394" | "6725457" | "6728820" | "6731298" | "6734861" | "6734874" | "6741243" | "6744433" | "6753878" | "6774895" | "6778176" | "6778177" | "6778181" | "6778189" | "6779069" | "6789154" | "6797998" | "6801202" | "6812927" | "6825843" | "6828980" | "6828987" | "6831652" | "6842180" | "6844879" | "6856320" | "6864893" | "6864984" | "6870540" | "6876362" | "6885376" | "6894687" | "6894689" | "6900810" | "6938176" | "6940515" | "6947047" | "6947865" | "6952206" | "6956579" | "6959110" | "6961057" | "6975319" | "6980209" | "6982718" | "6985152" | "6989840" | "6992667" | "6995767" | "6999076" | "7002588" | "7015915" | "7023437" | "7027972" | "7038678" | "7038685" | "7038692" | "7051139" | "7053901" | "7064763" | "7068272" | "7068278" | "7075541" | "7080194" | "7081895" | "7091971" | "7095414" | "7098922" | "7119808" | "7120816" | "7123266" | "7129909" | "7130316" | "7142215" | "7145565" | "7170513" | "7170515" | "7224359" | "7248261" | "7289125").PN. OR ("7324111" | "7324547" | "7325086" | "7372465" | "7388581" | "7477256" | "7525547" | "7598958").PN. OR ("7796129").URPN.				
S50	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/10/31 11:02
S51	1	S50 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:02

S53	283	(usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:31
S56	282	((usb external) adj (((video graphics) adj (process$3)) gpu) and (usb external video graphics process$3 gpu).ti.) not S27	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:33
S57	144	S56 and power	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:34
S58	37	S56 and battery	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:34
S60	44	S56 and "3."$1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:35
S62	10	S56 and recharg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:36
S63	0	S57 and S58 and S60 and S62	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:36
S64	10	(S57 and S60 and S62) (S57 and S58 and S62) (S57 and S58 and S60)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:37
S65	40	((S60 and S62) (S57 and S62) (S57 and S60) (S58 and S62) (S57 and S58) (S58 and S60)) not S64	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 11:40
S66	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/10/31 11:46
S67	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:26
S68	76	S67 and (((battery$1power$3 (battery adj power$3)) near2 (usb (universal adj serial adj bus))) near40 (device unit))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:27
S69	20	(S68 and (usb external video graphics process$3 gpu).ti.) not S27	US-PGPUB;	OR	ON	2012/10/31 12:27

			USPAT; EPO; JPO; DERWENT			
S70	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/10/31 12:31
S72	99	(S67 and (((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same recharg$5)) not (S70 S69)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:39
S73	0	S72 and "USB 3.0"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:44
S74	0	S72 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:45
S75	4	S67 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:45
S76	0	("2011/0022826").URPN.	USPAT	OR	ON	2012/10/31 12:50
S78	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S75	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:52
S79	7	S78 and $2charg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 12:53
S80	0	("2011/0307724").URPN.	USPAT	OR	ON	2012/10/31 13:36
S81	44702	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 13:38
S84	243	S81 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 13:54
S85	29	S84 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/10/31 13:54

			DERWENT			
S86	20	S85 and $2charg$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 14:02
S87	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/10/31 16:38
S88	2	S87 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/10/31 16:40
S89	18	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$ or US-20050108763-$ or US-20060147185-$ or US-20040143686-$ or US-20110307724-$ or US-20090144456-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$ or US-7624202-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 10:27
S91	0	S89 and (lithium li$2on (li adj ion))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:28
S92	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:28
S94	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:29
S95	2	(S92 and battery near40 (lithium li$2on (li adj ion))) not S94	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:29
S96	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/11/01 10:32

			DERWENT			
S97	39001	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S98	11978	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S99	1189	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S100	306	S97 and S98 and S99	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S101	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S102	692	S101 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S103	5	S100 and S102	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S104	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S105	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S106	208	S100 and S105	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S107	11	(S96 and S106) not S104	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S108	277	S96 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S109	7	(S108 and S102) not S104	US-PGPUB; USPAT;	OR	ON	2012/11/01 10:32

			EPO; JPO; DERWENT			
S110	70	(S108 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S104	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S111	7	S110 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S112	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S113	63	S110 not S111	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S114	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S115	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" | "7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" | "7478187" | "8019905").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S116	53	S115 not (S112 S113 S111 S110 S109 S114)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S117	12	(US-20100020087-$ or US-	US-	OR	ON	2012/11/01

		20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	PGPUB; USPAT			10:32
S118	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 10:32
S119	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S120	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 10:32
S121	4	S119 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S122	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S121	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S123	44812	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S124	244	S123 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S125	29	S124 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S126	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/11/01 10:32
S127	2	S126 and (power same6 (instruction command process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 10:32
S129	8	(((S127 S125 S122 S120 S118 S117 S116 S109 S107 S103) and battery near40 (lithium li$2on (li adj ion))) not S94) and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/11/01 10:38

			DERWENT			
S130	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S131	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S132	39001	((graphic$2 adj process$3) gpu) and (portable hand$1held (hand adj held) laptop notebook moveable transportable convenient compact light light$1weight (light adj weight))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S133	11978	((graphic$2 adj process$3) gpu) same (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S134	1189	(USB (universal adj serial adj bus)) same6 ((instruction command) near40 ((graphic$2 adj process$3) gpu))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S135	306	S132 and S133 and S134	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S136	751	(345/520).CCLS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S137	692	S136 and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S138	5	S135 and S137	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S139	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S140	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S141	208	S135 and S140	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S142	11	(S131 and S141) not S139	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39

S143	277	S131 and usb	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S144	7	(S143 and S137) not S139	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S145	70	(S143 and ((usb (universal adj serial adj bus)) (video graphics)).ti.) not S139	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S146	7	S145 and ((usb (universal adj serial adj bus)) and (video graphics)).ti.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S147	8	("20070273643" | "6680754" | "6727960" | "7206025" | "7543086" | "7596646" | "7617342").PN. OR ("2009/0141894" | "8028094").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S148	63	S145 not S146	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S149	43	("20020044201" | "20020046404" | "20020071485" | "20030017846" | "20030091325" | "20030218577" | "20040010805" | "20040085726" | "20040196625" | "20040267981" | "20050184161" | "20050231586" | "20050246470" | "20060010268" | "20060013416" | "20060087511" | "20060279577" | "20060282604" | "20070006269" | "20070086154" | "20080269927" | "5384686" | "5926226" | "6362959" | "6626543" | "6724389" | "6772265" | "6860609" | "6864891" | "7038906" | "7079149" | "7123880" | "7151799" | "7180475" | "7327385" | "7350923" | "7478187" | "7486946" | "7551175").PN. OR ("2006/0171689" | "2008/0259556" | "2009/0066705" | "2010/0020087" | "7827340" | "7970049" | "7982742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S150	56	("20020150393" | "20020190920" | "20030179154" | "20040212610" | "20050091311" | "20060083239" | "20060109240" | "20060119603" | "20060212731" | "20060267992" | "20060277587" | "20080007552" | "20080250184" | "20080263237" | "20090066705" | "6020931" | "6134615" | "6418492" | "6421755" | "6487623" | "6711645" | "6970173" | "7123212").PN. OR ("2006/0010268" | "2006/0087511" | "2006/0282604" |	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39

		"7478187" | "8019905").URPN.				
S151	53	S150 not (S147 S148 S146 S145 S144 S149)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S152	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 11:39
S153	1	("20060147185").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 11:39
S154	580	((battery$1power$3 (battery adj power$3)) near40 (usb (universal adj serial adj bus))) same (device unit)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S155	23	("20040239294" | "20040251878" | "20060181241" | "20060287007" | "20070088967" | "20070143505" | "5848298" | "6184652" | "6308239" | "6507172" | "6531845" | "6532512" | "6622195" | "6732218" | "6798173" | "6946817" | "7017055" | "7069347" | "7170259" | "7340627").PN. OR ("7624202").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2012/11/01 11:39
S156	4	S154 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S157	14	(((battery$1power$3 (battery adj power$3)) same (usb (universal adj serial adj bus))) and (USB adj "3."$1)) not S156	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S158	44812	(USB (universal adj serial adj bus)) near40 (battery (storage electro$1chemical (electro adj chemical) near2 cell))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S159	244	S158 and (USB adj "3."$1)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S160	29	S159 and ((battery adj power$3) battery$1power$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S161	2	(US-20090141894-$ or US-20090144456-$).did.	US-PGPUB	OR	ON	2012/11/01 11:39
S162	2	S161 and (power same6 (instruction command process$3))	US-PGPUB;	OR	ON	2012/11/01 11:39

			USPAT; EPO; JPO; DERWENT			
S163	8	(((S162 S160 S157 S155 S153 S152 S151 S144 S142 S138) and battery near40 (lithium li$2on (li adj ion))) not S130) and @ad<"20100628."	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 11:39
S164	37	(usb adj2 cable) and ((multi$1core (multi adj core)) adj2 process$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:18
S165	12	(US-20100020087-$ or US-20090141894-$ or US-20060171689-$ or US-20080259556-$ or US-20090066705-$ or US-20060010268-$ or US-20060087511-$ or US-20060282604-$).did. or (US-7827340-$ or US-7478187-$ or US-8019905-$ or US-7796129-$).did.	US-PGPUB; USPAT	OR	ON	2012/11/01 15:19
S167	1	("20110316865").PN.	US-PGPUB; USPAT	OR	OFF	2012/11/01 15:23
S168	109	("6344906" "20110316865" "5995080" "5995150" "6195749" "6289405" "7070100" "20030140343" "20050103843" "20120062800" "20120192243" "5970220" "6148357" "6215668" "6215668" "6279045" "6381672" "6810434" "7610498" "7769988" "20020026539" "20060271701" "20080263184" "20100013839" "20100141664" "20100262746" "20120038654" "5729635" "4610739" "5198979" "5424945" "5561745" "5579414" "5625719" "5752080" "5790125" "5808690" "5923338" "5973705" "6046747" "6222552" "6222552" "4267573" "4296476" "4353092" "4373156" "4408200" "4435779" "4437093" "4439760").pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:23
S169	979393	(("345") or ("710") or ("235") or ("361") or ("382") or ("375") or ("70") or ("24") or ("712") or ("711") or ("358") or ("348")).CLAS.	US-PGPUB; USPAT	OR	OFF	2012/11/01 15:23
S170	10	(S164 and (S168 S169)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:23
S172	386	((multi$1core (multi adj core)) adj2 process$3) near40 (gpu (graphic$1 adj process$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:39
S173	111	S172 and (usb (universal adj serial adj bus$3))	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2012/11/01 15:48

			DERWENT			
S174	49	(S173 and (S168 S169)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 15:53
S175	899	(usb external) adj (((video graphics) adj (card adapter device processor)) gpu)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:11
S177	3	(S172 and S175) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:12
S178	0	S177 and (usb (universal adj serial adj bus$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:13
S179	24	(S175 and (usb adj2 cable)) not S167	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:17
S181	4	S179 and ((usb adj2 cable) same audio same video)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2012/11/01 16:20

11/1/2012 7:51:30 PM
C:\Users\graburn\Documents\EAST\Workspaces\12824423.wsp

PLUS Search Results for S/N 12824423, Searched Mon Oct 01 11:53:50 EDT 2012

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

6344906 99
20110316865 99
5995080 84
5995150 84
6195749 84
6289405 84
7070100 84
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20120062800 84
20120192243 84
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PTO/SB/122 (11-08)
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Application

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Application Number	12/824,423
Filing Date	06-28-2010
First Named Inventor	Srinivas Soma
Art Unit	2628
Examiner Name	TUNG, KEE M
Attorney Docket Number	00108.00020US1

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☐ Assignee of record of the entire interest.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

☑ Attorney or agent of record. Registration Number 45474.

☐ Registered practitioner named in the application transmittal letter in an application without an executed oath or declaration. See 37 CFR 1.33(a)(1). Registration Number_____.

Signature	/Raj Abhyanker/
Typed or Printed Name	Raj Abhyanker
Date February 2, 2012	Telephone 650-965-8731

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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EFS ID:	11980438
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	Srinivas Soma
Customer Number:	55952
Filer:	Raj Vasant Abhyanker/Mahalakshmi Raman
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	02-FEB-2012
Filing Date:	28-JUN-2010
Time Stamp:	04:40:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Change of Address	Request_For_Correspondence_Address_Change_00108_00020US1.pdf	74831 2e546272714c789c1d039523586e32f8c29329f1	no	2

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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New International Application Filed with the USPTO as a Receiving Office

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
12/824,423	06/28/2010	Srinivas Soma	00108.00020US1

CONFIRMATION NO. 9884

55952
Raj Abhyanker, P.C.
1580 West, El Camino Real, Suite 8
Mountain View, CA 94040

PUBLICATION NOTICE

OC00000051743407

Title:RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

Publication No.US-2011-0316865-A1
Publication Date:12/29/2011

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
12/824,423	06/28/2010	2628	572	00108.00020US1	20	4

CONFIRMATION NO. 9884

55952
Raj Abhyanker, P.C.
1580 West, El Camino Real, Suite 8
Mountain View, CA 94040

FILING RECEIPT

OC00000042486762

Date Mailed: 07/13/2010

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Srinivas Soma, Hyderabad, INDIA;

Assignment For Published Patent Application

NVIDIA CORPORATION,, Santa Clara, CA

Power of Attorney: The patent practitioners associated with Customer Number 55952

Domestic Priority data as claimed by applicant

Foreign Applications

If Required, Foreign Filing License Granted: 07/08/2010

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 12/824,423**

Projected Publication Date: 12/29/2011

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****

Neural AI, LLC, Exhibit 2018
Page 2018 - 444
IPR2025-00608, NVIDIA Corporation v. Neural AI, LLC

Title

RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

Preliminary Class

345

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as

set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

Electronic Acknowledgement Receipt

EFS ID:	7903035
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	SRINIVAS SOMA
Customer Number:	55952
Filer:	Raj Vasant Abhyanker/Mahalakshmi Raman
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	28-JUN-2010
Filing Date:	
Time Stamp:	13:05:25
Application Type:	Utility under 35 USC 111(a)

07/08/2010 MNGUYEN 00000007 12824423

01 FC:4011 82.00 DP
02 FC:2111 270.00 DP
03 FC:2311 110.00 DP
04 FC:2201 110.00 DP

Adjustment date: 07/08/2010 MNGUYEN
06/28/2010 INTEFSW 00009447 12824423
01 FC:1011 -330.00 DP
02 FC:1111 -540.00 DP
03 FC:1311 -220.00 DP
04 FC:1201 -220.00 DP

Refund Ref:
07/08/2010 0030085912

Credit Card Refund Total: $730.00

Master C: XXXXXXXXXXXX7405

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1310
RAM confirmation Number	9447
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

PTO/SB/06 (12-04)

Date: **07/02/10**

Approved for use through 7/31/2006. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD
Substitute for Form PTO-875

Application or Docket Number: **12/824,423**

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	**82**		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	**270**		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	**110**		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	**18** minus 20 =		x$26		OR	x$52	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	**1** minus 3 =	*	x$110			x$220	
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $260 ($130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			195			390	
			TOTAL	**462**		TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/14 (11-08)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	00108.00020US1
	Application Number	
Title of Invention	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Applicant Information:

Applicant 1 Remove

Applicant Authority ◉ Inventor ○ Legal Representative under 35 U.S.C. 117 ○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
	Srinivas		Soma	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Hyderabad	Country Of Residence[i]	IN
Citizenship under 37 CFR 1.41(b)[i]	IN		

Mailing Address of Applicant:

Address 1	#343/B, Jawahar Nagar, Moula-ali,		
Address 2			
City	Hyderabad	State/Province	AP
Postal Code	500040	Country[i]	IN

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	55952		
Email Address	docketing@rajpatent.com	Add Email	Remove Email

Application Information:

Title of the Invention	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD		
Attorney Docket Number	00108.00020US1	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	6	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	00108.00020US1
	Application Number	
Title of Invention	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD	

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	**Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S. C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	55952		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status			Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove

Application Number	Country [i]	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
			○ Yes ◉ No

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

Assignee 1 Remove

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	00108.00020US1
	Application Number	
Title of Invention	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD	

If the Assignee is an Organization check here. ☒			
Organization Name	NVIDIA Corporation,		
Mailing Address Information:			
Address 1	2701 San Tomas Expressway		
Address 2			
City	Santa Clara	**State/Province**	CA
Country [i]	US	Postal Code	95050
Phone Number		Fax Number	
Email Address			
Additional Assignee Data may be generated within this form by selecting the **Add** button.		Add	

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.					
Signature	/Raj Abhyanker/			Date (YYYY-MM-DD)	2010-06-28
First Name	Raj	Last Name	Abhyanker	Registration Number	45474

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

RALLP Docket No.08108.00020US1

United States Patent Application

COMBINED DECLARATION AND POWER OF ATTORNEY

As a below named inventor I hereby declare that: my residence, post office address and citizenship are as stated below next to my name; that

I verily believe I am the original inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled: **RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD**, the specification of which is attached hereto.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 C.F.R. § 1.56 (attached hereto). I also acknowledge my duty to disclose all information known to be material to patentability which became available between a filing date of a prior application and the national or PCT international filing date in the event this is a Continuation-In-Part application in accordance with 37 C.F.R. § 1.63(e).

I hereby claim foreign priority benefits under 35 U.S.C. §119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on the basis of which priority is claimed:

No such claim for priority is being made at this time.

I hereby claim the benefit under 35 U.S.C. § 119(e) of any United States provisional application(s) listed below:

No such claim for priority is being made at this time.

I hereby claim the benefit under 35 U.S.C. § 120 or 365(c) of any United States and PCT international application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. § 1.56(a) which became available between the filing date of the prior application and the national or PCT international filing date of this application:

No such claim for priority is being made at this time.

I hereby appoint the following attorney(s) and/or patent agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith:

Practitioners at Customer No. 55952

I hereby authorize them to act and rely on instructions from and communicate directly with the person/assignee/attorney/firm/organization/who/which first sends/sent this case to them and by whom/which I hereby declare that I have consented after full disclosure to be represented unless/until I instruct them to the contrary.

Please direct all correspondence in this case to the address associated with customer number indicated below:

Customer No. 55952

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full Name of inventor: Srinivas Soma

Citizenship: India Residence: Hyderabad, India

Post Office Address: #343/B, Jawahar Nagar, Moula-ali
Hyderabad, Andhra Pradesh 500040, India

Signature:  Date: 10th June 2020

Srinivas Soma

§ 1.56 Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is canceled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is canceled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

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E-Mail : chennai-patent@nic.in
Website : www.ipindia.nic.in
Telefax : 2250 2066

GOVERNMENT OF INDIA
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G.S.T ROAD, GUINDY,
CHENNAI - 600 032.

Telephone: 2250 2081
2250 2082
2250 2083
2250 2084

No. F25/00575/2010/CHE/ 003756

22 JUN 2010
Date : /06/2010

To

Ms. Karuna Madhu Sona,
No.813 – 816, B-Wing, Mittal Tower,
M.G. Road, Bangalore – 560 001,
Karnataka, India.

PERMISSION UNDER SECTION 39 OF THE PATENTS ACT 1970

ORDER

Whereas **Shri. Srinivas Soma,** 343/B, Jawahar Nagar, Moula-Ali, Hyderabad, Andhra Pradesh 500 040, India have filed a request in Form 25 on **11th June 2010** for permission for making Patent Application outside India for the invention relating to **"RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICES AND METHOD".**

Having considered the subject matter of the invention as submitted by above mentioned applicant, the permission is hereby granted, to file the application abroad since the invention is not found to be relevant for defence or atomic energy purpose. An endorsed copy of the document disclosing the invention submitted to the Patent Office is enclosed.

(V. RENGASAMY)
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UNITED STATES PATENT APPLICATION

FOR

RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

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RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD

FIELD OF TECHNOLOGY

[0001] This disclosure relates generally to graphics acceleration technology. More particularly, this disclosure relates to a rechargeable universal serial bus external graphics device and method.

BACKGROUND

[0002] An external graphics device (e.g., an external graphics card) may consume a significant amount of power when coupled with a data processing system through a Peripheral Component Interconnect Express (PCI-e) slot. The significant amount of power may be consumed because the external graphics device may perform process incentive graphics tasks. Furthermore, the PCI-e slot may be slow when compared to other approaches.

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SUMMARY

[0003] Disclosed are rechargeable universal serial bus external graphics device and method.

[0004] In one aspect, the rechargeable universal serial bus external graphics device referred to herein after as graphics processing device may be portable and may provide graphics processing for a computer system. The graphics processing device includes a graphics processor. The graphics processing device also includes a universal serial bus (USB) interface that is communicatively coupled with the graphics processor and is configured to be communicatively coupled with the computer system. In one or more embodiments, the USB interface may utilize a USB 3.0 protocol. The graphics processing device further includes the USB interface being further configured to transfer a graphics instruction, originated by the computer system, to the graphics processor. The graphics processor may be configured to process the graphics instruction on behalf of the computer system. The graphics processor may also be configured to transfer a result of processing the graphics instruction to the computer system, using the USB interface.

[0005] The graphics processing device may further include a battery coupled with the graphics processor, and configured to partially power the graphics processor to process the graphics instruction. The battery may be rechargeable. The battery may be a lithium ion battery. The battery may be user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable. The graphics instruction associated with a graphics application may be operated by the computer system.

[0006] In another aspect, a portable processing system to provide processing for a computer system is disclosed. The portable processing system may include a processor. The portable processing system may also include a battery coupled with the processor and configured to provide power to the processor. The battery may be configured to at least partially power the processor to process the instruction. The battery may be user-detachable from the portable processing system and user-attachable with the portable processing system. The battery may be rechargeable. The battery may be a lithium ion rechargeable battery.

[0007] The portable processing system may also include a USB module communicatively coupled with the processor and may be configured to be communicatively coupled with the computer system. The USB module may be configured to transfer an instruction, which was originated by the computer system, to the processor. The processor may be configured to process the instruction on behalf of the computer system. The processor may transfer a result of the processed instruction to the computer system, using the USB module. The processor may include a graphics processor, and the portable processing system may be configured to provide auxiliary graphics processing for the computer system. The instruction may include a graphics instruction associated with a graphics application operated by the computer system.

[0008] In yet another aspect, a graphics processing system includes a computer system. The computer system includes one or more system processors. The computer system also includes a memory coupled with one or more system processors. The computer system further includes a video display device configured to display graphical data generated by one or more system processors. The computer system furthermore includes a first USB

interface coupled with one or more system processors, and an audio device configured to generate audio data generated by one or more system processors. The graphics processing system also includes a graphics processing device communicatively coupled with the computer system using a USB cable. The graphics processing device may include one or more graphics processors. The graphics processing device may also include a second USB interface communicatively coupled with one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable.

[0009] The second USB interface may be configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the computer system via the USB cable. The second USB interface may also be configured to provide the graphics instruction for one or more graphics processors. One or more graphics processors may be configured to process the graphics instruction on behalf of the computer system. The graphic processor may also be configured to transfer a result of the processed graphics instruction to the computer system, using the second USB interface. The graphics processing device may further include a rechargeable battery that may be removably coupled with one or more graphics processors and may be configured to be field replaceable. The rechargeable battery may be configured to partially power one or more graphics processors when one or more graphics processors process the graphics instruction. The graphics processors may include one or more multi-core processors.

[0010] In yet another aspect a method includes indicating to a computer system, that a graphics processing device is active. The computer system may be indicated by utilizing a Universal Serial Bus (USB) protocol. The graphics processing device may be portable

by a user. The method also includes acquiring a graphics instruction from the computer system, based at least in part on the indicating that the graphics processing device is active. The graphics instruction may be acquired by utilizing the USB protocol. The method further includes processing the acquired graphics instruction using a graphics processor within the graphics processing device. The method furthermore includes using energy supplied by a rechargeable battery to process the acquired graphics instruction. The rechargeable battery may form a portion of the graphics processing device. The method furthermore includes transferring to the computer system, utilizing the USB protocol, a result of the processing of the acquired graphics instruction. In one or more embodiments, the acquiring of the graphics instruction utilizing the USB protocol may include acquiring the graphics instruction utilizing a USB 3.0 protocol. In one or more embodiments, transferring the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol. In one or more embodiments, the energy in the rechargeable battery may be stored prior to the supplying the energy.

[0011] The methods and systems disclosed herein may be implemented in any means for achieving various aspects, and may be executed in a form of a machine-readable medium embodying a set of instructions that, when executed by a machine, cause the machine to perform any of the operations disclosed herein. Other features will be apparent from the accompanying drawings and from the detailed description that follows.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The embodiments of this invention are illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which:

[0013] **Figure 1** is a block diagram, showing an example network including an example portable processing system and an example computing system, in accordance with an example embodiment.

[0014] **Figure 2** a block diagram, showing an example network including an example graphics processing device and a notebook computer, in accordance with an example embodiment.

[0015] **Figure 3** is a block diagram illustrating the example graphics processing device of **Figure 2**, in accordance with an example embodiment.

[0016] **Figure 4** is a block diagram showing an example machine, in accordance with an example embodiment.

[0017] **Figure 5** is an interaction diagram, illustrating example interactions involving components of an example graphics processing system, in accordance with an example embodiment.

[0018] **Figure 6** is a flow diagram showing an example method for providing graphics processing, in accordance with an example embodiment.

[0019] Other features of the present embodiments will be apparent from the accompanying drawings and from the detailed description that follows.

DETAILED DESCRIPTION

[0020] Example embodiments, as described below, may be used to provide a rechargeable universal serial bus external graphics device and method.

[0021] Although the present embodiments have been described with reference to specific example embodiments, it will be evident that various modifications and changes may be made to these embodiments without departing from the broader spirit and scope of the various embodiments.

[0022] **Figure 1** is a block diagram, showing an example network 100 including an example portable processing system 102 and an example computing system 104, in accordance with an example embodiment. The example network 100 may include, but is not limited to a wired network or a wireless network. The example network 100 may be implemented with an appropriate communication protocol including, but not limited to a universal serial bus (USB), an internet protocol (IP), Wi-Fi, worldwide interoperability for microwave access (Wimax), a fibre channel over ethernet (FCoE), a wireless application protocol (WAP) or a combination therein. In one or more embodiments, the portable processing system 102 (e.g., a graphics processing system) may be configured to process one or more instructions on behalf of the computer system 104. Examples of the computer system 104 may include, but is not limited to a desktop, a laptop, a handheld device, and/ or a computer system that does not include a graphics processor. The computer system 104 may include one or more system processors (e.g., central processing unit (CPU) and /or a memory (e.g., random access memory (RAM), read only memory (ROM) coupled with one or more of the processors.

[0023] In one or more embodiments, the computer system 104 may also include a video display device configured to display graphical data generated by one or more system processors. The computer system may further include a first USB interface coupled with one or more system processors. Furthermore, the computer system may also include an audio device configured to generate audio data generated by one or more system processors. In one or more embodiments, the portable processing system 102 includes a processor 106 (e.g., a graphics processor). The processor 106 may be a general purpose processor or a special purpose processor. In one or more embodiments, the processor 106 may include a multi-core processor. In one or more embodiments, the processor 106 may include, for example a graphics processor. In one or more embodiments, the portable processing system 102 may be configured to provide auxiliary graphics processing for the computer system 104. In one or more embodiments, the portable processing system 102 further includes a battery 110 coupled with the processor 106 and configured to provide power to the processor 106.

[0024] Further, in one or more embodiments, the portable processing system 102 also includes a communication module 108 (e.g., a USB module) communicatively coupled with the processor 106 and configured to be communicatively coupled with the computer system 104. In one or more embodiments, the communication module 108 (e.g., a USB module) may utilize a USB 3.0 protocol to communicate with the computer system 104. The communication module 108 may be configured to transfer an instruction 122 that was originated by the computer system 104, to the processor 106. The instruction 122 may include, for example a graphics instruction associated with a graphics application operated by the computer system 104. The communication module 108 may also be

configured to receive, process, and /or transmit data using one or more network communication protocols (e.g., IP, transmission control protocol (TCP), and the like). The communication module 108 may be further be configured to translate to /or from the network communication protocol of the processor 106.

[0025] Examples of the network communication protocols may include, but are not limited to USB, Wi-Fi, WiMax, PCI-e, and the like. The processor 106 may be configured to process the instruction 122 on behalf of the computer system 104 and transfer a result of the processed instruction 124 to the computer system 104 through the communication module 108. The communication module may include one or more interfaces (e.g., a USB interface). In an example embodiment, the portable processing system 102 may include a first interface and a second interface. Examples of the first interface may include, but not limited to a USB interface. The second interface (e.g. a USB interface) may be communicatively coupled with one or more of the processors (e.g., processor 106). The second interface may be configured to communicatively couple the first interface with the second interface using a communication medium (e.g., a USB cable). In one or more embodiments, the battery 110 may be configured to partially power the processor 106 to process the instruction 122.

[0026] Further, the second interface may be configured to receive a graphics instruction from the computer system 104. The graphic instruction may be encoded by a communication protocol (e.g. a USB 3.0) from the computer system 104. Further, the second interface may also be configured to provide graphic instruction to the processor 106. In one or more embodiments, the battery 110 may be user-detachable from the portable processing system 102 and /or user-attachable with the portable processing

system 102. The battery 110 may be rechargeable or non-rechargeable. The rechargeable battery may be further configured to partially power one or more of the processors when one or more of the processors processes an instruction (e.g. a graphic instruction) or when the computer system 104 fails to supply power to the portable processing system 102 (e.g., on event of power failure when the computer system 104 is devoid of a back-up power source).

[0027] Examples of the battery 110 may include, but is not limited to a lead acid battery, a nickel cadmium (NiCd) battery, nickel metal hydride (NiMH) battery, a lithium ion (Li-ion) battery, and lithium ion polymer (Li-ion polymer) rechargeable battery, and the like. Consider, for example, if an application 116 running on the computer system 104 requires the processing capabilities of the portable processing system 102. The application 116 may include, for example, a graphics application including for example a video game, or other graphics application. A communication module 114 of the computer system 104 may interact with the application 116 through a communication channel 118.

[0028] The communication module 114 may transfer a data associated with the application 116 to be processed through the portable processing system 102, to the USB module 108 through the transmission medium 120. The transmission medium 120 may include, for example, a USB cable, a data cable, a wireless network, and the like. The USB module 108 may transfer the data to be processed to the processor 106 through the communication channel 112 of the portable processing system 102. The processor 106 may process the data and transfer a result of processing instruction 124 to the USB

module 108. The USB module 108 may transfer the result of processing instruction 124 to the communication module 114 of the computer system 104.

[0029] **Figure 2** a block diagram, showing an example network 200 including an example graphics processing device 202 and a notebook computer 204, in accordance with an example embodiment. The term graphics processing device 202 may be used interchangeably with the term rechargeable USB external graphics device. In one or more embodiments, the graphics processing device 202 is portable and provides graphics processing for a computer system 104. The graphics processing device 202 includes a graphics processor. In one or more embodiments, the graphics processing device 202 may also include a USB interface (not shown) communicatively coupled with the graphics processor and may be configured to be communicatively coupled with the computer system 104. For the purpose of illustration the detailed description may refer to the USB interface; however the scope of the graphics processing system disclosed herein is not limited to the USB interface but may be extended to include any known generic communication interface of a computing system. In one or more embodiments, the USB interface may further be configured to transfer a graphics instruction, originated by the computer system 104, to the graphics processing device 202.

[0030] In one or more embodiments, the USB interface may utilize a USB 3.0 protocol to transfer data. The graphics instruction associated with a graphics application may be operated by the computer system 104. The graphics processor may be configured to process the graphics instruction on behalf of the computer system. The graphics processor may also be configured to transfer a result of processing the graphics instruction to the computer system 104, using the USB interface. The graphics

processing device 202 may further include a battery coupled with the graphics processor, and configured to at least partially power the graphics processor to process the graphics instruction. In one or more embodiments, the battery may be rechargeable and may be housed in a rechargeable battery portion 210 of the graphics processing device 202. The battery may be a lithium ion battery. The battery may be user-attachable with the graphics processing device and /or user-detachable from the graphics processing device such that the battery is field replaceable. The battery may be recharged by using power from the computer system 104 (e.g., notebook computer 204). The graphics processor may be housed in a graphics processing portion 211 of the graphics processing device 202.

[0031] **Figure 3** is a block diagram illustrating the example graphics processing device 202 of **Figure 2**, in accordance with one or more embodiments. In the example embodiment of **Figure 3**, the graphics processing device 202 may have a modular architecture allowing disintegration of one or more functional modules within the graphics processing device 202. The functional modules may include, but is not limited to, a graphics processor module 306, a memory module 314, a frame buffer module 316, and the like. The modularization allows replacement of the functional modules and customization of the graphics processing device 202 to upgrade functionalities of the graphics processing device 202. Further, replaceability of the functional modules allows upgrading individual functional modules without the need to replace whole of the graphics processing device 202. The replaceability of the functional modules also allows mix and match of various components (e.g., processor, memory, and the like) of the functional modules. In one or more embodiments, the modular architecture may be

implemented using one or more standard interfaces between modules that allow specification of a desired inter-modular behavior, verification that the behavior is as designed, and predictability that the correct behavior will always occur.

[0032] In one or more embodiments, an open interface standard may be implemented in the graphics processing device 202 to strengthen compatibility and interoperability of the functional modules from different vendors. In one or more embodiments, the modular architecture may be implemented by separately mounting different functional modules at different sections of a motherboard and by interconnecting the different sections through one or more physical interfaces. In one or more embodiments, the motherboard may have one or more base sockets to receive pins on the functional modules and to provide interconnection between the various functional modules. Each functional module may be an integrated circuit and may house one or more of a processor circuitry, a memory circuitry, and a similar desired circuitry to provide a desired functionality. Each functional module may have a separate base socket to allow replacement of the functional modules.

[0033] In one or more embodiments, the graphics processor module 306 may include a graphics processor and a communication interface to allow communication among the replaceable functional modules of the graphic processing device. The modularization renders the functional modules to be replaceable and thereby renders the graphics processing device 202 to be reconfigurable without the need to replace whole of the graphics processing device 202. The graphics processing device 202 could be, for example, an external graphics card. In one or more embodiments, the memory module 314 may include a memory (e.g., double data rate three synchronous dynamic random

access memory (DDR3 SDRAM™)) and /or an interface to allow communication with other functional modules of the graphic processing device 202. In one or more embodiments, the memory may also include an operating system (e.g., Android™, Linux™, Microsoft®'s Windows™) of the graphics processing device 202 resident therein. Also, in one or more embodiments, the frame buffer module 316 may include a frame buffer and /or an interface to allow communication with other functional modules of the graphic processing device 202.

[0034] If one or more processing capabilities of the graphics processing device 202 need to be enhanced, one or more of the functional modules in the graphics processing device 202 can be replaced with one or more new processing modules with required processing capabilities (e.g., a faster processing capability) without removing the whole of the graphics processing device 202. For example, a 2 gigabyte (GB) memory chip of the graphics processing device may be removably mounted on the motherboard of the graphics processing device 202. If the memory of the graphics processing device needs to be enhanced to a 4 GB memory due to requirements of a graphics application to be processed through the graphics processing device 202, then the 2 GB memory chip may be replaced with a 4 GB memory chip. The pins of the 4 GB memory chip may match the pins of the 2 GB memory chip so as to mount the 4 GB memory chip on a base socket where the 2 GB memory chip was previously mounted, without having to replace the whole of the graphics processing device 202 for up gradation.

[0035] Further, it may be economically feasible from the perspective of a user to replace one or more of the functional modules within the graphics processing device 202 instead of replacing whole of the graphics processing device 202, whenever a need to

upgrade the capabilities of graphics processing device 202 arises. In addition, in one or more embodiments, the graphics processing device 202 may also include a USB interface 308 to allow the graphics processing device 202 to communicate with a computer system (e.g. notebook computer 204) through a USB cable 220. In one or more embodiments, a graphics instruction 222 may be transferred from the notebook computer 204 to the graphics processing device 202 through the USB cable 220. The USB interface 308 may be configured to receive the graphics instruction 222 and communicate the received instruction to the graphics processor module 306 through a communication channel 312. The graphics processor module may process the graphics instruction and a result 224 of the processing may be transferred to the computer system (e.g. notebook computer 204) through the USB cable 220 as illustrated in **Figure 3**.

[0036] In one or more embodiments, the graphics processing device 202 may further include an application interface 313. The application interface 313 may facilitate the processing of instructions (e.g., graphical instruction) on behalf of a computer system (e.g., the notebook computer 204) requesting auxiliary processing from a portable processing system (e.g., the graphics processing device 202). Although the example application interface 313 is shown to be located on the graphics processing device 202 in FIG. 3, the example application interface 313 may be located elsewhere (e.g., external to the graphics processing device 202) without departing from the claimed subject matter. In an example embodiment, the application interface 313 may be located on the notebook computer 204.

[0037] In some example embodiments, the graphics processing device 313 and the notebook computer device 204 may share in facilitating the processing of instructions. In

some example embodiments, some or all of the functionality of the application interface 313 may be provided external to the graphics processing device 202 and /or the computer system 104 (e.g., notebook computer 204). In one or more embodiments, the graphics processing device 202 of **Figure 2** may periodically indicate to the notebook computer 204 of **Figure. 2**, that the graphics processing device 302 is activated to process graphics instructions on behalf of the notebook computer 204 of **Figure**. **2**. In various example embodiments, the graphics processing device 202 may use the USB interface 308 of **Figure**. **3** and the USB cable 220 of **Figure**. **2,** to indicate the active state. In an example embodiment, subsequent to indicating the active state of the graphics processing device 202, the application interface 313 of **Figure**. **3** may receive a processing request from the notebook computer 204 of **Figure**. **2**. In an example embodiment, the application interface 313 of **Figure**. **3** may coordinate the processing of a graphics instruction by the graphics processor 306. In some example embodiments, the application interface 313 of **Figure**. **3** may be implemented with software (e.g., drivers) or in other example embodiments with hardware, and in yet further embodiments, the application interface 313 may be implemented using a combination of hardware and software. The operation of the application interface 313 is discussed in further detail below with respect to **Figure**. **5**.

[0038] Figure 4 is a block diagram showing an example machine 400, in accordance with an example embodiment. In one or more embodiments, the machine 400 is an example form of a computer system 104, within which a set of instructions, for causing the machine 400 to perform any one or more of the methodologies discussed herein, may be executed. In various embodiments, the machine 400 may operate as a standalone

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device and/or may be connected (e.g., networked) to other machines. In a networked deployment, the machine 400 may operate in the capacity of a server and/or a client machine in server-client network environment, and/or as a peer machine in a peer-to-peer (or distributed) network environment. The machine 400 may be a personal computer (PC), a tablet PC, a set-top box (STB), a Personal Digital Assistant (PDA), a cellular telephone, a web appliance, a network router, switch and/or bridge, an embedded system and/or any machine capable of executing a set of instructions (sequential and/or otherwise) that specify actions to be taken by the machine 400. Further, while only a single machine is illustrated, the term "machine" shall also be taken to include any collection of machines that individually and/or jointly execute a set (or multiple sets) of instructions to perform any one and/or more of the methodologies discussed herein.

[0039] The example computer system 104 includes a processor 402 (e.g., a central processing unit (CPU) a graphics processing unit (GPU) and/or both), a main memory 404 and a static memory 406, which communicate with each other via a bus 408. The computer system 104 may further include a video display unit 410 (e.g., a liquid crystal display (LCD) and/or a cathode ray tube (CRT)). The computer system 104 also includes an alphanumeric input device 412 (e.g., a keyboard), a cursor control device 414 (e.g., a mouse), a disk drive unit 416, a signal generation device 418 (e.g., a speaker) and a network interface device 420. The disk drive unit 416 includes a machine-readable medium 422 on which is stored one or more sets of instructions (e.g., software 424) embodying any one or more of the methodologies and/or functions described herein.

[0040] The software 424 may also reside, completely and/or at least partially, within the main memory 404 and/or within the processor 402 during execution thereof by the

computer system 104, the main memory 404 and the processor 402 also constituting machine-readable media. The software 424 may further be transmitted and/or received over a network 426 via the network interface device 420. Further, in one or more embodiments, the machine 400 may also include an audio device 430 configured to generate audio data generated by the processor 402. In one or more embodiments, the machine 400 may also include a hardware interface (e.g. a USB interface) for communicatively coupling one or more peripheral devices (e.g. a graphics processing device 202) with the machine 400.

[0041] While the machine-readable medium 422 is shown in an example embodiment to be a single medium, the term "machine-readable medium" should be taken to include a single medium and/or multiple media (e.g., a centralized and/or distributed database, and/or associated caches and servers) that store one or more sets of instructions. The term "machine-readable medium" shall also be taken to include any medium that is capable of storing, encoding and/or carrying a set of instructions for execution by the machine and that cause the machine to perform any one or more of the methodologies of the various embodiments. The term "machine-readable medium" shall accordingly be taken to include, but not be limited to, solid-state memories, optical and magnetic media, and carrier wave signals.

[0042] **Figure 5** is an interaction diagram, illustrating example interactions involving components of an example graphics processing system. As illustrated in **Figure 5**, at step 512, a user interface 502 of a graphics processing device 202 in the example graphics processing system participates in a device discovery operation with a USB interface 504 of a notebook computer. During the device discovery, the graphics processing device

202 may indicate to a computer system 104, that the graphics processing device 202 is active. In one or more embodiments, the graphics processing device 202 may be portable by a user and the indication may be made using a USB protocol. For example, referring to **Figure. 2**, the graphics processing device 202 may indicate to the notebook computer 204 that the graphics processing device 202 is active and ready to process graphics instructions (e.g., on behalf of the notebook computer 204).

[0043] In one or more embodiments, in step 514, the USB interface 504 of the notebook computer participates in device discovery with the user interface 512 of the graphics processing device. For example, referring again to **Figure 2**, the graphics processing device 202 of **Figure. 2** may provide the indication that the graphics processing device 202 is active to the notebook computer 204 over the USB cable 220. Further in step 516, the USB interface 504 of the notebook computer indicates availability of the graphics processing device to the notebook computer. In one or more embodiments, at step 518, a graphics application 506 running in the notebook computer requests processing a graphics instruction through an application interface 508.

[0044] For example, referring to **Figure 3**, when a graphics instruction 222 needs to be processed through the graphics processing device 202 on behalf of the notebook computer 204, the notebook computer transfers the graphics instruction 222 through the USB cable 220 to the USB interface 308 of the graphics processing device 202. The graphics instruction 222 may then be transferred to the application interface 313 that mediates between the graphics processor module 306 and the notebook computer 204. At step 520, the application interface 508 stores an identifier associated with the graphics instruction. Referring to **Figure 3** again, the identifier may be stored in, for example, the

memory within the memory module 314 of the graphics processing device 202. Further, at step 522, the application interface 508 permits graphics processor to process the graphics instruction.

[0045] Furthermore at step 524, a graphics processor 510 coupled to the notebook computer 204 processes the graphics instruction on behalf of the notebook computer 204. Furthermore, on completion of processing, at step 526, the graphics processor 510 indicates that the graphics processor 510 has processed the graphics instruction. At step 528, on receiving the indication from the graphics processor 510, the application interface 508 associates the indication that the graphics instruction has been processed with the stored identifier. Furthermore, at step 530, the application interface 508, permits a result of the processed graphics instruction to be transferred to the graphics application based on the association of the indication. The process ends at step 532.

[0046] **Figure 6** is a flow diagram showing an example method for providing graphics processing, in accordance with an example embodiment.

[0047] In one or more embodiments, operation 602 may involve indicating to a computer system, that a graphics processing device is active. In an example embodiment, the graphics processing device may be portable by a user and the indication may be made using a USB protocol. For example, referring to **Figure. 2**, the graphics processing device 202 may indicate to the notebook computer 204 that the graphics processing device 202 is active and ready to process graphics instructions (e.g., on behalf of the notebook computer 204). In an example embodiment, the graphics processing device 202 of **Figure. 2** may provide the indication to the notebook computer 204 of **Figure. 2** over the USB cable 220 of **Figure. 2**. In one or more embodiments, operation 604 may

involve acquiring, a graphics instruction from the computer system, based at least in part on the indicating that the graphics processing device is active.

[0048] The acquisition may be made using the USB protocol. In one or more embodiments, the graphics instruction may be acquired utilizing a USB 3.0 protocol. For example, referring to **Figure. 3**, when the graphics instruction 222 needs to be processed, the graphics instruction 222 may be transferred from the notebook computer 204 to the graphics processor module 306 of the graphics processing device 202 through the USB interface 308 using the USB cable 220. The graphics processor module 306 may acquire the graphics instruction 222 and may decode and process graphics instruction 222.

[0049] In one or more embodiments, operation 606 may involve processing the acquired graphics instruction using a graphics processor within the graphics processing device. In one or more embodiments, operation 608 may involve using energy supplied by a rechargeable battery to process the acquired graphics instruction, the rechargeable battery forming a portion of the graphics processing device. For example, referring to **Figure 3**, if the notebook computer 204 fails to power the graphics processing device 202 due to a sudden power failure during processing of the graphics instruction 222 in the graphics processing device 202, then the graphics processing device 202 may utilize energy from the battery 110 and continue to process the graphics instruction 222.

[0050] The battery 110 may be rechargeable battery. In one or more embodiments, the energy may be stored in the rechargeable battery prior to the supplying of the energy. Examples of the rechargeable battery may include, but is not limited to, a lead acid battery, a nickel cadmium (NiCd) battery, nickel metal hydride (NiMH) battery, a lithium ion (Li-ion) battery, and lithium ion polymer (Li-ion polymer) rechargeable battery, and

the like. In one or more embodiments, operation 610 may involve transferring to the computer system, a result of the processing of the acquired graphics instruction.

[0051] In one or more embodiments, the result of the processing of the acquired graphics instruction may be transferred to the computer system (e.g. the notebook computer 202) using a USB protocol including, for example a USB 3.0 protocol. For example, referring to **Figure 3**, once the graphics processor module 306 completes processing the graphics instruction 222, the graphics processor module 306 may indicate the completion of processing to the application interface 313 of the graphics processing device 202. The application interface 313 may associate an indication on an identifier associated with the graphics instruction 222, indicating that the graphics instruction 222 has been processed. On indicating, a result of processing the graphics instruction 224 may be transferred from the graphics processor module 306 to the USB interface 306. The application interface 313 may then permit the result of the graphics processing 224 to be transferred to the notebook computer 204 from the USB interface 306 over the USB cable 220.

[0052] Although the present embodiments have been described with reference to specific example embodiments, it will be evident that various modifications and changes may be made to these embodiments without departing from the broader spirit and scope of the various embodiments. For example, the various devices and modules described herein may be enabled and operated using hardware circuitry, firmware, software or any combination of hardware, firmware, and software (e.g., embodied in a machine readable medium). For example, the various electrical structure and methods may be embodied

using transistors, logic gates, and electrical circuits (e.g., application specific integrated (ASIC) circuitry and/or in Digital Signal Processor (DSP) circuitry).

[0053] In addition, it will be appreciated that the various operations, processes, and methods disclosed herein may be embodied in a machine-readable medium and/or a machine accessible medium compatible with a computer system and may be performed in any order (e.g., including using means for achieving the various operations). Accordingly, the specification and drawings are to be regarded in an illustrative rather than a restrictive sense.

CLAIMS

What is claimed is:

1. A graphics processing device that is portable and provides graphics processing for a computer system, the graphics processing device comprising:

a graphics processor;

a Universal Serial Bus (USB) interface that is communicatively coupled with the graphics processor and is configured to be communicatively coupled with the computer system;

the USB interface being further configured to transfer a graphics instruction, which was originated by the computer system, to the graphics processor, and

the graphics processor being configured to,

process the graphics instruction on behalf of the computer system, and

transfer a result of processing the graphics instruction to the computer system, using the USB interface; and

a battery coupled with the graphics processor, and configured to at least partially power the graphics processor to process the graphics instruction.

2. The graphics processing device of claim 1, wherein the USB interface utilizes a USB 3.0 protocol.

3. The graphics processing device of claim 1, wherein the graphics instruction is associated with a graphics application operated by the computer system.

4. The graphics processing device of claim 1, wherein the battery is rechargeable.

5. The graphics processing device of claim 4, wherein the battery is a lithium ion battery.

6. The graphics processing device of claim 1, wherein the battery is user-attachable with the graphics processing device and user-detachable from the graphics processing device such that the battery is field replaceable.

7. A portable processing system to provide processing for a computer system, the portable processing system comprising:

a processor;

a battery coupled with the processor and configured to provide power to the processor; and

a Universal Serial Bus (USB) module communicatively coupled with the processor and configured to be communicatively coupled with the computer system,

the USB module being configured to transfer an instruction, which was originated by the computer system, to the processor, and

the processor being configured to,

process the instruction on behalf of the computer system, and

transfer a result of the processed instruction to the computer system, using the USB module.

8. The portable processing system of claim 7, wherein the processor includes a graphics processor, and the portable processing system is configured to provide auxiliary graphics processing for the computer system.

9. The portable processing system of claim 8, wherein the instruction includes a graphics instruction associated with a graphics application operated by the computer system.

10. The portable processing system of claim 7, wherein the battery is configured to at least partially power the processor to process the instruction.

11. The portable processing system of claim 7, wherein the battery is user-detachable from the portable processing system and user-attachable with the portable processing system.

12. The portable processing system of claim 7, wherein the battery is rechargeable.

13. The portable processing system of claim 12, wherein the battery is a lithium ion rechargeable battery.

14. The portable processing system of claim 7, wherein the USB module utilizes a USB 3.0 protocol.

15. A graphics processing system comprising:

a computer system including,

one or more system processors,

a memory coupled with the one or more system processors,

a video display device configured to display graphical data generated by the one or more system processors,

a first Universal Serial Bus (USB) interface coupled with the one or more system processors, and

an audio device configured to generate audio data generated by the one or more system processors;

a graphics processing device communicatively coupled with the computer system using a USB cable, the graphics processing device including,

one or more graphics processors,

a second USB interface communicatively coupled with the one or more graphics processors and configured to communicatively couple the first USB interface with the second USB interface using the USB cable,

the second USB interface being configured to receive a graphics instruction that is encoded by a USB 3.0 communication protocol from the computer system via the USB cable, and to provide the graphics instruction for the one or more graphics processors, and

the one or more graphics processors being configured to process the graphics instruction on behalf of the computer system, and to transfer a result of the processed graphics instruction to the computer system, using the second USB interface; and

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a rechargeable battery that is removably coupled with the one or more graphics processors and is configured to be field replaceable, the rechargeable battery being further configured to at least partially power the one or more graphics processors when the one or more graphics processors processes the graphics instruction.

16. The graphics processing system of claim 15, wherein the one or more graphics processors include at least one multi-core processor.

17. A method comprising:

indicating to a computer system, utilizing a Universal Serial Bus (USB) protocol, that a graphics processing device is active, the graphics processing device being portable by a user;

acquiring, utilizing the USB protocol, a graphics instruction from the computer system, based at least in part on the indicating that the graphics processing device is active;

processing the acquired graphics instruction using a graphics processor within the graphics processing device;

using energy supplied by a rechargeable battery to process the acquired graphics instruction, the rechargeable battery forming a portion of the graphics processing device; and

transferring to the computer system, utilizing the USB protocol, a result of the processing of the acquired graphics instruction.

18. The method of claim 17, wherein the acquiring of the graphics instruction utilizing the USB protocol includes acquiring the graphics instruction utilizing a USB 3.0 protocol, and the transferring of the result of the processing of the acquired graphics instruction includes utilizing the USB 3.0 protocol.

19. The method of claim 17, comprising:

storing the energy in the rechargeable battery prior to the supplying of the energy.

20. A machine-readable medium including instructions that when executed by a machine, cause the machine to perform the method of claim 19.

ABSTRACT OF THE DISCLOSURE

A graphics processing device that is portable, reconfigurable and provides graphics processing for a computer system is provided. The graphics processing device includes a Universal Serial Bus (USB) interface coupled with the graphics processor and configured to be coupled with computer system. The graphics processing device further includes the USB interface configured to transfer a graphics instruction, originated by the computer system, to the graphics processor. The graphics processing device may further include a battery coupled with the graphics processor to partially power the graphics processor. The battery may be rechargeable. The graphics processor may be configured to process graphics instruction on behalf of the computer system. A portable processing system to provide processing for a computer system is also disclosed. The portable processing system may include a processor. The portable processing system may include a USB module coupled with processor and configured to be coupled with computer system.

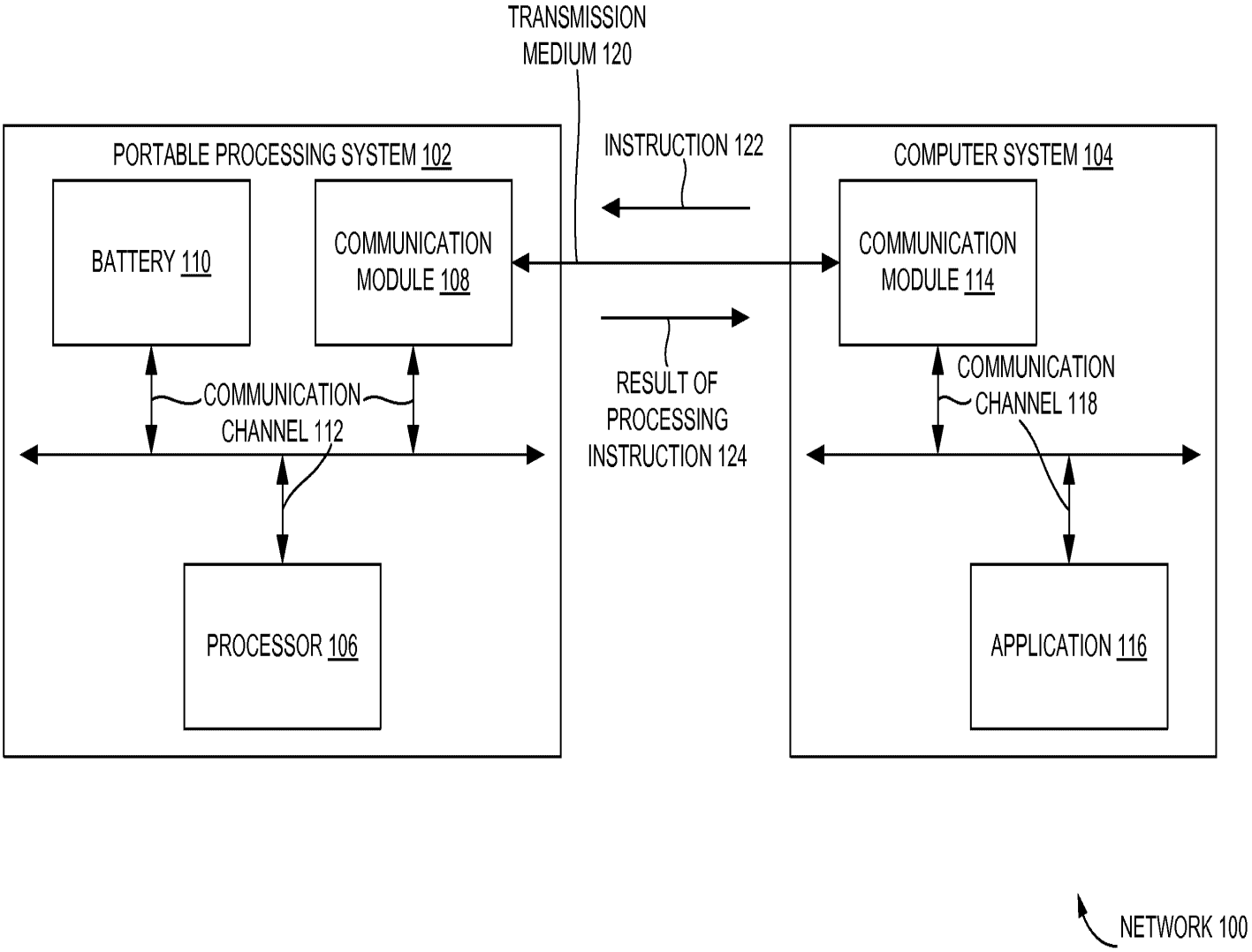

TRANSMISSION MEDIUM 120
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COMPUTER SYSTEM 104
COMMUNICATION MODULE 114
COMMUNICATION CHANNEL 118
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FIGURE 1

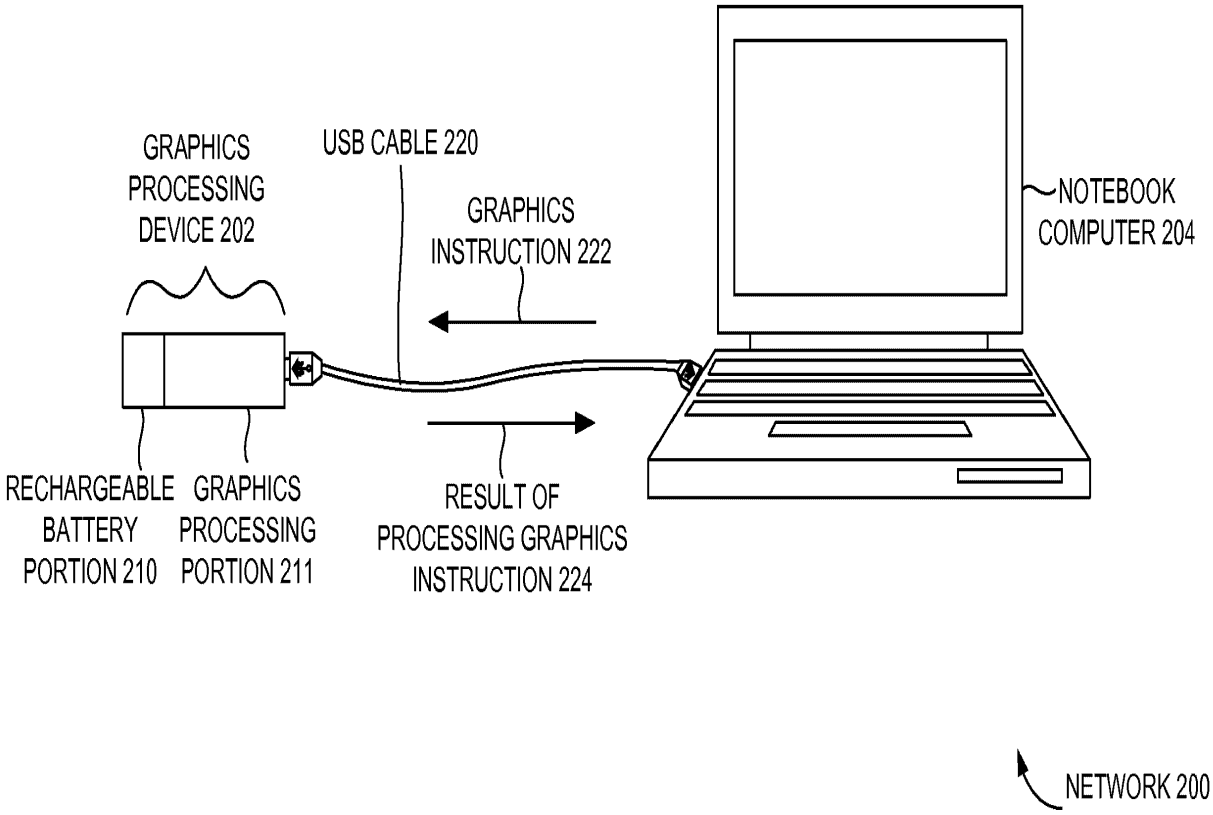

GRAPHICS PROCESSING DEVICE 202
USB CABLE 220
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GRAPHICS PROCESSING PORTION 211
RESULT OF PROCESSING GRAPHICS INSTRUCTION 224
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FIGURE 2

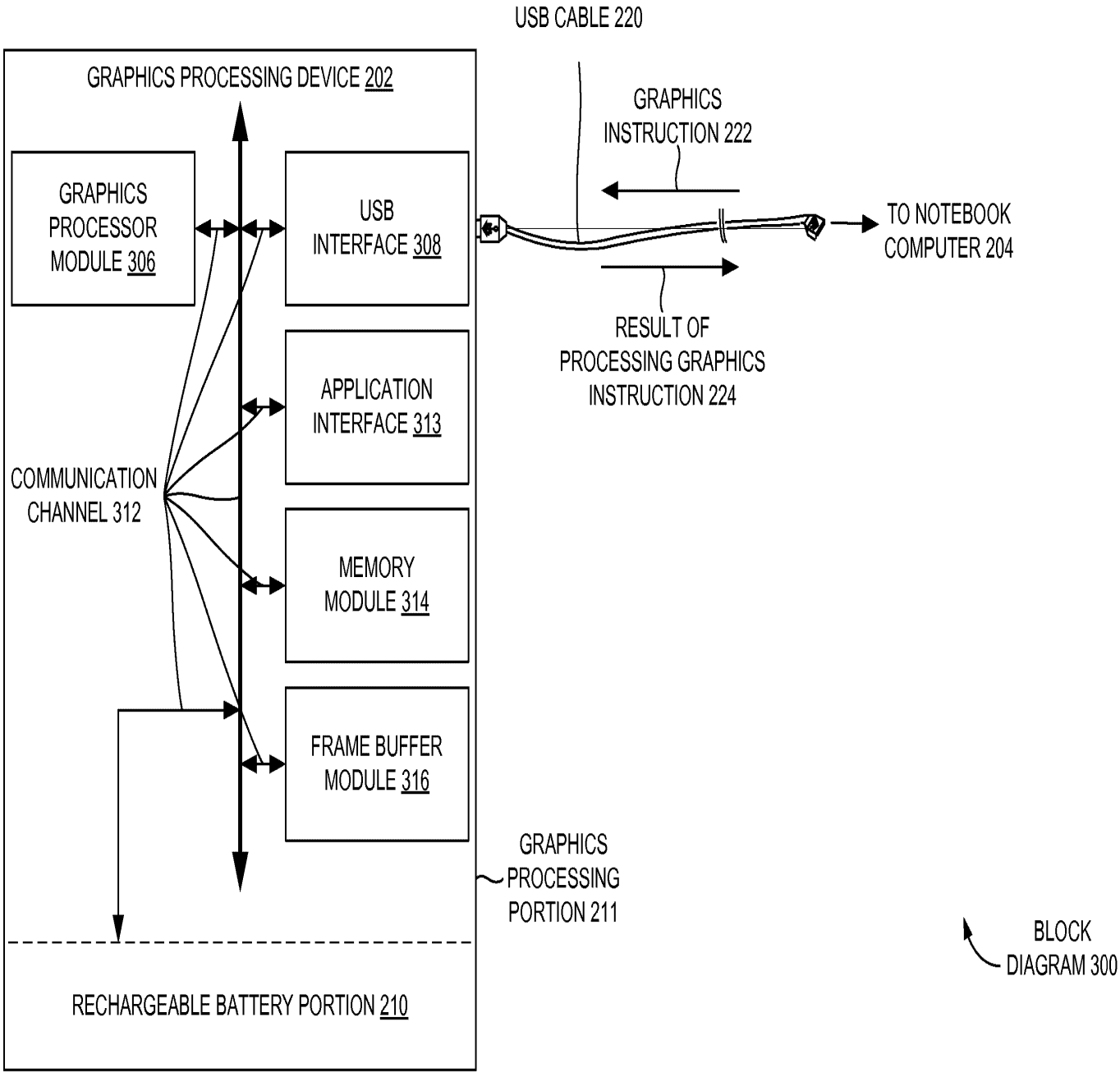

USB CABLE 220
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MEMORY MODULE 314
FRAME BUFFER MODULE 316
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RESULT OF PROCESSING GRAPHICS INSTRUCTION 224
GRAPHICS PROCESSING PORTION 211
RECHARGEABLE BATTERY PORTION 210
BLOCK DIAGRAM 300

FIGURE 3

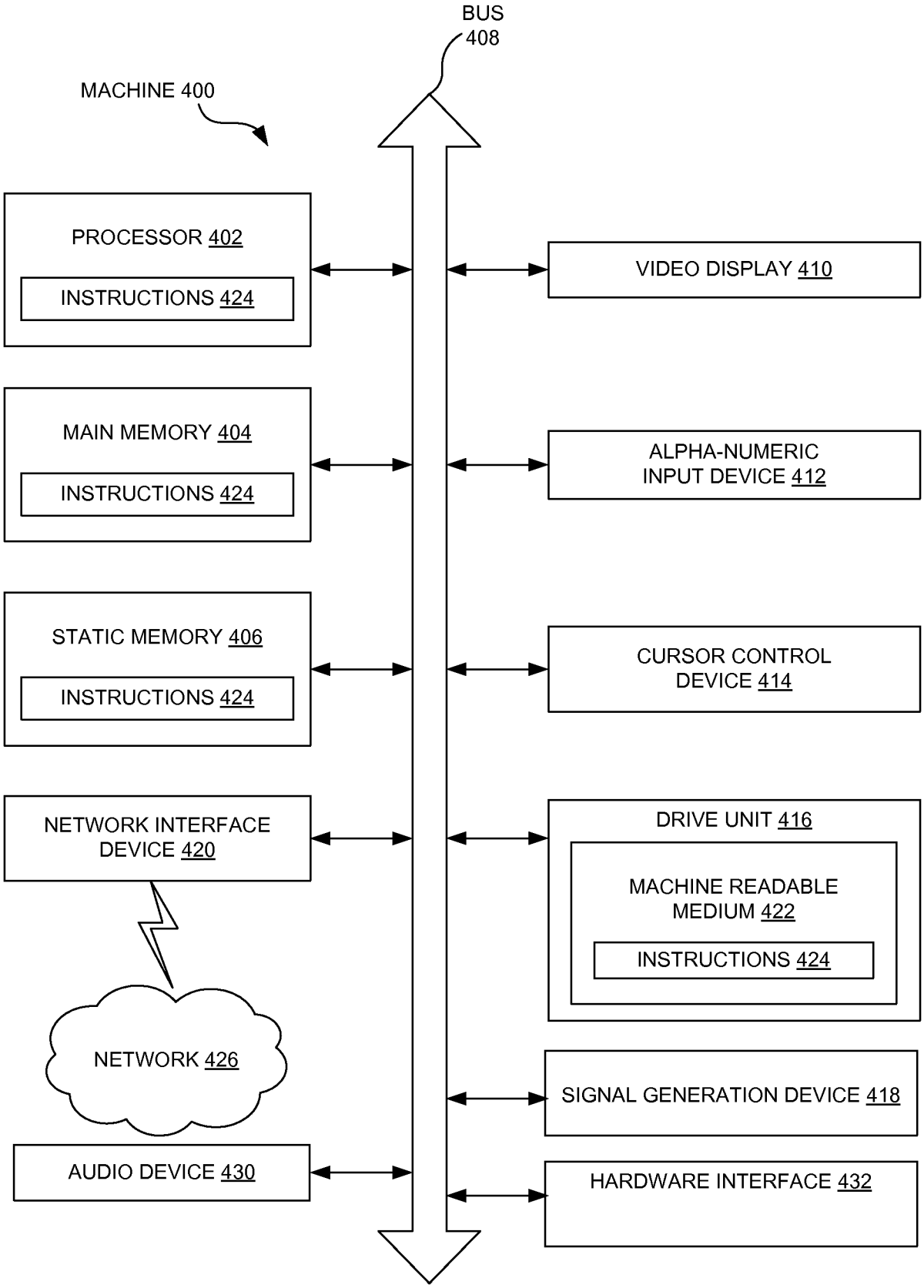

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DRIVE UNIT 416
MACHINE READABLE MEDIUM 422
INSTRUCTIONS 424
SIGNAL GENERATION DEVICE 418
HARDWARE INTERFACE 432

FIGURE 4

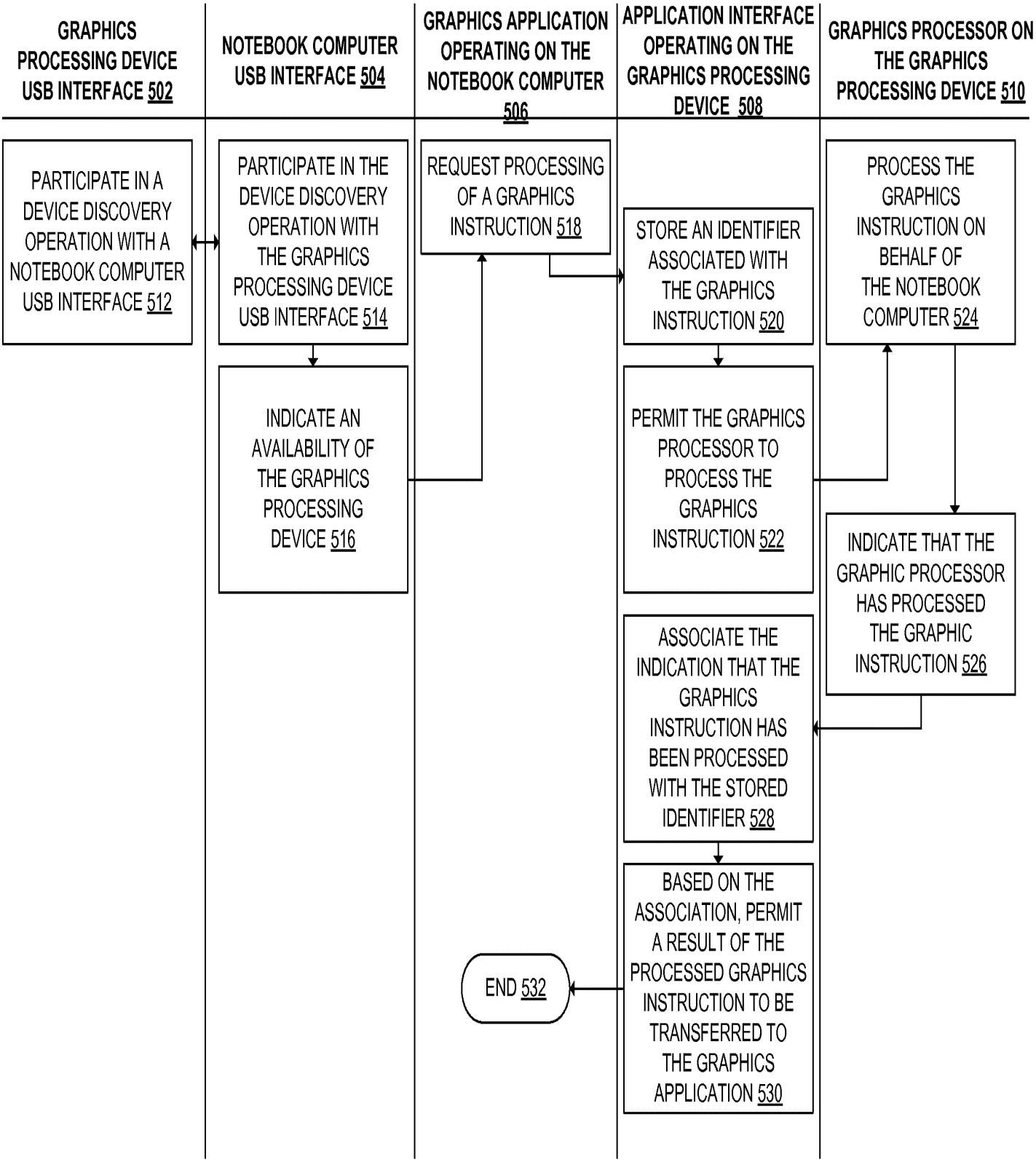

GRAPHICS PROCESSING DEVICE USB INTERFACE 502
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ASSOCIATE THE INDICATION THAT THE GRAPHICS INSTRUCTION HAS BEEN PROCESSED WITH THE STORED IDENTIFIER 528
BASED ON THE ASSOCIATION, PERMIT A RESULT OF THE PROCESSED GRAPHICS INSTRUCTION TO BE TRANSFERRED TO THE GRAPHICS APPLICATION 530
END 532

FIGURE 5

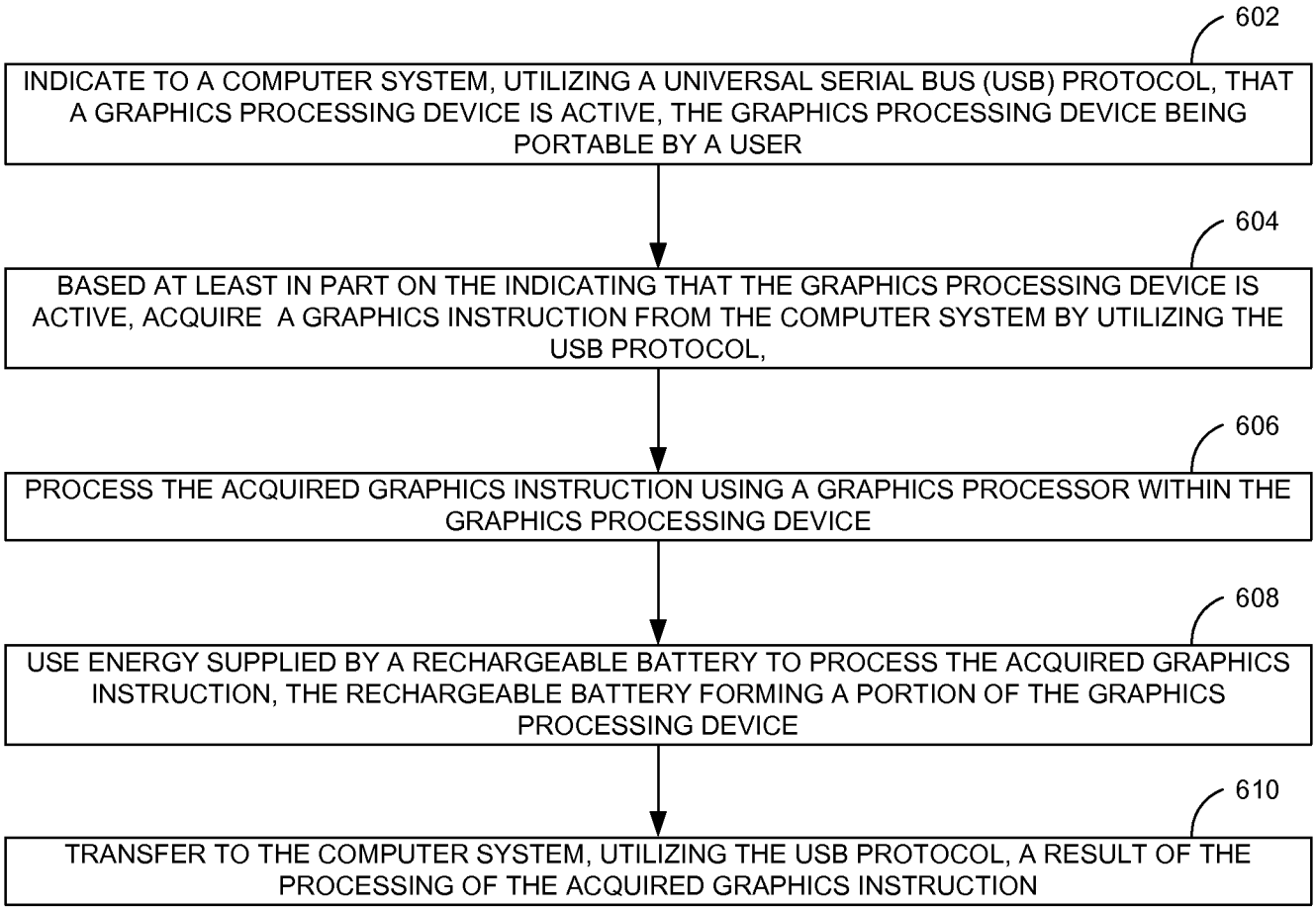

602
INDICATE TO A COMPUTER SYSTEM, UTILIZING A UNIVERSAL SERIAL BUS (USB) PROTOCOL, THAT A GRAPHICS PROCESSING DEVICE IS ACTIVE, THE GRAPHICS PROCESSING DEVICE BEING PORTABLE BY A USER
604
BASED AT LEAST IN PART ON THE INDICATING THAT THE GRAPHICS PROCESSING DEVICE IS ACTIVE, ACQUIRE A GRAPHICS INSTRUCTION FROM THE COMPUTER SYSTEM BY UTILIZING THE USB PROTOCOL,
606
PROCESS THE ACQUIRED GRAPHICS INSTRUCTION USING A GRAPHICS PROCESSOR WITHIN THE GRAPHICS PROCESSING DEVICE
608
USE ENERGY SUPPLIED BY A RECHARGEABLE BATTERY TO PROCESS THE ACQUIRED GRAPHICS INSTRUCTION, THE RECHARGEABLE BATTERY FORMING A PORTION OF THE GRAPHICS PROCESSING DEVICE
610
TRANSFER TO THE COMPUTER SYSTEM, UTILIZING THE USB PROTOCOL, A RESULT OF THE PROCESSING OF THE ACQUIRED GRAPHICS INSTRUCTION

FIGURE 6

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	SRINIVAS SOMA
Filer:	Raj Vasant Abhyanker/Mahalakshmi Raman
Attorney Docket Number:	00108.00020US1

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility application filing	1011	1	330	330
Utility Search Fee	1111	1	540	540
Utility Examination Fee	1311	1	220	220
Pages:				
Claims:				
Independent claims in excess of 3	1201	1	220	220
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1310**

Electronic Acknowledgement Receipt

EFS ID:	7903035
Application Number:	12824423
International Application Number:	
Confirmation Number:	9884
Title of Invention:	RECHARGEABLE UNIVERSAL SERIAL BUS EXTERNAL GRAPHICS DEVICE AND METHOD
First Named Inventor/Applicant Name:	SRINIVAS SOMA
Customer Number:	55952
Filer:	Raj Vasant Abhyanker/Mahalakshmi Raman
Filer Authorized By:	Raj Vasant Abhyanker
Attorney Docket Number:	00108.00020US1
Receipt Date:	28-JUN-2010
Filing Date:	
Time Stamp:	13:05:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$1310
RAM confirmation Number	9447
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Application Data Sheet	Application_Data_Sheet_00108_00020US1.pdf	1366572 fceb2cbc33a7967c89d8ad3fa004d9f969858784	no	4
Warnings:					
Information:					
2	Oath or Declaration filed	Combined_Declaration_00108_00020US1.pdf	1029081 c396e010c378a298b41b533ad79bd48593b0e302	no	3
Warnings:					
Information:					
3	Foreign Reference	Foreign_Filing_License_00108_00020US1.pdf	45154 1245d52e1f506080447eac066b7cc5676412e18e	no	1
Warnings:					
Information:					
4	Specification	Specification_00108_00020US1.pdf	110157 1a4ea6562dc89615b72cc6f6a1263d57393bb0b7	no	24
Warnings:					
Information:					
5	Claims	Claims_00108_00020US1.pdf	50157 057a2bdb328eb317da14d777ff2a2ddbb6d7c615	no	7
Warnings:					
Information:					
6	Abstract	Abstract_00108_00020US1.pdf	37556 ef4d589d4dbc1ec31420c1c7df2fcc2dd369e88c	no	1
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8	Fee Worksheet (PTO-875)	fee-info.pdf	36542 810cef56dc811b68030b1bacec91bb5a1a8702fd	no	2
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			Total Files Size (in bytes):	2732718	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Date: **06/28/10**

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 12/824,423

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	**82**		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	**270**		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	**110**		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	**20** minus 20 =		x$26		OR	x$52	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	**4** minus 3 =	* **1**	x$110	**110**		x$220	
APPLICATION SIZE FEE (37 CFR 1.16(s))							
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			195			390	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	**572**		TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDI-TIONAL FEE ($)		RATE ($)	ADDI-TIONAL FEE ($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

		(Column 1)		(Column 2)	(Column 3)			OR		
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDI-TIONAL FEE ($)		RATE ($)	ADDI-TIONAL FEE ($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.