

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court **Eastern District of North Carolina** on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 5:22-CV-102-FL	DATE FILED 3/21/2022	U.S. DISTRICT COURT Eastern District of North Carolina
PLAINTIFF SHAMROCK INNOVATIONS, LLC		DEFENDANT LENOVO (UNITED STATES), INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,060,675	11/15/2011	Frank Ahern, Desi Rhoden, Jeff Doss & Charles Mollo sold
2		to Shamrock Innovations 12/14/2017
3 9,535,454	1/3/2017	Frank Ahern, Desi Rhoden, Jeff Doss & Charles Mollo sold
4		to Shamrock Innovations 12/14/2017
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
1			
2			
3			
4			
5			

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK PETER A. MOORE, JR.	(BY) DEPUTY CLERK 	DATE 3/22/2022
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

Case 5:22-cv-00102-FL Document 5 Filed 03/22/22 Page 1 of 1

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas - Austin Division on the following

☐ Trademarks or ☐ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

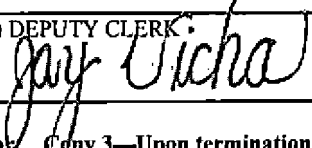
DOCKET NO. 1:21-cv-222-RP	DATE FILED 3/9/2021	U.S. DISTRICT COURT Western District of Texas - Austin Division
PLAINTIFF Shamrock Innovations, LLC		DEFENDANT HP Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,060,675		
2 9,535,454		
3		
4		
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK
1	
2	
3	
4	
5	

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
See attached Order Granting Stipulation of Dismissal entered 12/02/2021

CLERK JEANNETTE J. CLACK	(BY) DEPUTY CLERK: 	DATE 12/02/2021
-----------------------------	--	--------------------

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
AUSTIN DIVISION

SHAMROCK INNOVATIONS, LLC,	§	1:21-CV-222-DAE
	§	
Plaintiff,	§	
	§	
vs.	§	
	§	
HP INC.,	§	
	§	
Defendant.	§	
_____	§	
	§	

ORDER GRANTING STIPULATION OF DISMISSAL
PURSUANT TO RULE 41(a)(1)(A)(ii)

On this day, the Court considered the Parties' joint Stipulation of Dismissal Pursuant to Rule 41(a)(1)(A)(ii). (Dkt. # 26.) The parties, having resolved all issues in dispute between themselves in this matter, have jointly moved the Court to enter an order pursuant to Federal Rule of Civil Procedure 41(a)(1)(A)(ii) dismissing all claims in this action with prejudice, with each party to bear its own costs and attorneys' fees. The Court is of the opinion that such motion should be granted.

IT IS HEREBY ORDERED that all claims asserted in this action are hereby **DISMISSED WITH PREJUDICE** and that the parties shall each bear their own costs.

The Clerk is **INSTRUCTED TO CLOSE THIS**

CASE. DATED: December 2, 2021.

A handwritten signature in black ink, appearing to read 'David Alan Ezra', is written over a horizontal line.

David Alan Ezra
Senior United States District Judge

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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 filed in the U.S. District Court Western District of Texas - Austin Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 1:21-cv-222-RP	DATE FILED 3/9/2021	U.S. DISTRICT COURT Western District of Texas - Austin Division
PLAINTIFF Shamrock Innovations, LLC		DEFENDANT HP Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK JEANNETTE J. CLACK	(BY) DEPUTY CLERK 	DATE 3/9/2021
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,060,675 B2
APPLICATION NO. : 12/644511
DATED : November 15, 2011
INVENTOR(S) : Ahern et al.

Page 1 of 1

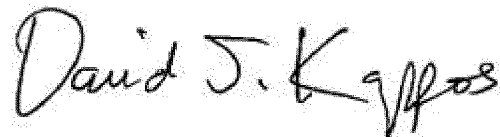
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, item (76), under “Inventors”, in Column 1, Line 1, delete “Frank” and insert
-- Frank W. --.

Page 3, item (56), under “Other Publications”, in Column 1, Line 6, delete “Microcomputer” and
insert -- Microcomputer --.

Page 4, item (56), under “Other Publications”, in Column 2, Line 61, delete “PCT1US2001/12666.”
and insert -- PCT/US2001/12666. --.

Signed and Sealed this
Thirty-first Day of July, 2012

A handwritten signature in black ink that reads "David J. Kappos". The signature is written in a cursive, flowing style with a large initial 'D' and 'K'.

David J. Kappos
Director of the United States Patent and Trademark Office

UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 8,060,675 B2
APPLICATION NO.: 12/644,511
ISSUE DATE : November 15, 2011
INVENTOR(S) : Ahern et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title page, item (76), under "Inventors", in Column 1, Line 1, delete "Frank" and insert - - Frank W. - -.

Page 3, item (56), under "Other Publications", in Column 1, Line 6, delete "Microcompuer" and insert - - Microcomputer - -.

Page 4, item (56), under "Other Publications", in Column 2, Line 61, delete "PCT1US2001/12666." and insert - - PCT/US2001/12666. - -.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 hour 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: Attention Certificate of Corrections Branch, 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.

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.

Electronic Patent Application Fee Transmittal

Application Number:	12644511			
Filing Date:	22-Dec-2009			
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY			
First Named Inventor/Applicant Name:	Frank W. Ahern			
Filer:	Blayne Donnis Green/Kevin Wyllie			
Attorney Docket Number:	MOBI-0004P1C2C			
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:				
Certificate of correction	1811	1	100	100
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				100

Electronic Acknowledgement Receipt

EFS ID:	13142432
Application Number:	12644511
International Application Number:	
Confirmation Number:	6489
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Blayne Donnis Green/Kevin Wyllie
Filer Authorized By:	Blayne Donnis Green
Attorney Docket Number:	MOBI-0004P1C2C
Receipt Date:	29-JUN-2012
Filing Date:	22-DEC-2009
Time Stamp:	13:13:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 100
RAM confirmation Number	12035
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Request for Certificate of Correction	CoC_8060675.pdf	80889 fa79073615ce851f541116cafd7f6ae1775b bd47	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30221 db7bf412b4edf15f83acd45982b45e0f4b81 1a2b	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			111110		
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.					



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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/644,511	11/15/2011	8060675	MOBI-0004P1C2C	6489

45590 7590 10/26/2011

Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD FLOOR
SAN JOSE, CA 95113

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 0 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):

Frank W. Ahern, Payson, AZ;
Desi Rhoden, Phoenix, AZ;
Jeff Doss, Scottsdale, AZ;
Charles Mollo, Phoenix, AZ;

PRINTER RUSH

(PTO ASSISTANCE)

Application: 12644511

Examiner: Huynh, K.

GAU: 2111

From: Marty Willis

Location: RTFM

Creation Date: 09/26/2011

Tracking #: Week Date:

<u>DOC CODE</u>	<u>DOC DATE</u>	<u>MISCELLANEOUS</u>
☐ 1449	<u>09/09/2011</u>	☐ Continuing Data
☒ IDS		☐ Foreign Priority
☐ CLM		☐ Document Legibility
☐ IIFW/FWCLM		☐ Fees
☐ SRFW		☐ Other
☐ DRW		
☐ OATH		
☐ 312		
☐ SPEC		

[RUSH] Message:

Please initial or line through the references cited on the 9-9-11 IDS.

Thank you,
AMW

[XRUSH] Response:

IDs filed on 9/9/2011 has been considered. (please see attachment)
/kh/ 10/3/2011

/Mark Rinehart/
Supervisory Patent Examiner
Art Unit 2111

Initials: _____

Examiner: PUBS contacts - for DESIGNS: Don Fairchild, 703-756-1566; for ALL OTHER files: Bernadette Queen, 703-756-1565.

NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.

REV: Sep 10



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.
12/644,511	12/22/2009	Frank W. Ahern	MOBI-0004P1C2C	6489

45590 7590 10/12/2011

Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD FLOOR
SAN JOSE, CA 95113

EXAMINER

HUYNH, KIM T

ART UNIT	PAPER NUMBER
----------	--------------

2111

MAIL DATE	DELIVERY MODE
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10/12/2011

PAPER

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.



UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office

Address : COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
12/644,511	22 December, 2009	AHERN ET AL.	MOBI-0004P1C2C

Patent Prosecution Dept. MURABITO, HAO & BARNES LLP TWO NORTH MARKET STREET THIRD FLOOR SAN JOSE, CA 95113		EXAMINER	
		KIM HUYNH	
		ART UNIT	PAPER
		2111	20111003

DATE MAILED:

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

Commissioner for Patents

The IDs filed 9/9/2011 has been considered. (please see attachment)

Kim Huynh
AU 2111

/Mark Rinehart/
Supervisory Patent Examiner, Art Unit 2111

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12644511
	Filing Date		2009-12-22
	First Named Inventor	Frank W. Ahern	
	Art Unit	2111	
	Examiner Name	HUYNH, KIM T	
	Attorney Docket Number	MOBI-0004P1C2C	

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
/KH/	1	5845212		1998-12-01	Tanaka			
/KH/	2	5153884		1992-10-06	Lucak , et al.			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1							
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							☐
If you wish to add additional Foreign Patent Document citation information please click the Add button							Add	
NON-PATENT LITERATURE DOCUMENTS							Remove	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12644511
Filing Date	2009-12-22
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	HUYNH, KIM T
Attorney Docket Number	MOBI-0004P1C2C

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
/KH/	1	Horst, Robert W., "TNet: A Reliable System Area Network", IEEE., pages 37- 45, 1995.	☐

If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature	/Kim Huynh/ (10/03/2011)	Date Considered	10/03/2011
--------------------	--------------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12644511
Filing Date	2009-12-22
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	HUYNH, KIM T
Attorney Docket Number	MOBI-0004P1C2C

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

- ☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

- ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- ☐ See attached certification statement.
- ☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- ☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Anthony C. Murabito/	Date (YYYY-MM-DD)	2011-09-09
Name/Print	Anthony C. Murabito	Registration Number	35295

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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.

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)

MURABITO, HAO & BARNES LLP
 2 N. MARKET STREET
 3RD FLOOR
 SAN JOSE, CA 95113

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.

Donna Petford	(Depositor's name)
/Donna Petford/	(Signature)
09-23-2011	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/644,511	12/22/2009	Frank W. Ahern	MOBI-0004P1C2C	6489

TITLE OF INVENTION:

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$1810	12/15/2011
EXAMINER	ART UNIT	CLASS-SUBCLASS			

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, 1__
- (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. 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 enclosed:

- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number 504160

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Anthony C. Murabito/

Date 09/23/2011

Typed or printed name Anthony C. Murabito

Registration No. 35295

This collection of information 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.

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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.

Electronic Patent Application Fee Transmittal

Application Number:	12644511			
Filing Date:	22-Dec-2009			
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY			
First Named Inventor/Applicant Name:	Frank W. Ahern			
Filer:	Anthony C. Murabito/Donna Petford			
Attorney Docket Number:	MOBI-0004P1C2C			
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	1510	1510
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1810

Electronic Acknowledgement Receipt

EFS ID:	11031579
Application Number:	12644511
International Application Number:	
Confirmation Number:	6489
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Anthony C. Murabito/Donna Petford
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	MOBI-0004P1C2C
Receipt Date:	23-SEP-2011
Filing Date:	22-DEC-2009
Time Stamp:	14:37:44
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Electronic Funds Transfer
Payment was successfully received in RAM	\$ 1810
RAM confirmation Number	1744
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Issue Fee Payment (PTO-85B)	MOBI-0004P1C2C_ISSUEFEE_09-23-2011.pdf	232446 aaca5e5cfd75039302c26b49ea88e257a808b043	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32142 15a2fbb721b28a44310e2dff905721ba0323921c	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			264588		
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.					



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

NOTICE OF ALLOWANCE AND FEE(S) DUE

45590 7590 09/15/2011
Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD FLOOR
SAN JOSE, CA 95113

EXAMINER

HUYNH, KIM T

ART UNIT

PAPER NUMBER

2111

DATE MAILED: 09/15/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

12/644,511

12/22/2009

Frank W. Ahern

TALS0090

6489

TITLE OF INVENTION: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/15/2011

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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)

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.

45590 7590 09/15/2011
 Patent Prosecution Dept.
 MURABITO, HAO & BARNES LLP
 TWO NORTH MARKET STREET
 THIRD FLOOR
 SAN JOSE, CA 95113

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.
-----------------	-------------	----------------------	---------------------	------------------

12/644,511

12/22/2009

Frank W. Ahern

TALS0090

6489

TITLE OF INVENTION: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	12/15/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
HUYNH, KIM T	2111	710-100000

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,

1 _____

(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.

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 credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information 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.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/644,511	12/22/2009	Frank W. Ahern	TALS0090	6489

45590 7590 09/15/2011
Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD FLOOR
SAN JOSE, CA 95113

EXAMINER

HUYNH, KIM T

ART UNIT	PAPER NUMBER
----------	--------------

2111

DATE MAILED: 09/15/2011

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

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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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.	Applicant(s)	
	12/644,511	AHERN ET AL.	
	Examiner	Art Unit	
	KIM HUYNH	2111	

-- 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 IDS filed on 8/31/2011.
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 6,8-26,34 and 35.
4. ☐ 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 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. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date ____.
 - (b) ☐ 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).**
7. ☐ 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)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>8/31/2011</u> 4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. ☐ Notice of Informal Patent Application 6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date ____. 7. ☐ Examiner's Amendment/Comment 8. ☐ Examiner's Statement of Reasons for Allowance 9. ☐ Other ____. |
|---|---|

/Mark Rinehart/
Supervisory Patent Examiner, Art Unit 2111

<i>Index of Claims</i> 	Application/Control No. 12644511	Applicant(s)/Patent Under Reexamination AHERN ET AL.
	Examiner KIM T HUYNH	Art Unit 2111

✓	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	06/07/2010	11/15/2010	04/25/2011	07/07/2011	09/07/2011			
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	2	✓	✓	-	-	-			
	3	✓	✓	-	-	-			
	4	✓	✓	-	-	-			
	5	✓	✓	-	-	-			
1	6	✓	✓	=	=	=			
	7	✓	✓	-	-	-			
2	8	✓	✓	=	=	=			
3	9	✓	✓	=	=	=			
4	10	✓	✓	=	=	=			
5	11	✓	✓	=	=	=			
6	12	✓	✓	=	=	=			
7	13	✓	✓	=	=	=			
8	14	✓	✓	=	=	=			
9	15	✓	✓	=	=	=			
10	16	✓	✓	=	=	=			
11	17	✓	✓	=	=	=			
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15	21		✓	=	=	=			
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	30		✓	-	-	-			
	31		✓	-	-	-			
	32		✓	-	-	-			
	33		✓	-	-	-			
21	34		✓	=	=	=			
22	35		✓	=	=	=			
	36								

<i>Index of Claims</i> 	Application/Control No. 12644511	Applicant(s)/Patent Under Reexamination AHERN ET AL.
	Examiner KIM T HUYNH	Art Unit 2111

✓	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	06/07/2010	11/15/2010	04/25/2011	07/07/2011	09/07/2011			
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12644511
	Filing Date		2009-12-22
	First Named Inventor	Frank W. Ahern	
	Art Unit	2111	
	Examiner Name	HUYNH, KIM T	
	Attorney Docket Number	MOBI-0004P1C2C	

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/KH/	1	5797043		1998-08-18	Lewis , et al.	
/KH/	2	6081852		2000-06-27	Baker	
/KH/	3	6128311		2000-10-03	Poulis , et al.	
/KH/	4	6636922		2003-10-21	Bastiani , et al.	
/KH/	5	6728812		2004-04-27	Kato	
/KH/	6	6978340		2005-12-20	Fisher , et al.	
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Application Number	12644511
Filing Date	2009-12-22
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	HUYNH, KIM T
Attorney Docket Number	MOBI-0004P1C2C

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
/KH/	1	20010044862		2001-11-22	MERGARD, JAMES O. ; et al.	

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/KH/	1	0401803	EP		1990-12-12	CONTROL CORPORATION		☐

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EXAMINER SIGNATURE

Examiner Signature	/Kim Huynh/ (09/06/2011)	Date Considered	09/06/2011
--------------------	--------------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.



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CONFIRMATION NO. 6489

SERIAL NUMBER 12/644,511	FILING or 371(c) DATE 12/22/2009 RULE	CLASS 710	GROUP ART UNIT 2111	ATTORNEY DOCKET NO. TALS0090		
APPLICANTS Frank W. Ahern, Payson, AZ; Desi Rhoden, Phoenix, AZ; Jeff Doss, Scottsdale, AZ; Charles Mollo, Phoenix, AZ; ** CONTINUING DATA ***** This application is a CON of 11/300,131 12/13/2005 PAT 7,657,678 which is a CON of 09/559,678 04/27/2000 PAT 7,734,852 which claims benefit of 60/198,317 04/19/2000 and is a CIP of 09/130,057 08/06/1998 PAT 6,088,752 and is a CIP of 09/130,058 08/06/1998 PAT 6,070,214 ack /kh/ 9/7/2011 none /kh/ 9/7/2011 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 01/08/2010						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/Kim T. Huynh /</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY AZ	SHEETS DRAWINGS 2	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS Patent Prosecution Dept. MURABITO, HAO & BARNES LLP TWO NORTH MARKET STREET THIRD FLOOR SAN JOSE, CA 95113 UNITED STATES						
TITLE COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY						
FILING FEE RECEIVED 2206	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		

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	17	("20010044862" "5797043" "6081852" "6128311" "6636922" "6728812" "6978340" "7363415").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2011/09/07 13:12
L2	12	parallel same serial and 1	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2011/09/07 13:30
L3	4	asynchronous and 2	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2011/09/07 13:32
S1	21203889	@ad< "20010928"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/06/08 16:26
S2	0	last-first\$.in.	US-PGPUB; USPAT	OR	ON	2003/09/29 12:04
S3	2	ep-804933-\$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2003/05/02 11:17
S4	15898	"710"/\$.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2003/05/31 12:37
S5	0	(asynchronyz\$3 with bus)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 10:51
S6	11646	(asynchron\$6 with bus)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 10:51
S7	99	asynchron\$6 with "parallel bus"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 10:51
S8	99	asynchron\$6 with "parallel bus"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 13:00

S9	35	@ad<"20000419" and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 13:00
S10	68	((("5701483") or ("5579489") or ("6446192") or ("5781747") or ("5764924") or ("4882702") or ("5191657") or ("6044215") or ("4941845") or ("4969830") or ("5187645") or ("5373149") or ("5477415") or ("5724529") or ("5432916") or ("5191653") or ("5579491") or ("5632020") or ("5634080") or ("5941965") or ("6578101") or ("7269680") or ("7356643") or ("6715022") or ("6594719") or ("5991304") or ("6950440") or ("6201829") or ("4591660") or ("6473810") or ("6445711") or ("6581125") or ("6778543") or ("6728822")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:15
S11	53	((("6141744") or ("6788101") or ("6058144") or ("5452180") or ("6070214") or ("6418504") or ("20020078289") or ("5475818") or ("5335326") or ("5586265") or ("5561806") or ("5457785") or ("5819053") or ("5003105") or ("5671421") or ("5313589") or ("4901308") or ("6401157") or ("5357621") or ("5430635") or ("5913037") or ("6167120") or ("6366951") or ("5548730") or ("5524252") or ("5301349")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:18
S12	60	((("5774681") or ("5799207") or ("5483020") or ("5809262") or ("5522050") or ("5793995") or ("5748921") or ("4112369") or ("200424809") or ("20040088452") or ("6671737") or ("5736968") or ("6493745") or ("20030120849") or ("20040054757") or ("20050036509") or ("20050129385") or ("20050174488") or ("3800097") or ("4413319") or ("4504927") or ("0487029") or ("4954949") or ("4959833") or ("4961140") or ("5006981") or ("5038320") or ("5111423")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:20
S13	52	((("5237690") or ("5274711") or ("5325491") or ("5335329") or ("5430847") or ("5446869") or ("5495569") or ("5497498") or ("5507002") or ("5517623") or ("5530895") or ("5540597") or ("5542055") or ("5555510") or ("5572525") or ("5572688") or ("5590377") or ("5611053") or ("5655142") or ("5694556") or ("5696949") or ("20060075166") or ("7047326") or ("20010037423") or ("5377184") or ("5440698")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:22

S14	54	((("5469545") or ("5802055") or ("5832279") or ("5835741") or ("5854908") or ("5905870") or ("5911055") or ("6026075") or ("6031821") or ("6035333") or ("6084856") or ("6098103") or ("6115356") or ("6157967") or ("6167029") or ("6170022") or ("6222825") or ("6247091") or ("6263397") or ("6295281") or ("6333929") or ("6385671") or ("6421352") or ("6425033") or ("6456590") or ("6457081") or ("20020135536"))).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:25
S15	1	asynchron\$6 with ("parallel bus" pci) with (serially adj exchang\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:57
S16	335	asynchron\$6 with ("parallel bus" pci) with serial\$5	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:57
S17	43	asynchron\$6 with ("parallel bus" pci) with serial\$5 with module	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:58
S18	6	@ad< "20000419" and S17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:58
S19	79	asynchron\$6 with ("parallel bus" pci) with module	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 12:00
S20	1842789	@ad< "20000419" and "35"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 12:00
S21	15	@ad< "20000419" and S19	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 12:00
S22	335	asynchron\$6 with ("parallel bus" pci) with serial\$5	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 12:01
S23	51	@ad< "20000419" and S22	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 12:01
S24	79	((("7657678") or ("20010011312") or	US-PGPUB;	OR	OFF	2010/06/04

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S25	64	((("5301349") or ("5313589") or ("5325491") or ("5335326") or ("5335329") or ("5357621") or ("5373149") or ("5377184") or ("5430847") or ("5432916") or ("5440698") or ("5446869") or ("5452180") or ("5477415") or ("5483020") or ("5488705") or ("5495569") or ("5497498") or ("5507002") or ("5517623") or ("5522050") or ("5524252") or ("5530895") or ("5540597") or ("5542055") or ("5548730") or ("5555510") or ("5561806") or ("5572525") or ("5572688") or ("5579489") or ("5579491")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/06/04 12:39
S26	68	((("5586265") or ("5590377") or ("5611053") or ("5632020") or ("5634080") or ("5655142") or ("5694556") or ("5696911") or ("5696949") or ("5701483") or ("5724529") or ("5736968") or ("5748921") or ("5764924") or ("5774681") or ("5781747") or ("5793995") or ("5793996") or ("5799207") or ("5802055") or ("5809262") or ("5815677") or ("5819053") or ("5832279") or ("5835741") or ("5854908") or ("5884027") or ("5905870") or ("5911055") or ("5913037") or ("5941965") or ("5948076") or ("5953511") or ("5968144")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/06/04 12:42
S27	71	((("5991304") or ("5991839") or ("6003105") or ("6026075") or ("6031821") or ("6035333") or ("6044215") or ("6058144") or ("6070214") or ("6084856") or ("6085278") or ("6098103") or ("6101563") or ("6115356") or ("6141744") or ("6157967") or ("6167029") or ("6167120") or ("6170022") or ("6201829") or	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/06/04 12:45

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S28	61	((("6385671") or ("6401157") or ("6418492") or ("6418494") or ("6418504") or ("6421352") or ("6425033") or ("6430635") or ("6445711") or ("6446192") or ("6452927") or ("6456590") or ("6457081") or ("6457091") or ("6473810") or ("6493745") or ("6567876") or ("6578101") or ("6581125") or ("6594719") or ("6671737") or ("6715022") or ("6728822") or ("6778543") or ("6788101") or ("6950440") or ("7047326") or ("7269680") or ("7356643")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/06/04 12:48
S29	2	("5991304").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/06/04 13:00
S30	9	asynchron\$6 with ("parallel bus" pci) with (serial\$5 adj link)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 06:59
S31	4	@ad<"20000419" and S30	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 06:59
S32	1	asynchron\$6 with ("parallel bus" pci) with (serial\$5 adj exchang\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 07:33
S33	1	asynchron\$6 with ("parallel bus" pci) with (serial\$5 near6 exchang\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 07:33
S34	962	asynchron\$6 with ("parallel bus" pci)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 07:38
S35	2	asynchron\$6 with ("parallel bus" pci) and (serial\$5 adj exchang\$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 07:39
S36	288	"710"/\$.ccls. and S34	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2010/06/07 07:39

			DERWENT; IBM_TDB			
S37	49	"710"/305-306.ccls. and S34	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 07:39
S38	18	@ad< "20000419" and S37	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/07 07:39
S39	4	("parallel bus" pci) with asynchronous with handshaking	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:39
S40	3	@ad< "20000419" and S39	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:39
S41	10	("parallel bus" pci) with asynchronous with handshak\$5	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:40
S42	4	@ad< "20000419" and S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:40
S43	0	S42 not S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:40
S44	1	S42 not S40	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:40
S45	19	("parallel bus" pci) with asynchronous with "serial data"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:41
S46	5	@ad< "20000419" and S45	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:41
S47	256	("parallel bus" pci) with asynchronous and "serial data"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:52
S48	146	("parallel bus" pci) with asynchronous and ("serial data" with (clk clock))	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2010/11/15 08:53

			DERWENT; IBM_TDB			
S49	24	"710"/\$.cls. and S48	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:53
S50	5	@ad< "20000419" and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:53
S51	4	@ad< "20000419" and S49	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/11/15 08:54
S52	2	("5991304").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/15 09:06
S53	2	("5991304").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2011/03/29 08:20
S54	146	("parallel bus" pci) with asynchronous and ("serial data" with (clk clock))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/07/07 07:56
S55	7	@ad< "20000419" and S54	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/07/07 07:56
S56	7	("20010044862" "5797043" "6081852" "6128311" "6636922" "6728812" "6978340" "7363415").PN.	USPAT	OR	OFF	2011/09/06 20:55

9/ 7/ 2011 1:37:03 PM
C:\Users\ khuynh3\ Documents\ EAST\ Workspaces\ 12644511.wsp

Search Notes 	Application/Control No. 12644511	Applicant(s)/Patent Under Reexamination AHERN ET AL.
	Examiner KIM T HUYNH	Art Unit 2111

SEARCHED			
Class	Subclass	Date	Examiner
710	305-306; 100	6/7/2010	kh
370	413	6/7/2010	kh

SEARCH NOTES		
Search Notes	Date	Examiner
East-search (uspat; uspgpub; epo; jpo; derwent)	11/15/2010	kh
East-text search	11/15/2010	kh'
updated prior search	11/15/2010	kh
updated prior search	4/24/2011	kh
updated prior search	7/7/2011	kh
updated prior search	9/7/2011	kh

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
710	305-306	4/25/2011	kh

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12644511
	Filing Date		2009-12-22
	First Named Inventor	Frank W. Ahern	
	Art Unit	2111	
	Examiner Name	HUYNH, KIM T	
	Attorney Docket Number	MOBI-0004P1C2C	

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	5845212		1998-12-01	Tanaka			
	2	5153884		1992-10-06	Lucak , et al.			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1							
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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							☐
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12644511
	Filing Date		2009-12-22
	First Named Inventor	Frank W. Ahern	
	Art Unit	2111	
	Examiner Name	HUYNH, KIM T	
	Attorney Docket Number	MOBI-0004P1C2C	

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	Horst, Robert W., "TNet: A Reliable System Area Network", IEEE., pages 37- 45, 1995.	☐

If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12644511
Filing Date	2009-12-22
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	HUYNH, KIM T
Attorney Docket Number	MOBI-0004P1C2C

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Anthony C. Murabito/	Date (YYYY-MM-DD)	2011-09-09
Name/Print	Anthony C. Murabito	Registration Number	35295

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 Acknowledgement Receipt

EFS ID:	10915547
Application Number:	12644511
International Application Number:	
Confirmation Number:	6489
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Anthony C. Murabito/Tatiana Carvalho
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	TALS0090
Receipt Date:	09-SEP-2011
Filing Date:	22-DEC-2009
Time Stamp:	15:30:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	MOBI-0004P1C2C_IDS_09-09-2011.pdf	612002 fc478468b4c73a85b8ef4dad51625ca60ee9e1b9	no	4

Warnings:

Information:

2	Non Patent Literature	NPL_TNet.pdf	1461246 5c07d4f38e1be4b33ee521ccd1b3327ab86b3273	no	9
Warnings:					
Information:					
Total Files Size (in bytes):				2073248	
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.					

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

Application Number	12644511	Filing Date	2009-12-22	Docket Number (if applicable)	MOBI-0004P1C2C	Art Unit	2111
First Named Inventor	Frank W. Ahern			Examiner Name	HUYNH, KIM T		

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 504160

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

Signature of Registered U.S. Patent Practitioner			
Signature	/Lin C. Hsu/	Date (YYYY-MM-DD)	2011-08-31
Name	Lin C. Hsu	Registration Number	46315

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).
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		12644511
	Filing Date		2009-12-22
	First Named Inventor	Frank W. Ahern	
	Art Unit	2111	
	Examiner Name	HUYNH, KIM T	
	Attorney Docket Number	MOBI-0004P1C2C	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5797043		1998-08-18	Lewis , et al.	
	2	6081852		2000-06-27	Baker	
	3	6128311		2000-10-03	Poulis , et al.	
	4	6636922		2003-10-21	Bastiani , et al.	
	5	6728812		2004-04-27	Kato	
	6	6978340		2005-12-20	Fisher , et al.	
	7	7363415		2008-04-22	Chu	
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12644511
Filing Date	2009-12-22
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	HUYNH, KIM T
Attorney Docket Number	MOBI-0004P1C2C

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	20010044862		2001-11-22	MERGARD, JAMES O. ; et al.	

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Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² ;	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	0401803	EP		1990-12-12	CONTROL CORPORATION		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button **Add**

NON-PATENT LITERATURE DOCUMENTS

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1		☐

If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	12644511
Filing Date	2009-12-22
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	HUYNH, KIM T
Attorney Docket Number	MOBI-0004P1C2C

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

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Signature	/Lin C. Hsu/	Date (YYYY-MM-DD)	2011-08-31
Name/Print	Lin C. Hsu	Registration Number	46315

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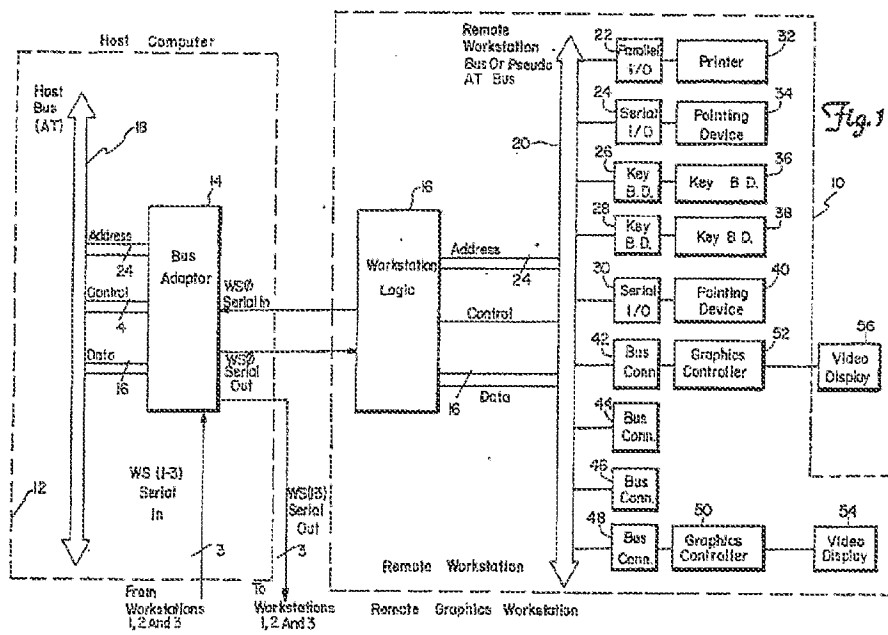
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54 Multiple remote graphic work stations.

57 A remote work station for interactive use in a multi-user time-shared environment with a host computer. The remote work station and host computer pass information via a high speed link with circuits in both the host computer and remote work station for

converting the serial information to and from a parallel format used on the host bus and remote work station bus respectively. The remote work station has an open bus architecture permitting access to bus signals at the remote terminal.

EP 0 401 803 A2



BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to the field of multi-user, time-share computing on a host computer. More particularly, this invention relates to computer systems for executing interactive high resolution graphic applications in a real time, multi-user environment.

2. Description of the Prior Art

Presently, users of personal computer systems such as the IBM PC-XT or AT series are unable to take advantage of the full capabilities of these machines. Multi-tasking and operating systems such as UNIX or XENIX allow multiple processes to be executed in a time-share manner which allows the user to more fully utilize the vast power of the central processor. Because, however, a great deal of application software is written for the DOS operating system in which there are limitations preventing full utilization of the central processor.

DOS application software requires memory and computer, input, output (I/O) devices to be accessible just as a standalone. Several applications programs can be run in a time-share manner by several users by simply extending the host bus to another terminal. The second terminal shares the CPU on the host in a time-share manner. However, because of bus propagation delay and skew, the second terminal would have to be in close proximity to the host machine.

Presently, a method used for executing application software from a remote terminal makes use of a high speed serial fiber optic link to transfer data at a 32 megabit per second rate to the remote terminal. At the remote terminal, high resolution graphics capability is built into the control board allowing the execution of graphic software at the host computer in a multi-tasking, multi-user mode.

There are several disadvantages associated with this technique. First, each remote terminal control board supports only one type of graphics option at each work station. This prevents a user from using more than one video displays each having different graphics options such as EGA, BGA, hercules, etc.

Second, because the graphic capability is built into the control board, the user must wait for a control board providing the new graphics options instead of being able to use an industry standard

IBM PC-AT compatible graphics card. Since new graphics options must be first implemented on a custom chip on the graphics terminal control board, new graphics options are not available as fast as those that come out in having an AT bus compatible connector. The cost of graphics options implemented by a custom chip on the graphics terminal control board is greater than the cost of the AT compatible graphics board because the AT compatible graphics boards can take advantage of much higher volume manufacturing techniques to produce boards at lower cost.

Another technique for linking personal computer to permit multiple users to share both hardware and software is the use of a local area network (LAN). A LAN requires the host computer to transfer data through an interface card to a network. The interface card transfers data between interface cards each under local control. When an interface card on the LAN receives data for the host machine for which it is dedicated, that interface card must then initiate a data transfer to the host.

There are several disadvantages associated with this technique. First, LANs do not transfer data in real time. Data placed in the network does not get clocked in at the destination on the same bus cycle as it would have if the destination were local to the computer initiating the transfer. The LAN does not provide a good real time solution because there is a great deal of overhead on the network transfers between interface cards. This overhead involves source and destination addresses, for example, which are sent out along with the information which is being transferred between the host machines.

Second, a LAN is a general purpose solution for allowing multiple users to execute software on a time-share system, and therefore is expensive. To provide added flexibility, most LANs make use of software which is running on each of the network interface cards. Because LANs require both hardware and software development, they are usually expensive.

SUMMARY OF THE INVENTION

The present invention provides a method and apparatus for electronically transferring high resolution video graphics data between a remote graphics terminal and a host computer having an AT bus type architecture. Because data is transferred between the host computer and the remote graphics terminal, fast enough for the application software, it appears to both the host and the remote graphics terminal they are both tied physically to the

same bus.

In one preferred embodiment, the apparatus used to implement the present invention is a transparent high speed serial link between the host bus and the remote bus. Parallel bus data is transformed to serial data and transmitted serially at 70 megabits per second or higher to a receiver which converts the serial data stream back to parallel form. The present invention allows multiple remote graphic work stations to operate interactively with the host computer in a real time, multi-tasking, multi-user environment.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram of a remote graphics work station and the associated bus adaptor in the host computer.

Fig. 2 is a block diagram showing further detail of the data paths between the host computer and remote work station.

Fig. 3 is a block diagram of the host parallel bus to serial bus on the host bus adaptor.

Fig. 4 shows the command code decodes and detail of transfer between the host computer and remote work station.

Fig. 5 shows the I/O address mapping for the remote work stations.

Fig. 6 shows a block diagram of the serial bus receiver to reconstructed parallel remote work station bus logic at the remote work station.

Fig. 7 shows a block diagram of the remote work station bus to serial bus logic at the remote work station.

Fig. 8 is a block diagram of work station serial bus to host bus logic on the host bus adaptor.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Fig. 1 is a block diagram of the remote graphics work station of this invention. The remote work station 10 transfers and receives address, data, and control information between itself and a host computer 12. The host computer 12 is a machine having a IBM PC-AT bus architecture and a resident multi-tasking operating system such as UNIX or XENIX. A multi-tasking operating system allows the host computer to time-share its CPU resources, which makes it possible for multiple users to execute application software on the same CPU. A bus adaptor 14 and work station logic 16 make it possible for a user at a remote work station 10 to appear to the host computer 12 to be physically attached

and locally resident on the host bus 18.

The remote work station 10 is composed of work station logic 16, remote work station bus or pseudo-AT bus 20, interface cards 22, 24, 26, 28 and 30, input devices 32, 34, 36, 38 and 40, bus connectors 42, 44, 46 and 48, graphics controllers 50, 52 and video displays 54 and 56.

Specific interfaces and devices on the remote work station bus 20 typically includes a parallel interface 22 for a printer 32, serial interfaces 24 to 30 for pointing devices 34 and 40 such as a bit pad or mouse, and keyboard interfaces 26 and 28 for keyboards 36 and 38.

The remote work station 10 provides four standard AT bus type connectors 42, 44, 46 and 48 for the user to install one of a variety of IBM PC-AT compatible graphics controllers 50 and 52 for driving video displays 54 and 56 or any AT compatible expansion boards.

Address, data, and control information is passed between the remote work station 10 and the host computer 12 by converting this information from parallel form at the remote work station bus 20 and the host bus 18 to serial form which is transferred between bus adaptor 14 and work station logic 16. Parallel data links are not adequate for transferring data over substantial distances because of the cost of multi-conductor cables, crosstalk problems, RFI (radio frequency interference), bit-to-bit skew, and other concerns associated with multi-wire interface. Transferring data serially between work station logic 16 and bus adaptor 14 provides a simpler and less costly link between the remote work station 10 and the host computer 12.

At the host computer 12 the bus adaptor 14 fits into one of the standard IBM PC-AT card slots to interface with host bus 18. A bus adaptor 14 converts parallel address, control and data information from the host bus 18 designated to the remote work station to serially information and transmits this over a serial link to work station logic 16. Bus adaptor 14 supports up to four remote work stations 10 and therefore provides four serial output signals and receives four serial input signals.

Fig. 2 shows further detail of the host bus adaptor 14 which resides in the host computer 12 and the work station logic 16 which resides in the remote work station 10. Address, data, and control information which is transferred from the host bus 18 of the host computer 12 is converted to serial information by the host parallel bus serial bus encoder 60 and then transmitted to the remote work station 10 where it is received by the serial bus receiver to reconstructed the parallel remote work station bus 62 logic. This logic 62 reconstructs the address data and command information to parallel form with the same timing as the AT bus architecture. This reconstructed data is then placed

out on the remote work station bus 20.

A return path from the remote work station bus 20 within the remote work station 10 to the host computer 12 requires the parallel data from the remote work station bus 20 to be converted to serial bus data by the remote work station bus serial bus logic 64. Serial data from the remote work station bus to serial bus logic 64 is received by the work station serial bus to host bus logic 66 and reconstructed into a parallel format having the timing conforming to the AT bus architecture. This reconstructed data is placed out on the host bus 18 of the host computer 12.

Fig. 3 shows the logic in the host bus adaptor 14 which encodes the parallel information from the host bus 18 into serial information for sending to the work station logic 16. The host parallel bus to serial bus encoder 60 is made up of adaptor address decoder 70, adaptor mode control register and decoder 72, direct mode address decode 74, and direct mode address decode 76, adaptor to work station command initiation 78, adaptor to work stations sequence and multiplexer 80, control line input buffer 82, data bus input buffers 84, state machine 86, and transmitter 88, 90, 92 and 94.

Adaptor address decoder 70 decodes the lower 16 bits of the address lines to determine if it is one of the unique addresses of the adaptor card which are preselectable by switches on the adaptor card. The host computer can address a particular adaptor card by sending the adaptor card address which is decoded by the adaptor address decoder 70 and enables the adaptive mode control register and decoder 72 to accept mode control information from the host computer 12 such as whether or not to allow interrupts, and whether or not the host will be using direct or indirect addressing mode.

When in direct mode, the address lines must be decoded by the direct mode address decode 74 for a unique host address for one of the 16 devices at each work station. When in indirect mode, address decode logic 76 must be used because the host has preselected a work station.

Control lines input buffer 82 is a receiver circuit for accepting control information from the host bus 18. Similarly data bus input buffers 84 are receivers for the 16 data bits on the host bus 18.

The adaptor to work station command initiation logic 78 receives a signal from the direct mode address decode logic 74 or indirect mode address decode logic 76 when the host is addressing one of the work station devices. The adaptor to work station command initiation logic 78 also receives the address of the work station the host wishes to communicate with from the direct mode address decode 74 logic. In addition, four bits of control information is received by the control lines input buffer 82 to initiate the start of the cycle to transfer

data to the work station. A four bit command code is generated by the adaptor work station command initiation logic 78 from the 4-bit control information received by the control lines input buffer 82. The four bit command code is the first thing sent to the remote work station 10 to tell the work station what operation is going to be performed. Operations which may be performed are I/O write, memory write, I/O read or memory read. See Fig. 4 for a complete decode of the command code.

The adaptor to work station sequencer and multiplexor logic 80 receives the following information from the adaptor to work station command initiation logic 78 whether or not the host wishes to communicate with one of the work stations, the device code which tells which work station the host wishes to communicate with, and which command code to send over to the work station. The adaptor work station sequencer and multiplexer logic 80 begins sending information to the appropriate transmitters 88, 90 92 and 94 beginning with the command code first followed by up to four bits of information, in the case of a memory write the command code will be followed by four bytes address bits which in the case of a write will also be followed by four bytes of data (See Fig. 4) The transmitters in one preferred embodiment is the Advanced Micro Devices AM 7968 TAXI transmitter.

The transfer of data from the bus adaptor 14 to the work station logic 16 is controlled by a state machine 86. After every operation the state machine 86 is cleared.

The four bit device code issues to define the device to which the host wishes to talk. The decode of the device bits are shown in Fig. 5.

Fig. 6 shows further detail of the serial bus receiver to reconstructed parallel remote work station bus logic 62 shown in Fig. 2. This logic receives data, control and address information from the host computer in a serial format and reformats the data control and address information into a parallel format having the identical timing to the AT bus architecture and transmits this information on the remote work station bus 20.

The serial bus receiver to reconstructed parallel remote work station bus logic 62 is made up of a receiver 100, command register and decode logic 102, state machine and state machine decoder 104 PC-AT bus control signal and signal timing generation logic 106, decision delay lines 108, and data byte registers and PC-AT bus encoder 110.

The receiver 100 accepts the encoded data stream into a serial-to-parallel converter, which decodes and outputs the received data with the accompanying strobe signal. In one preferred embodiment the receiver 100 is the Advanced Micro

Devices AM 7969 TAXI receiver. The receiver 100 provides a 8 bit data bus and a 4-bit command bus. Each bus has its own strobe associated with it. When the command strobe is active, the command register and decoder logic 102 stores the command code sent by the host computer, which tells what kind of information is coming over the bus and how many bits long it is. The command strobe initiates the state machine and state machine decoder 104. The state machine and state machine decoder 104 provides clocking information to the data byte registers and PC-AT bus encoder 110 in the correct order so as to reorganize the data in a AT bus format. As soon as the state machine and state machine decoder 104 receives the last data strobe expected for the type of transfer executed, a start signal is sent to the PT-AT bus control signal timing generation logic 106. The PC-AT bus control signal and signal timing generation logic 106 generates the control signals according to the precise timing required by the PC-AT bus architecture by using the precision delay lines of 108.

The strobe transmitter signal generated by the PC-AT bus control signal and signal timing generation logic 106 is used to enable the transmitter, which sends information back to the host computer.

Fig. 7 is a block diagram of the remote work station bus to serial bus logic 64 which is used to convert the parallel address control and data on the remote work station bus 20 to serial information to be received by the host bus adaptor 14 on the host computer 12 shown in Fig. 2. The remote work station bus to serial bus logic consists of a transmitter 120, interrupt detector logic 122, interrupt scanner 124, interrupt encoder 126, and data bus buffer and multiplexer 128.

The interrupt detector 122 receives ten discrete device interrupt lines from the remote work station bus 20. These inputs are conditioned to eliminate glitches on the interrupt lines. Interrupt scanner 124 is a continuous counter with each count representing one of the discrete device interrupts. When the interrupt detector 122 detects an interrupt and the interrupt scanner 124 is at a scan count corresponding to that particular device interrupt, a signal is sent to the interrupt encoder 126. The interrupt encoder 126 sends out a 4-bit interrupt code corresponding to the particular work station which generated the interrupt. The interrupt detector 122 also generates a strobe interrupt signal which enables the transmitter 120 to initiate communication with the host computer 12 via the serial bus.

The transmitter 120 in one preferred embodiment is the Advanced Micro Devices AM7968 TAXI transmitter. The transmitter 120 latches the data to be transmitted encodes this data and passes it through a shift register to the media interface de-

vices which charge the transmission lines.

Data bus buffers/multiplexer 128 takes the 16-bit data from the remote work station bus 20 and breaks it into 8-bit pieces compatible with the transmitter 120 input latch.

Fig. 8 is a block diagram on the work station serial bus to host bus logic 66 shown in Fig. 2, this logic takes the serial information received from the remote work station bus to serial bus logic 64 on the remote work station 10 and converts this to a parallel format having the same timing and organization as the IBM PC-AT bus architecture. Serial data received from the remote work station 10 after being converted to a format compatible with the AT bus architecture is then placed on the host bus 18 for the host computer 12. The work station serial bus to host bus logic 66 is made up of receiver logic circuits 130, 132, 134 and 136, data latch and the multiplexer logic 138, interrupt detector 140, interrupt scanner 142, interrupt encoder 144, interrupt FIFO 146 and interrupt generator logic 148.

The receiver circuits 130, 132, 134 and 136 accept the encoded data stream into a serial-to-parallel converter, and decode and output the received data with an accompanying strobe. In one preferred embodiment the receiver logic circuit 130, 132, 134 and 136 are the Advanced Micro Devices AM7969 TAXI receiver.

Each of the receivers 130, 132, 134 and 136 go to a separate remote work station. The data latch and the multiplexer logic 138 latches the 8-bit data from the receivers 130, 132, 134 and 136. The data latch and the multiplexer logic 138 will also format this 8-bit data into a 16-bit data bus compatible with the AT bus architecture 18.

Because there are ten discrete interrupt lines from each work station, the work station serial bus to host bus logic 66 can potentially receive one to forty unique interrupts. The interrupt detector 140 receives an interrupt strobe and 4-bit code from one of the receivers 130, 132, 134 and 136 when a work station has generated an interrupt. The interrupt scanner 142 scans through each work station continuously looking for an interrupt. When the interrupt scanner 142 detects an interrupt from the particular work station that it is presently scanning the interrupt encoder 144 is enabled. Interrupt FIFO 146 receives a 4-bit code from the interrupt encoder 144 which represents the work station that has the interrupt. In addition, interrupt FIFO 146 receives a 4-bit code from the interrupt detector 140 which identifies which one of the sixteen devices at the work station has created the interrupt. Once the interrupt is stored in the interrupt FIFO 146, the interrupt is cancelled and the device which generated the interrupt cannot generate another interrupt until the previous interrupt has been ser-

viced.

Interrupt generator 148 is enabled by the interrupt FIFO 146 whenever there is data in the FIFO. After an interrupt has been generated by the interrupt generator 148 on the host bus 18, the host computer 12 services the interrupt by reading the interrupt vector from the interrupt FIFO 146 to determine which device at which work station has generated the interrupt. After the interrupt vector is read from the interrupt FIFO 146, that particular interrupt is cleared from the interrupt FIFO 146.

The present invention is a low cost solution then previous methods of dealing with a remote work station for a real time multi-tasking environment where users are executing DOS applications. The present invention is lower cost because the hardware is simplified by not requiring software or hardware control to avoid resource conflicts resulting from a data link having a transfer rate less than that of the IBM PC-AT bus architecture capabilities. Another reason the present invention is less costly is because it takes advantage of high production industry standard graphics controllers in the remote work station. The remote work station has standard IBM PC-AT type expansion board card slots allowing graphics controllers made by multiple vendors to be installed by the users to drive their video display terminals.

The present invention also allows each remote work station to not only using industry standard graphics controllers but also provides the user at the remote work station with multiple slots to install up to four graphics controllers allowing more than one video displays to be used for certain applications. The extra connectors also allow the user at the remote work station to install specialized resources such as extended memory, math coprocessors, etc. at the remote work station.

Although the present invention has been described with reference to preferred embodiments, workers skilled in the art will recognize that changes may be made in form and detail without departing from the spirit and scope of the invention.

Claims

1. A remote terminal for interactive use in a multi-user, time-shared environment with a host computer, wherein the improvement comprising: a serial-to-parallel circuit for communicating with the host computer over a transmission medium; a remote terminal bus connected to the serial-to-parallel circuit; a plurality of non-dedicated bus interface connectors, each connected to the remote terminal bus to provide open architecture to permit an access to

bus signals on the remote terminal bus.

2. The remote terminal of claim 1 wherein: the remote terminal bus has an IBM PC-AT compatible bus architecture; and the interface connectors are IBM PC-AT compatible bus interface connectors.

3. The remote terminal of claim 1 and further comprising: a graphics controller card connected to at least one of the plurality of interface connectors.

4. The remote terminal of claim 3 and further comprising: an input device connected to the remote terminal bus.

5. The remote terminal of claim 4 and further comprising: a printer connected to the remote terminal bus.

6. A system for permitting interactive use in a multi-user, time-shared environment with a host computer, the system comprising: a bus adaptor connected to a host bus of the host computer for interfacing the host bus with a high speed serial data link; and a remote terminal which includes:

a remote terminal bus; an interface circuit for interfacing the remote terminal bus to the high speed serial data link so that bus signals on the host bus are recreated on the remote terminal bus; and a plurality of non-dedicated bus interface connectors connected to the remote terminal bus to provide an open architecture to permit access to signals on the remote terminal bus.

7. The system of claim 6, wherein the host bus and the remote terminal bus have industry-standard bus architectures.

8. The system of claim 7 wherein the host bus and the remote terminal bus each have an IBM PC-AT compatible bus architecture.

9. The system of claim 6 wherein the host bus and the remote terminal bus have essentially identical bus architectures.

10. The system of claim 6 wherein the remote terminal further comprises: a plurality of graphics controller cards, one each being connected to one of the plurality of bus interface connectors.

11. The system of claim 10 wherein the remote terminal further comprises: a printer connected to the remote terminal bus; and a plurality of input devices connected to the remote terminal bus.

12. A remote terminal for use with a host computer in a real time, multi-tasking environment for graphics applications comprising: a remote bus; means for providing signals received from a host bus of the host computer to the remote bus;

means for transmitting data and command information from the remote bus to the host bus;
means for displaying video graphic information based upon signals on the remote bus; and
means for providing an open architecture at the remote terminal. 5

13. A remote terminal system for a host computer having a multi-tasking operating system and a host bus, the remote terminal system comprising:
a high-speed serial interface for the host computer, 10
wherein more than one high-speed serial channel is available for transferring data and command information between the host computer and at least one remote terminal;
a remote bus at the remote terminal; 15
a high-speed serial interface to the remote bus for transferring data and command information between the remote bus and the host bus;
a parallel interface to the remote bus for transferring data to a printer; 20
a serial interface to the remote bus for transferring information to a pointing device;
at least one keyboard interface to the remote bus for transferring data to and from a keyboard; and
a connector for interfacing bus compatible graphics 25
controllers to the remote bus, and thereby to the host bus, wherein the connector is capable of accommodating more than one type of graphics controllers.

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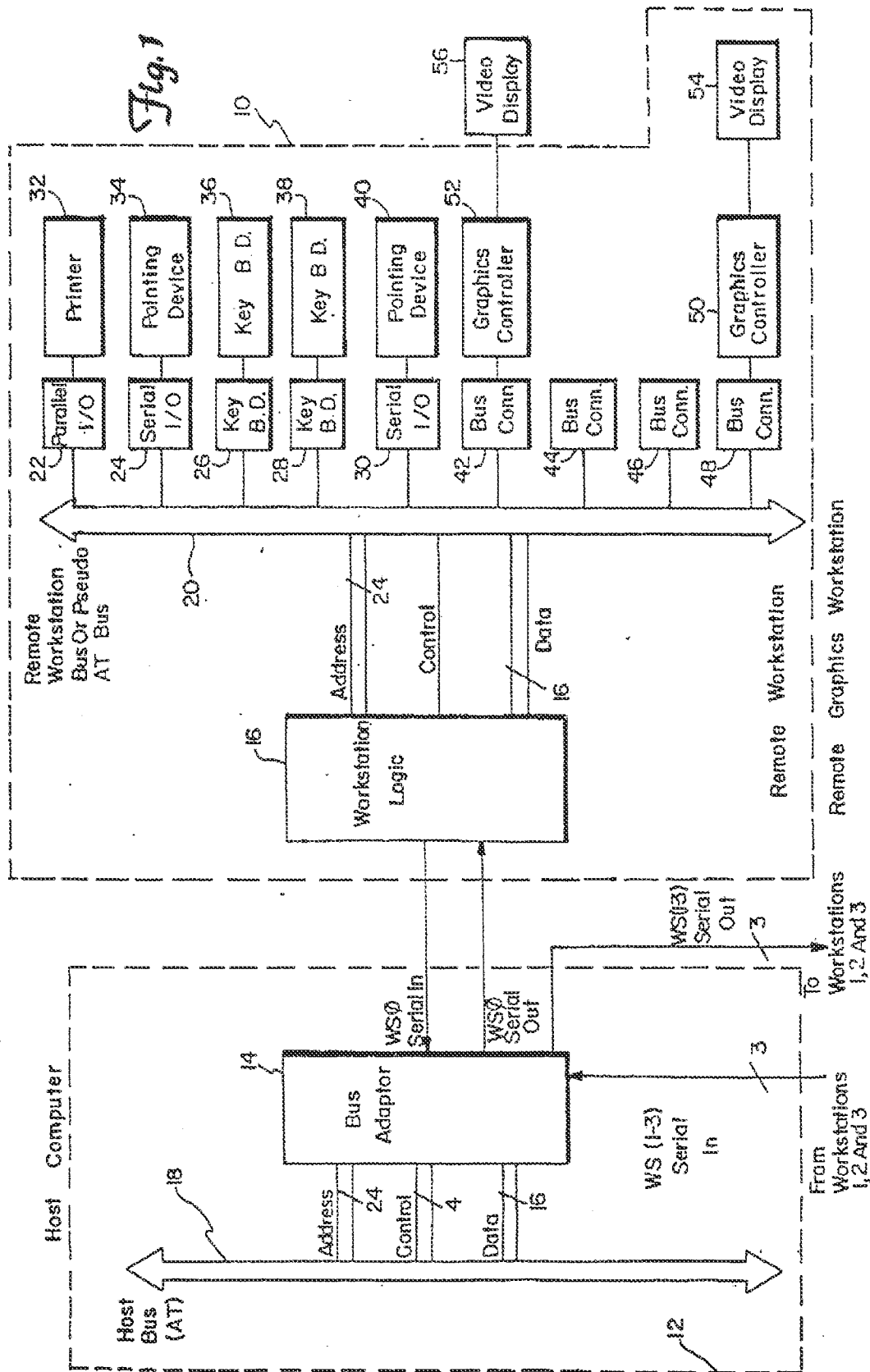
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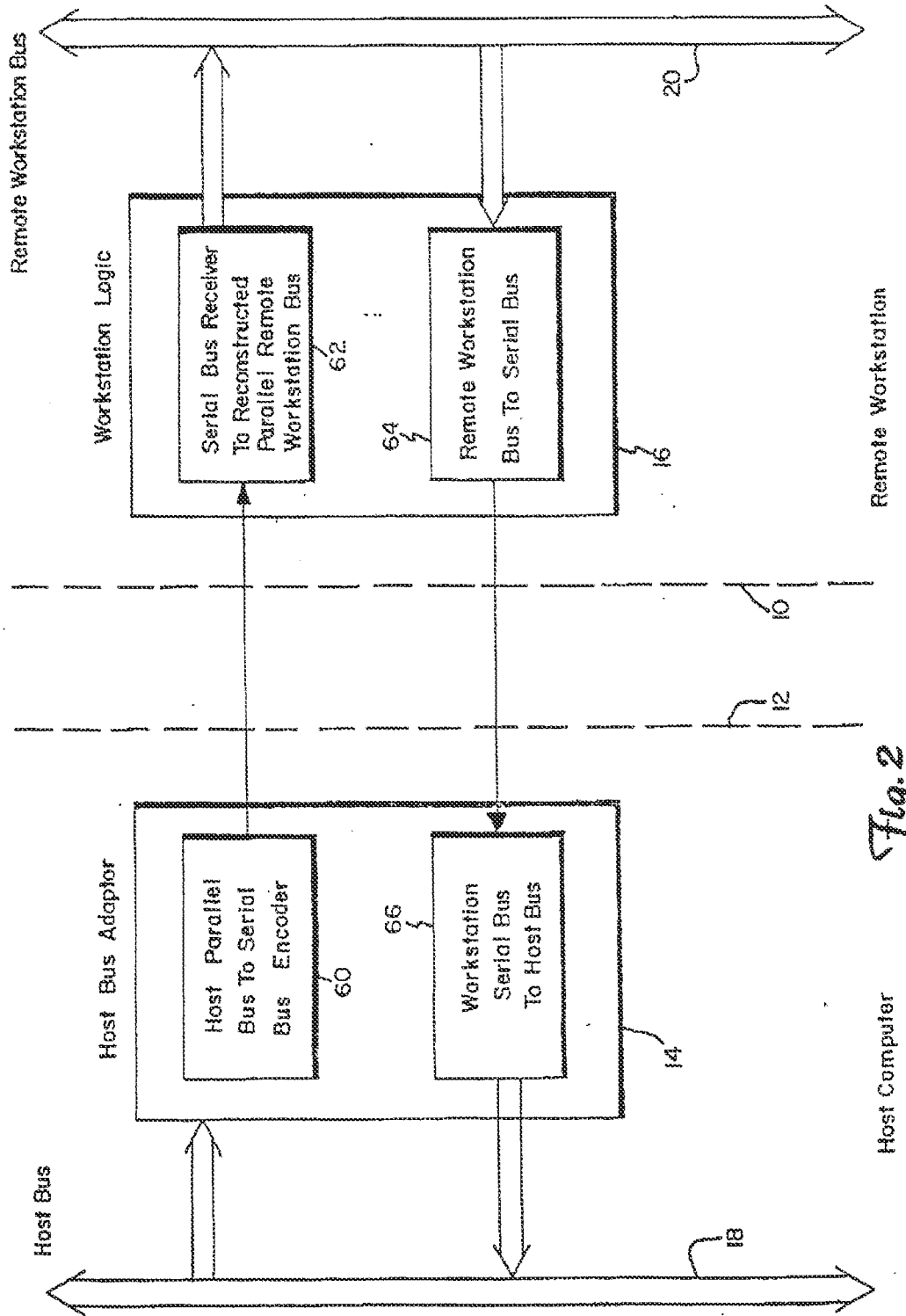
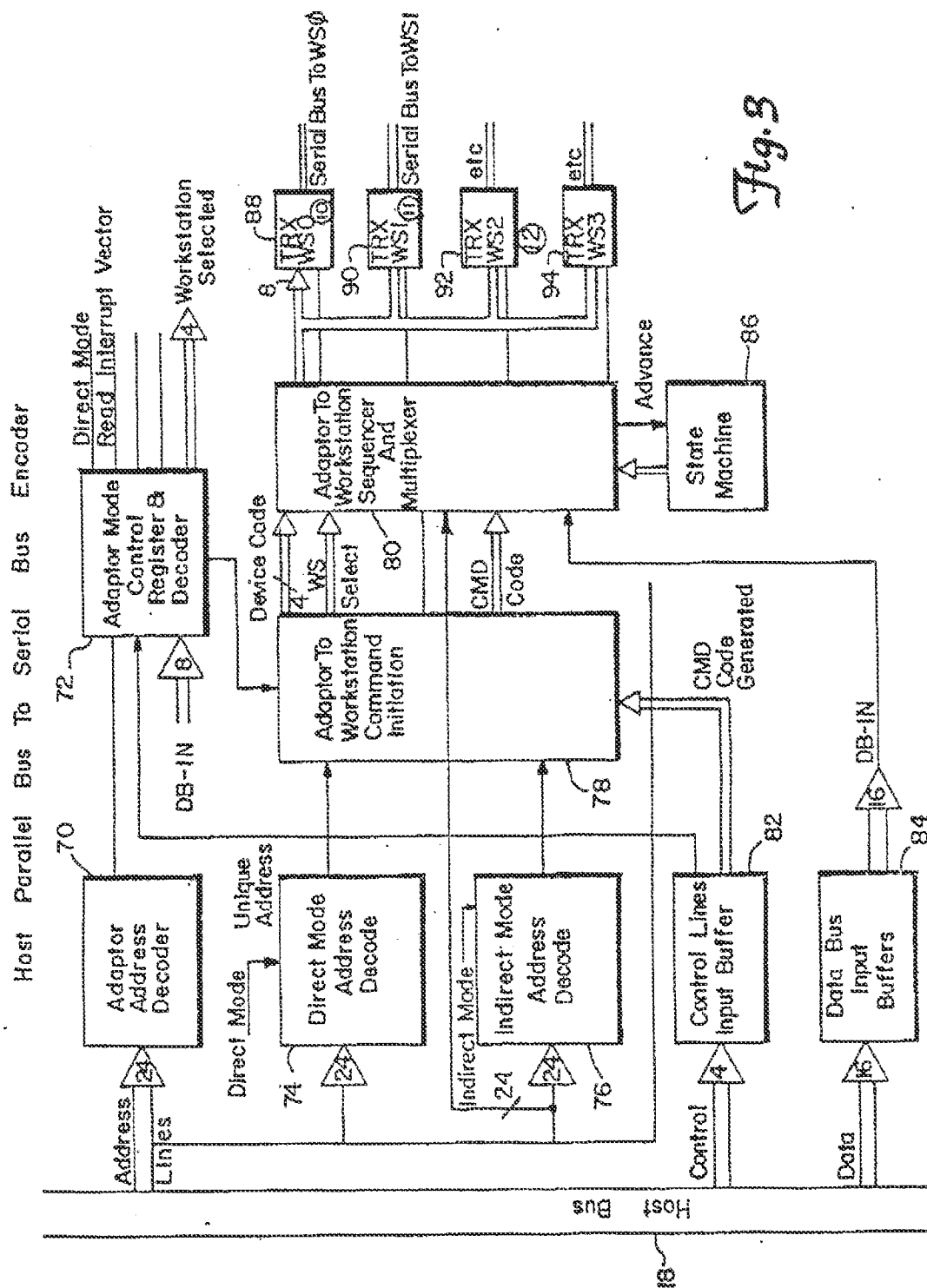


Fig.2



CMD Code - Host Adaptor To Workstation

CMD [3..0]

0000	—	Not Used
0001	—	Reset Workstation
0010	—	Write I/O
0011	—	Read I/O
0100	—	Reserved
0101	—	Reserved
0110	—	Set Bus 1 In Workstation
0111	—	Set Bus 2 In Workstation
1000	—	Memory Block 0 Write
1001	—	Memory Block 0 Read
1010	—	Memory Block 1 Write
1011	—	Memory Block 1 Read
1100	—	Memory Block 2 Write
1101	—	Memory Block 2 Read
1110	—	Memory Block 3 Write
1111	—	Memory Block 3 Read

Fig. 4

		Write I/O	Read I/O	Write Memory	Read Memory
Transfer 1		CMD [3..0]	CMD [3..0]	CMD [3..0]	CMD [3..0]
" 2		Decode [3..0] & XA [2..0]	Decode [3..0] & XA [2..0]	XA [5..8]	XA [5..8]
" 3		Data [7..0]	None	XA [7..0]	XA [7..0]
" 4		Data [5..8]	None	Data [7..0]	None
" 5		None	None	Data [5..8]	None

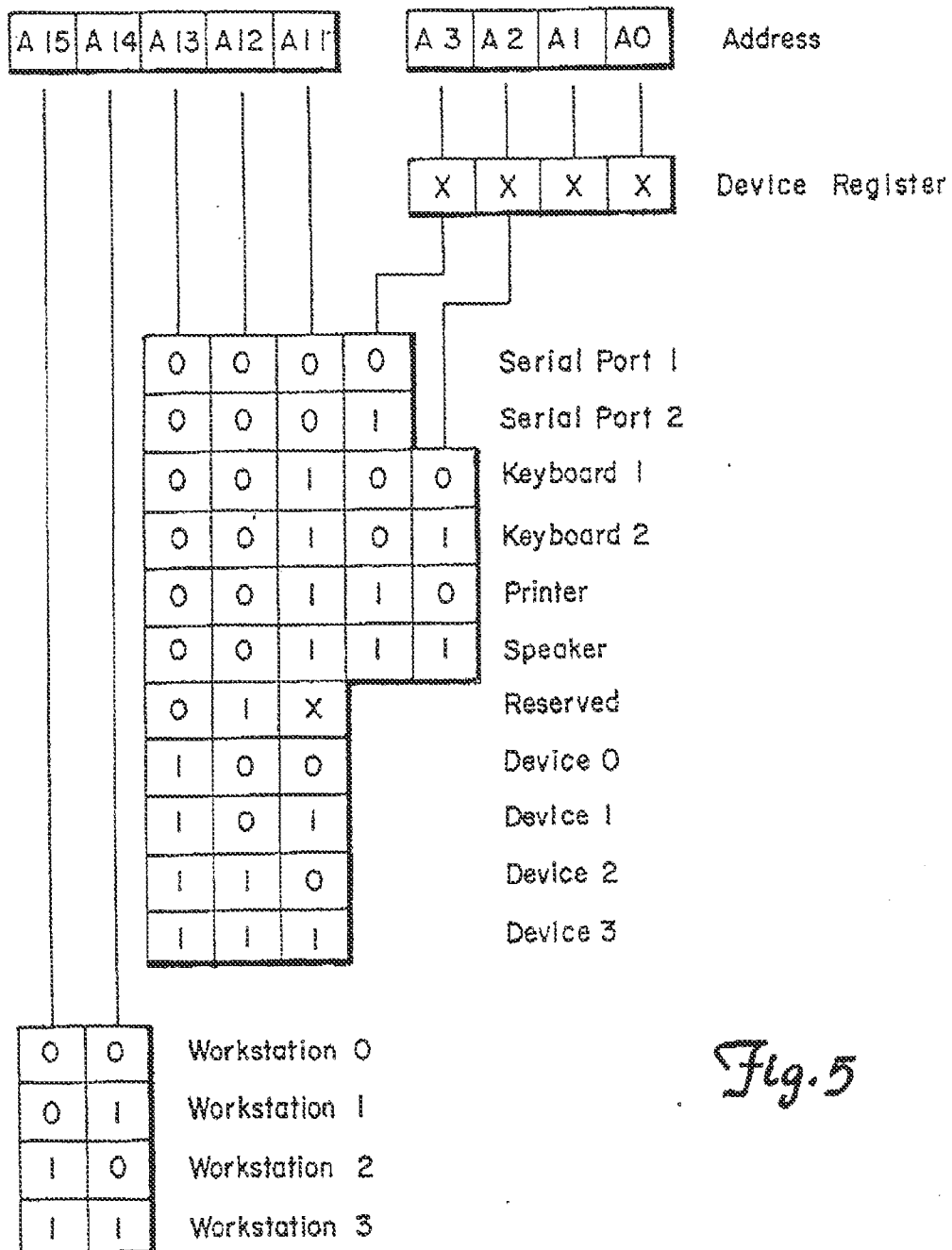


Fig. 5

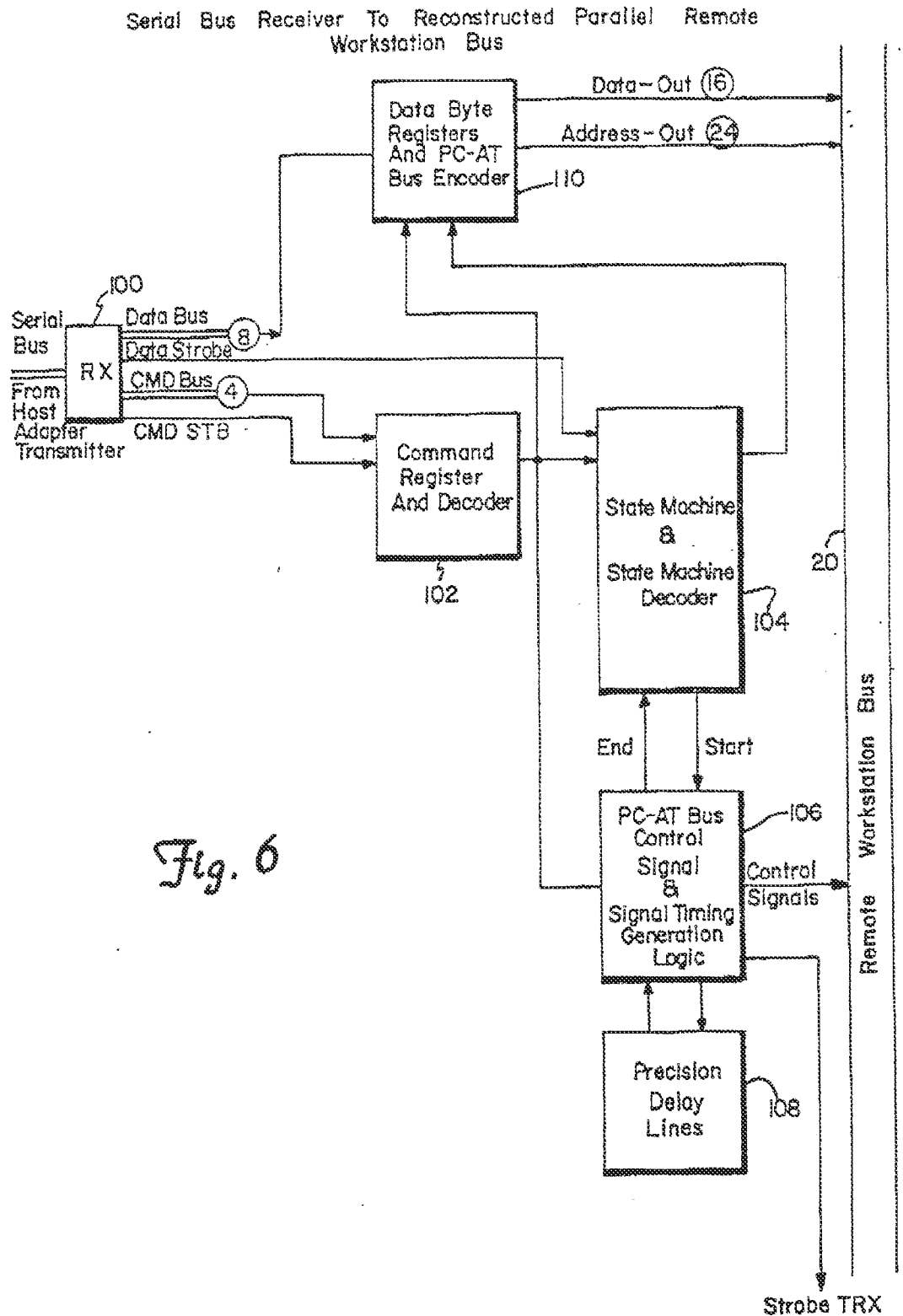


Fig. 6

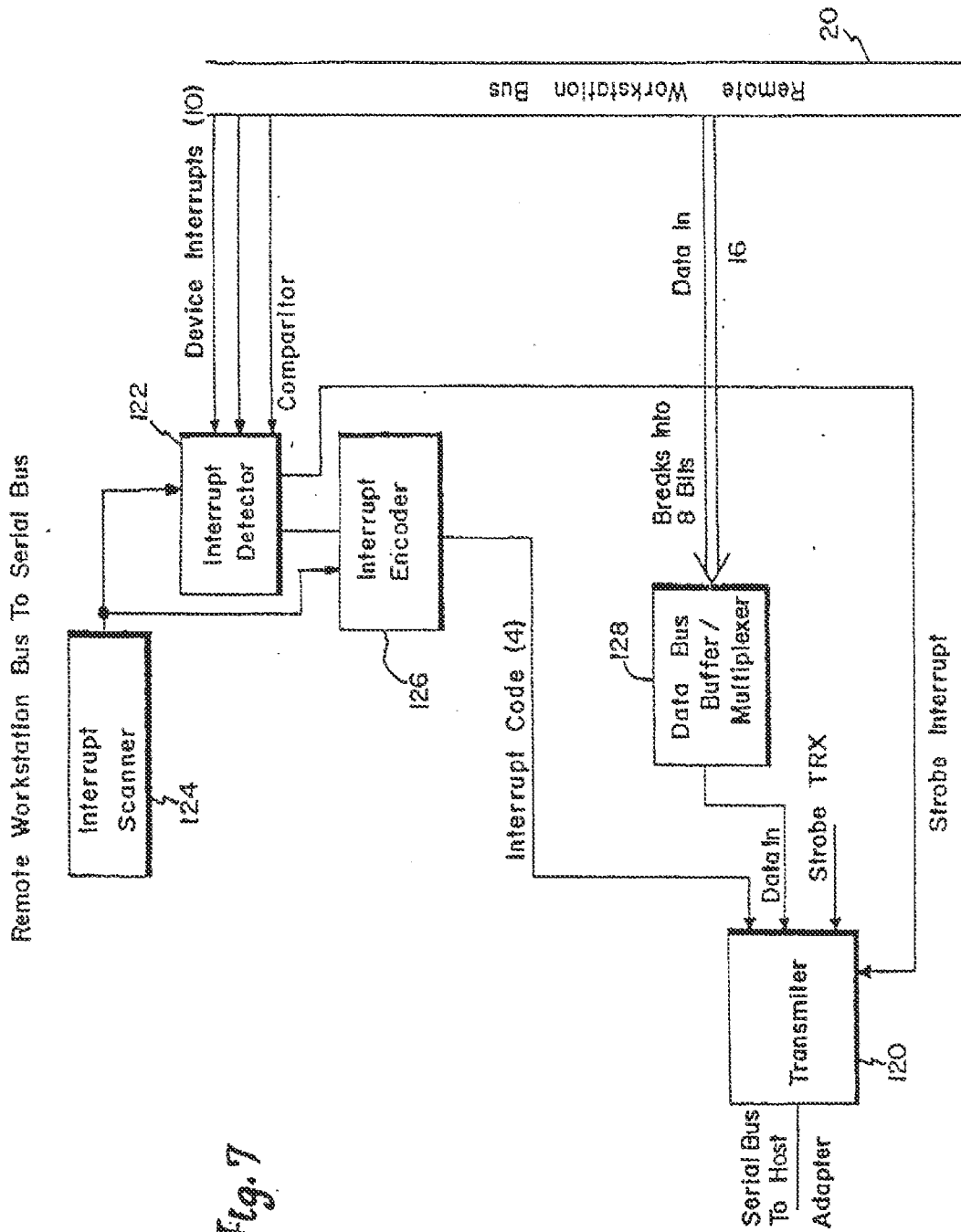
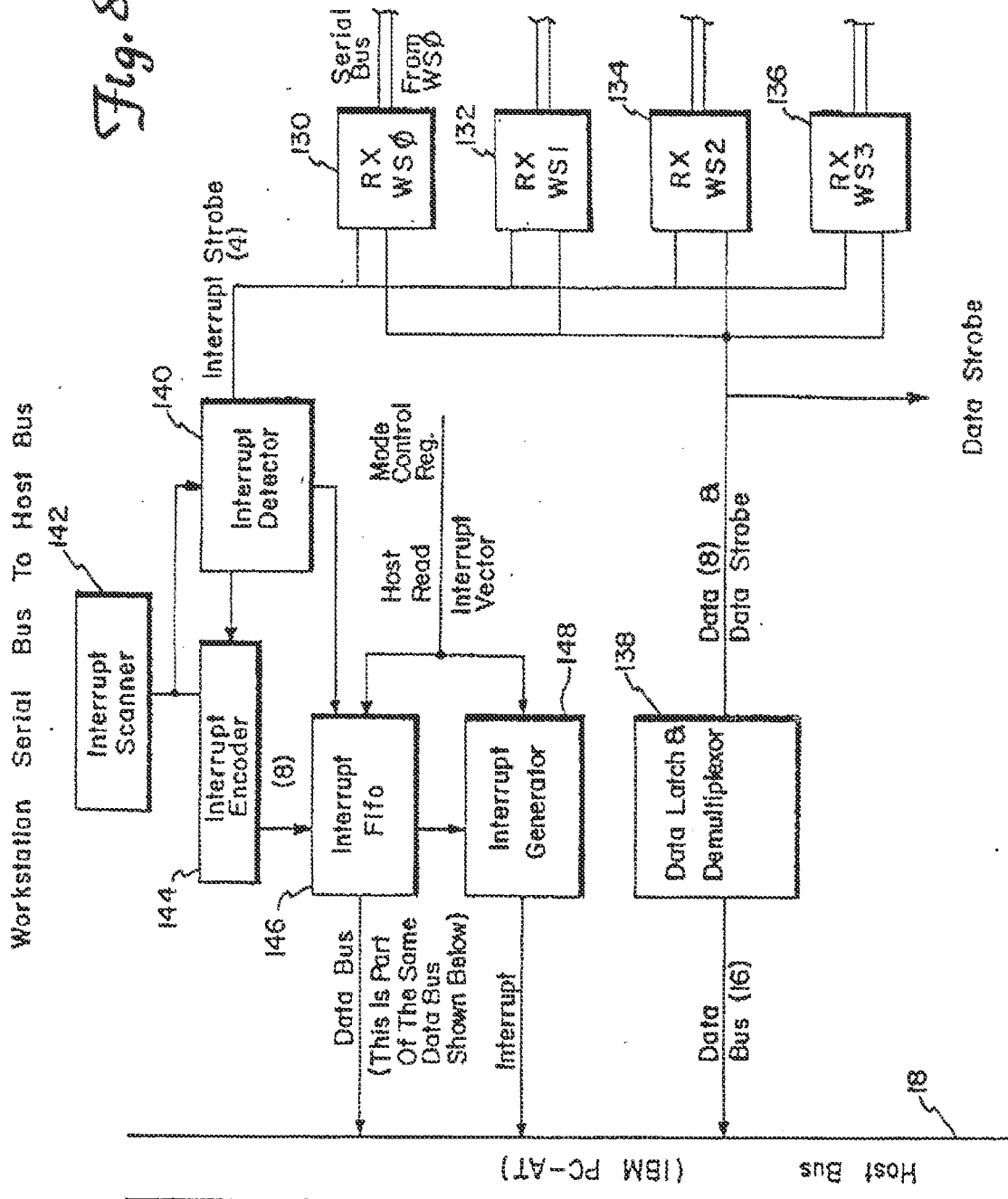


Fig. 7

Fig. 8



Electronic Patent Application Fee Transmittal

Application Number:	12644511			
Filing Date:	22-Dec-2009			
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY			
First Named Inventor/Applicant Name:	Frank W. Ahern			
Filer:	Lin C. Hsu/Tatiana Carvalho			
Attorney Docket Number:	TALS0090			
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	810	810
Total in USD (\$)				810

Electronic Acknowledgement Receipt

EFS ID:	10858313
Application Number:	12644511
International Application Number:	
Confirmation Number:	6489
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Tatiana Carvalho
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	TALS0090
Receipt Date:	31-AUG-2011
Filing Date:	22-DEC-2009
Time Stamp:	20:41:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Electronic Funds Transfer
Payment was successfully received in RAM	\$810
RAM confirmation Number	19945
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Request for Continued Examination (RCE)	MOBI-0004P1C2C_RCE_08-31-2011.pdf	697333	no	3
			4a9358fc594f2cfdbe82fdd7bb34f9b0a473cff9		
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	MOBI-0004P1C2C_IDS_08-31-2011.pdf	612101	no	4
			abd1051bdf1b3e1f498f1e21dbf7599c390f971a		
Warnings:					
Information:					
3	Foreign Reference	EP0401803_A2.pdf	16533099	no	15
			533c1ac09a9b5d246b89c4120e1178f5bd2b515a		
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30532	no	2
			bd3aeea94bac4c0e8f92e0d132f6c7430e06a01f		
Warnings:					
Information:					
Total Files Size (in bytes):			17873065		

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
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

45590 7590 07/18/2011
Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD FLOOR
SAN JOSE, CA 95113

EXAMINER

HUYNH, KIM T

ART UNIT

PAPER NUMBER

2111

DATE MAILED: 07/18/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

12/644,511

12/22/2009

Frank W. Ahern

TALS0090

6489

TITLE OF INVENTION: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	10/18/2011

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 SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

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)

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.

45590 7590 07/18/2011
Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD FLOOR
SAN JOSE, CA 95113

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.
-----------------	-------------	----------------------	---------------------	------------------

12/644,511

12/22/2009

Frank W. Ahern

TALS0090

6489

TITLE OF INVENTION: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	10/18/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
HUYNH, KIM T	2111	710-100000

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,

1 _____

(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.

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 credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information 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.



UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/644,511	12/22/2009	Frank W. Ahern	TALS0090	6489

45590 7590 07/18/2011
Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD FLOOR
SAN JOSE, CA 95113

EXAMINER

HUYNH, KIM T

ART UNIT	PAPER NUMBER
----------	--------------

2111

DATE MAILED: 07/18/2011

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

The Patent Term Adjustment to date is 0 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 0 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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.	Applicant(s)	
	12/644,511	AHERN ET AL.	
	Examiner	Art Unit	
	KIM HUYNH	2111	

-- 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 RCE filed on 6/16/2011.
2. ☒ The allowed claim(s) is/are 6, 8-26, 34-35.
3. ☐ 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 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.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ 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)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. ☐ Notice of References Cited (PTO-892) 2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date <u>6/16/2011</u> 4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. ☐ Notice of Informal Patent Application 6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. ☐ Examiner's Amendment/Comment 8. ☐ Examiner's Statement of Reasons for Allowance 9. ☐ Other _____. |
|---|---|

/Mark Rinehart/
Supervisory Patent Examiner, Art Unit 2111

<i>Index of Claims</i> 	Application/Control No. 12644511	Applicant(s)/Patent Under Reexamination AHERN ET AL.
	Examiner KIM T HUYNH	Art Unit 2111

✓	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	06/07/2010	11/15/2010	04/25/2011	07/07/2011				
	1	✓	✓	-	-				
	2	✓	✓	-	-				
	3	✓	✓	-	-				
	4	✓	✓	-	-				
	5	✓	✓	-	-				
1	6	✓	✓	=	=				
	7	✓	✓	-	-				
2	8	✓	✓	=	=				
3	9	✓	✓	=	=				
4	10	✓	✓	=	=				
5	11	✓	✓	=	=				
6	12	✓	✓	=	=				
7	13	✓	✓	=	=				
8	14	✓	✓	=	=				
9	15	✓	✓	=	=				
10	16	✓	✓	=	=				
11	17	✓	✓	=	=				
12	18	✓	✓	=	=				
13	19	✓	✓	=	=				
14	20	✓	✓	=	=				
15	21		✓	=	=				
16	22		✓	=	=				
17	23		✓	=	=				
18	24		✓	=	=				
19	25		✓	=	=				
20	26		✓	=	=				
	27		✓	-	-				
	28		✓	-	-				
	29		✓	-	-				
	30		✓	-	-				
	31		✓	-	-				
	32		✓	-	-				
	33		✓	-	-				
21	34		✓	=	=				
22	35		✓	=	=				
	36								

<i>Index of Claims</i> 	Application/Control No. 12644511	Applicant(s)/Patent Under Reexamination AHERN ET AL.
	Examiner KIM T HUYNH	Art Unit 2111

✓	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	06/07/2010	11/15/2010	04/25/2011	07/07/2011					
	37									
	38									
	39									
	40									
	41									
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Search Notes 	Application/Control No. 12644511	Applicant(s)/Patent Under Reexamination AHERN ET AL.
	Examiner KIM T HUYNH	Art Unit 2111

SEARCHED			
Class	Subclass	Date	Examiner
710	305-306; 100	6/7/2010	kh
370	413	6/7/2010	kh

SEARCH NOTES		
Search Notes	Date	Examiner
East-search (uspat; uspgpub; epo; jpo; derwent)	11/15/2010	kh
East-text search	11/15/2010	kh'
updated prior search	11/15/2010	kh
updated prior search	4/24/2011	kh
updated prior search	7/7/2011	kh

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
710	305-306	4/25/2011	kh

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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

BIB DATA SHEET

CONFIRMATION NO. 6489

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
12/644,511	12/22/2009	710	2111	TALS0090
RULE				
APPLICANTS Frank W. Ahern, Payson, AZ; Desi Rhoden, Phoenix, AZ; Jeff Doss, Scottsdale, AZ; Charles Mollo, Phoenix, AZ;				
** CONTINUING DATA ***** This application is a CON of 11/300,131 12/13/2005 PAT 7,657,678 which is a CON of 09/559,678 04/27/2000 PAT 7,734,852 which claims benefit of 60/198,317 04/19/2000 and is a CIP of 09/130,057 08/06/1998 PAT 6,088,752 and is a CIP of 09/130,058 08/06/1998 PAT 6,070,214 ack /kh/ 7/7/2011				
** FOREIGN APPLICATIONS ***** none /kh/ 7/7/2011				
** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 01/08/2010				
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /Kim T. Huynh / Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY AZ	SHEETS DRAWINGS 2	TOTAL CLAIMS 20
				INDEPENDENT CLAIMS 3
ADDRESS Patent Prosecution Dept. MURABITO, HAO & BARNES LLP TWO NORTH MARKET STREET THIRD FLOOR SAN JOSE, CA 95113 UNITED STATES				
TITLE COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY				
FILING FEE RECEIVED 2206	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	

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	146	("parallel bus" pci) with asynchronous and ("serial data" with (clk clock))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/07/07 07:56
L2	7	@ad< "20000419" and 1	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2011/07/07 07:56
S1	21203889	@ad< "20010928"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/06/08 16:26
S2	0	last-first\$.in.	US-PGPUB; USPAT	OR	ON	2003/09/29 12:04
S3	2	ep-804933-\$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2003/05/02 11:17
S4	15898	"710"/\$.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2003/05/31 12:37
S5	0	(asynchronyz\$3 with bus)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 10:51
S6	11646	(asynchron\$6 with bus)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 10:51
S7	99	asynchron\$6 with "parallel bus"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 10:51

S8	99	asynchron\$6 with "parallel bus"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 13:00
S9	35	@ad< "20000419" and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/15 13:00
S10	68	(("5701483") or ("5579489") or ("6446192") or ("5781747") or ("5764924") or ("4882702") or ("5191657") or ("6044215") or ("4941845") or ("4969830") or ("5187645") or ("5373149") or ("5477415") or ("5724529") or ("5432916") or ("5191653") or ("5579491") or ("5632020") or ("5634080") or ("5941965") or ("6578101") or ("7269680") or ("7356643") or ("6715022") or ("6594719") or ("5991304") or ("6950440") or ("6201829") or ("4591660") or ("6473810") or ("6445711") or ("6581125") or ("6778543") or ("6728822")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:15
S11	53	(("6141744") or ("6788101") or ("6058144") or ("5452180") or ("6070214") or ("6418504") or ("20020078289") or ("5475818") or ("5335326") or ("5586265") or ("5561806") or ("5457785") or ("5819053") or	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:18

		("5003105") or ("5671421") or ("5313589") or ("4901308") or ("6401157") or ("5357621") or ("5430635") or ("5913037") or ("6167120") or ("6366951") or ("5548730") or ("5524252") or ("5301349")).PN.				
S12	60	(("5774681") or ("5799207") or ("5483020") or ("5809262") or ("5522050") or ("5793995") or ("5748921") or ("4112369") or ("200424809") or ("20040088452") or ("6671737") or ("5736968") or ("6493745") or ("20030120849") or ("20040054757") or ("20050036509") or ("20050129385") or ("20050174488") or ("3800097") or ("4413319") or ("4504927") or ("0487029") or ("4954949") or ("4959833") or ("4961140") or ("5006981") or ("5038320") or ("5111423")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:20
S13	52	(("5237690") or ("5274711") or ("5325491") or ("5335329") or ("5430847") or ("5446869") or ("5495569") or ("5497498") or ("5507002") or ("5517623") or ("5530895") or ("5540597") or ("5542055") or ("5555510") or ("5572525") or ("5572688") or ("5590377") or	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:22

		("5611053") or ("5655142") or ("5694556") or ("5696949") or ("20060075166") or ("7047326") or ("20010037423") or ("5377184") or ("5440698")).PN.				
S14	54	((("5469545") or ("5802055") or ("5832279") or ("5835741") or ("5854908") or ("5905870") or ("5911055") or ("6026075") or ("6031821") or ("6035333") or ("6084856") or ("6098103") or ("6115356") or ("6157967") or ("6167029") or ("6170022") or ("6222825") or ("6247091") or ("6263397") or ("6295281") or ("6333929") or ("6385671") or ("6421352") or ("6425033") or ("6456590") or ("6457081") or ("20020135536"))).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/06/15 13:25
S15	1	asynchron\$6 with ("parallel bus" pci) with (serially adj exchang\$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:57
S16	335	asynchron\$6 with ("parallel bus" pci) with serial\$5	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:57
S17	43	asynchron\$6 with ("parallel bus" pci) with serial\$5 with module	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:58
S18	6	@ad< "20000419" and S17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/06/04 11:58