IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Ahern, F. et al.	Confirmation	:
Serial No.	:	Examiner	:
Filed	:	Group Art Unit	:
For	: A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY		

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

PRELIMINARY AMENDMENT

Dear Sir:

Prior to the examination of the Continuation patent application on the merits, please enter and consider the following preliminary amendment.

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the Listing of Claims, which begins on page 3 of this paper.

Remarks begin on page 5 of this paper.

Consideration of the above captioned patent application is respectfully requested.

ABSTRACT OF THE DISCLOSURE

A computing module includes an interface to asynchronously, serially exchange parallel system bus data with one or more other modules of a computer system that includes the computing module. The computing module can asynchronously, serially transfer first parallel bus data to another module of the computer system, and can asynchronously, serially receive second parallel bus data from another module of the computer system.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Frank	W.	Ahern	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

City	Phoenix	State/Province	AZ	Country of Residence i	US

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Postal Code	85050	Country i	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
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Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

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Postal Code	85032	Country i	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	45590		
Email Address	officeaction@mhbpatents.com	Add Email	Remove Email

Application Information:

Title of the Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY		
Attorney Docket Number	MOBI-0004P1C2C1C1C	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	2	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	45590		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	13240773	2011-09-22

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13240773	Continuation of	12644511	2009-12-22	8060675	2011-11-15

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12644511	Continuation of	11300131	2005-12-13	7657678	2010-02-02

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11300131	Continuation of	09559678	2000-04-27	7734852	2010-06-08

Prior Application Status	Expired	Remove

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
09559678	non provisional of	60198317	2000-04-19

Prior Application Status: Patented — Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
09559678	Continuation in part of	09130057	1998-08-06	6088752	2000-07-11

Prior Application Status: Patented — Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
09559678	Continuation in part of	09130058	1998-08-06	6070214	2000-05-30

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove

Application Number	Country [i]	Filing Date (YYYY-MM-DD)	Priority Claimed
			○ Yes ◉ No

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Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

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Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Remove

◯ Assignee	◯ Legal Representative under 35 U.S.C. 117
◯ Person to whom the inventor is obligated to assign.	◯ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Assignee is an Organization check here. ☒

Organization Name			
Mailing Address Information:			
Address 1			
Address 2			
City		**State/Province**	
Country [i]		Postal Code	
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button. Add

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Signature	/Lin C. Hsu/			Date (YYYY-MM-DD)	2012-10-16
First Name	Lin	Last Name	Hsu	Registration Number	46315

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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.

LISTING OF THE CLAIMS

A detailed listing of claims is presented below.

1-46. (Cancelled)

47. (New) An apparatus comprising:

a processor;

a first parallel bus of a first module; and

an interface configured to asynchronously, serially receive serial data from a second module without requiring handshaking, wherein said second module is configured to communicate peripherally over a second parallel bus, and wherein said interface is configured to send parallel data corresponding to said serial data over said first parallel bus.

48. (New) The apparatus of Claim 47, wherein said interface comprises a bridge.

49. (New) The apparatus of Claim 47, wherein a computing first module is separated from each of the one or more modules by a distance of at least a meter.

50. (New) The apparatus of Claim 49, wherein the one or more modules include one or more of: a disk drive a keyboard, a mouse, a monitor, a printer, an internet connection, a wireless accessory, or a storage module.

51. (New) The apparatus of Claim 47, wherein said interface is configured to receive second parallel data from the first parallel bus and configured to asynchronously,

serially exchange second serial data, corresponding to the second parallel data, with said second module without requiring handshaking.

52. (New) The apparatus of Claim 47, wherein said first module comprises a processor module including a CPU and memory, and wherein said second module comprises a peripheral device.

53. (New) The apparatus of Claim 52, wherein said peripheral device comprises a hard drive.

54. (New) The apparatus of Claim 52, wherein one of said first and second modules comprises a portable computing device.

55. (New) The apparatus of Claim 52, wherein said first module comprises a memory device.

56. (New) The apparatus of Claim 47, wherein said first module is configured to generate a clock signal from the received serial data.

57. (New) A method comprising:

asynchronously, serially receiving at a first module serial data from a second module without requiring handshaking, wherein said serial data corresponds to second parallel bus data of said second module; and

sending first parallel data corresponding to said serial data over a first parallel bus of said first module.

58. (New) The method of Claim 57, wherein said second module is configured to communicate peripherally over said second parallel bus, and wherein said first module is configured to communicate peripherally over said first parallel bus.

59. (New) The method of Claim 57, further comprising:

receiving third parallel bus data from the first parallel bus; and

asynchronously, serially exchanging second serial data corresponding to said third parallel bus data with said second module without requiring handshaking.

60. (New) The method of Claim 57, wherein said first module comprises a processor module including a CPU and memory, and wherein said second module comprises a peripheral device.

61. (New) The method of Claim 60, wherein said peripheral device comprises a hard drive.

62. (New) The method of Claim 57, wherein said first module is separated from said second module by at least a meter.

63 (New) The method of Claim 57, wherein said first module comprises one of: a disk drive, a keyboard, a mouse, a monitor, a printer, an internet connection, a wireless accessory, or a storage module.

64. (New) A system comprising:

means for asynchronously, serially receiving at a first module serial data from a second module without requiring handshaking, wherein said serial data corresponds to second parallel bus data of said second module; and

means for sending first parallel data corresponding to said serial data over a first parallel bus of said first module.

65. (New) The system of Claim 64, further comprising:

means for receiving third parallel bus data from the first parallel bus; and

means for asynchronously, serially exchanging second serial data corresponding to said third parallel bus data with said second module without requiring handshaking.

66. (New) The system of Claim 64, wherein said second module is configured to communicate peripherally over said second parallel bus, and wherein said first module is configured to communicate peripherally over said first parallel bus.

CLAIMS

What is claimed is:

1. A computing module comprising:

a processor;

a parallel system bus; and

an interface configured to asynchronously, serially exchange parallel system bus data with one or more other modules of a computer system that includes the computing module.

2. The computing module as recited in claim 1, wherein the interface comprises a bridge.

3. The computing module as recited in claim 1, wherein the interface is further configured to asynchronously, serially exchange the parallel system bus data without requiring handshaking.

4. The computing module as recited in claim 1, wherein the computing module is separated from each of the one or more other modules of the computer system by a distance of at least a meter.

5. The computing module as recited in claim 1, wherein each of the one or more other modules comprises a module selected from a group including: a disk drive, a

keyboard, a mouse, a monitor, a printer, an Internet connection, a wireless accessory, and a storage module.

6. A method comprising,:

receiving, at a first module, first parallel bus data;

asynchronously, serially transferring the first parallel bus data to a second module via a serial link;

receiving, at the second module, second parallel bus data; and

asynchronously, serially transferring the second parallel bus data to the first module via the serial link.

7. The method as recited in claim 6, wherein the asynchronously, serially transferring the first parallel bus data comprises asynchronously, serially transferring the first parallel bus data without requiring handshaking.

8. The method as recited in claim 6, wherein the first module comprises a processor module including a CPU and memory, and wherein the second module comprises a peripheral device.

9. The method as recited in claim 8, wherein the peripheral device comprises a hard drive.

10. The method as recited in claim 6, wherein the first module is separated from the second module by a distance of at least a meter.

11. The method as recited in claim 6, wherein the first module and the second module each comprises a portable computing device.

12. The method as recited in claim 6, wherein the first module comprises one of: a disk drive, a keyboard, a mouse, a monitor, a printer, an Internet connection, a wireless accessory, and a storage module.

13. A method in a first module of a computer system including the first module and a second module coupled together via a serial link, the method comprising:

receiving first parallel bus data;

asynchronously, serially transferring the first parallel bus data to the second module via the serial link; and

asynchronously, serially receiving second parallel bus data from the second module via the serial link.

14. The method as recited in claim 13, wherein the asynchronously, serially transferring the first parallel bus data comprises asynchronously, serially transferring the first parallel bus data without requiring handshaking.

15. The method as recited in claim 13, wherein the first module is separated from the second module by a distance of at least several meters.

16. The method as recited in claim 13, wherein the first module and the second module each comprises a portable computing device.

17. The method as recited in claim 13, wherein the second module comprises one of: a disk drive, a keyboard, a mouse, a monitor, a printer, an Internet connection, a wireless accessory, and a storage module.

18. The method as recited in claim 13, wherein the first module comprises a processor module including a CPU and memory, and wherein the second module comprises a peripheral device.

19. The method as recited in claim 13, wherein the first module comprises a hard drive.

20. The method as recited in claim 13, wherein the first module comprises a memory device.

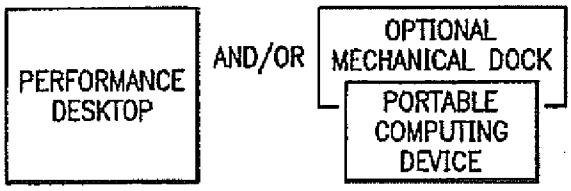


FIG. 1
(PRIOR ART)

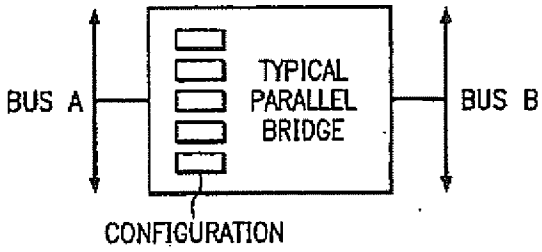


FIG. 2
(PRIOR ART)

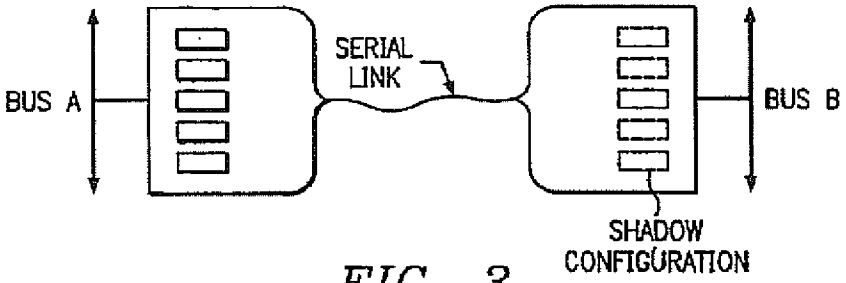


FIG. 3

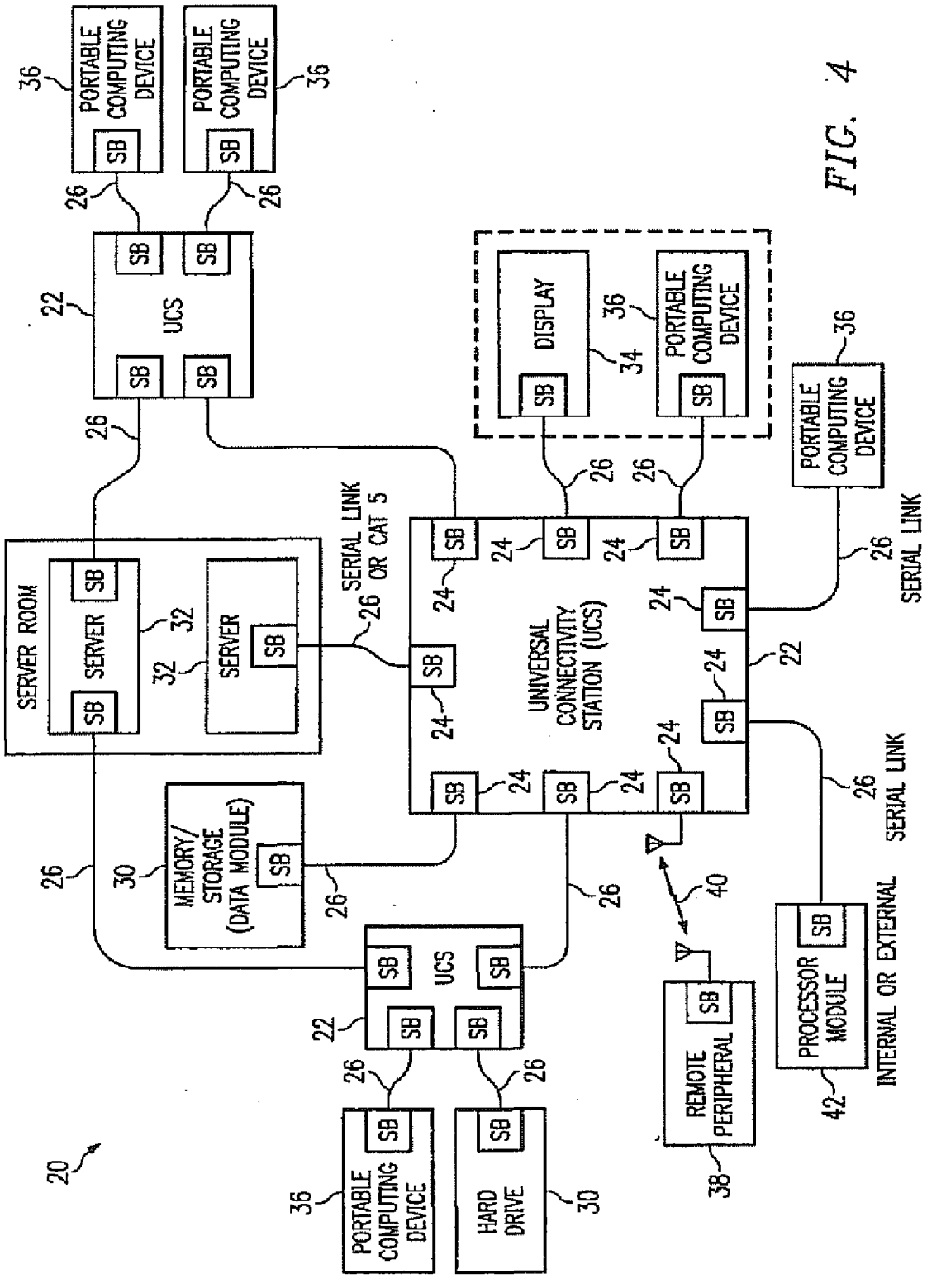

20
PORTABLE COMPUTING DEVICE
SB
36
26
UCS
22
SERVER ROOM
SERVER
32
SERIAL LINK OR CAT 5
UNIVERSAL CONNECTIVITY STATION (UCS)
24
DISPLAY
34
MEMORY/ STORAGE (DATA MODULE)
30
HARD DRIVE
REMOTE PERIPHERAL
38
40
PROCESSOR MODULE
42
INTERNAL OR EXTERNAL SERIAL LINK

FIG. 4

Electronic Acknowledgement Receipt

EFS ID:	13996726
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Mina Oliveri
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	16-OCT-2012
Filing Date:	
Time Stamp:	15:00:18
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	$1260
RAM confirmation Number	1438
Deposit Account	
Authorized User	

File Listing:

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

1	Application Data Sheet	MOBI-0004P1C2C1C1C_AppDataSheet_10-16-2012.pdf	998680 31f8e51d2caf8922bdfb3e2657fcbb0494daf47d	no	7
Warnings:					
Information:					
2		MOBI-0004P1C2C1C1C_PreliminaryAmendment_10-16-2012.pdf	76843 d5926b9cf8c41dec937c67b6756f74acd80c077d	yes	7

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Preliminary Amendment	1	1
	Specification	2	2
	Claims	3	6
	Abstract	7	7

Warnings:					
Information:					
3		MOBI-0004P1C2C1C1C_ApplicationAsFiled_10-16-2012.pdf	857992 dfdc3d92304b1720491d2cc7751d0f5679a122a9	yes	23

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	Document Description	**Start**	**End**
	Specification	1	18
	Claims	19	22
	Abstract	23	23

Warnings:					
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4	Drawings-only black and white line drawings	MOBI-0004P1C2C1C1C_FinalFigures_10-16-2012.pdf	32693 5155ddc5dad25ff42f76029dfbe25105b65064df	no	2
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The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
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Warnings:					
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6	Power of Attorney	MOBI-0004P1C2C1C1C_POA_10-16-2012.pdf	285379 d675645da1cd2d7dbe2ce9dcba5982de38a404ce	no	4
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Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	33371 6acde14425ae7fb9cfcd30bed04a6ce2bd7b0f9f	no	2
Warnings:					
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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

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.

ATTORNEY'S DOCKET NO.
101950-00011

APPLICATION FOR UNITED STATES PATENT

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I declare that my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor if only one name is listed below, or an original, first and joint inventor if plural inventors are named below, of the subject matter which is claimed and for which a patent is sought on the invention entitled as set forth below, which is described in the attached specification; that I have reviewed and understand the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration; that no application for patent or inventor's certificate on this invention has been filed by me or my legal representatives or assigns in any country foreign to the United States of America; and that I acknowledge my duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, section 1.56(a);

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

TITLE OF INVENTION:	**MODULAR COMPUTER SYSTEM**	
POWER OF ATTORNEY:	I HEREBY APPOINT THE FOLLOWING ATTORNEYS TO PROSECUTE THIS APPLICATION AND TRANSACT ALL BUSINESS IN THE PATENT AND TRADEMARK OFFICE CONNECTED THEREWITH	
Robert C. Klinger, Reg. No. 34,365 Kay Houston, Reg. No. 38,495	Stott B. Stahl, Reg. No. 33,795 Bobby D. Slaton, Reg. No. 43,130	Steven W. Thrasher, Reg. No. 43,192
SEND CORRESPONDENCE TO: Robert C. Klinger Jackson Walker, LLP 2435 North Central Expressway, Suite 600 Richardson, TX 75080		DIRECT TELEPHONE CALLS TO: Robert C. Klinger 972-744-2902
NAME OF INVENTOR: (1) Frank W. Ahern	NAME OF INVENTOR: (2) Desi Rhoden	NAME OF INVENTOR: (3) Jeff Doss
RESIDENCE (City and State Only) Scottsdale, Arizona	RESIDENCE (City and State Only) Phoenix, Arizona	RESIDENCE (City and State Only) Phoenix, Arizona
POST OFFICE ADDRESS 6233 East Janiceway Scottsdale, Arizona 85254	POST OFFICE ADDRESS 3412 East Sunerest Court Phoenix, Arizona 85044	POST OFFICE ADDRESS 18652 North 39th Street Phoenix, Arizona 85050
COUNTRY OF CITIZENSHIP: USA	COUNTRY OF CITIZENSHIP: USA	COUNTRY OF CITIZENSHIP: USA
SIGNATURE OF INVENTOR:	SIGNATURE OF INVENTOR:	SIGNATURE OF INVENTOR:
DATE: 4-27-00	DATE:	DATE: 4-27-00

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ATTORNEY'S DOCKET NO.
101950-00011

APPLICATION FOR UNITED STATES PATENT

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I declare that my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor if only one name is listed below, or an original, first and joint inventor if plural inventors are named below, of the subject matter which is claimed and for which a patent is sought on the invention entitled as set forth below, which is described in the attached specification; that I have reviewed and understand the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration; that no application for patent or inventor's certificate on this invention has been filed by me or my legal representatives or assigns in any country foreign to the United States of America; and that I acknowledge my duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, section 1.56(a);

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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SEND CORRESPONDENCE TO: Robert C. Klinger Jackson Walker, LLP 2435 North Central Expressway, Suite 600 Richardson, TX 75080		DIRECT TELEPHONE CALLS TO: Robert C. Klinger 972-744-2902
NAME OF INVENTOR: (1) Frank W. Ahern	NAME OF INVENTOR: (2) Desi Rhoden	NAME OF INVENTOR: (3) Jeff Doss
RESIDENCE (City and State Only) Scottsdale, Arizona	RESIDENCE (City and State Only) Phoenix, Arizona	RESIDENCE (City and State Only) Phoenix, Arizona
POST OFFICE ADDRESS 6233 East Janiceway Scottsdale, Arizona 85254	POST OFFICE ADDRESS 3412 East Suncrest Court Phoenix, Arizona 85044	POST OFFICE ADDRESS 18652 North 39th Street Phoenix, Arizona 85050
COUNTRY OF CITIZENSHIP: USA	COUNTRY OF CITIZENSHIP: USA	COUNTRY OF CITIZENSHIP: USA
SIGNATURE OF INVENTOR:	SIGNATURE OF INVENTOR: 	SIGNATURE OF INVENTOR:
DATE:	DATE: 4-27-2000	DATE:

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ATTORNEY'S DOCKET NO.
101950-00011

APPLICATION FOR UNITED STATES PATENT

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I declare that my residence, post office address and citizenship are as stated below next to my name; that I verily believe that I am the original, first and sole inventor if only one name is listed below, or an original, first and joint inventor if plural inventors are named below, of the subject matter which is claimed and for which a patent is sought on the invention entitled as set forth below, which is described in the attached specification; that I have reviewed and understand the contents of the specification, including the claims, as amended by any amendment specifically referred to in the oath or declaration; that no application for patent or inventor's certificate on this invention has been filed by me or my legal representatives or assigns in any country foreign to the United States of America; and that I acknowledge my duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, section 1.56(a);

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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SEND CORRESPONDENCE TO: Robert C. Klinger Jackson Walker, LLP 2435 North Central Expressway, Suite 600 Richardson, TX 75080		DIRECT TELEPHONE CALLS TO: Robert C. Klinger 972-744-2902
NAME OF INVENTOR: (4) Charles Mollo	NAME OF INVENTOR: (5)	NAME OF INVENTOR: (6)
RESIDENCE (City and State Only) Phoenix, Arizona	RESIDENCE (City and State Only)	RESIDENCE (City and State Only)
POST OFFICE ADDRESS 13602 N. 44th St. #181 Phoenix, Arizona 85032	POST OFFICE ADDRESS	POST OFFICE ADDRESS
COUNTRY OF CITIZENSHIP: USA	COUNTRY OF CITIZENSHIP:	COUNTRY OF CITIZENSHIP:
SIGNATURE OF INVENTOR: Charles R Mollo	SIGNATURE OF INVENTOR:	SIGNATURE OF INVENTOR:
DATE: 4-27-00	DATE:	DATE:

2441334.1

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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: TAO LOGIC SYSTEMS LLC

Application No./Patent No.: 12644511 Filed/Issue Date: 12/22/2009

Titled: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

TAO LOGIC SYSTEMS LLC , a Limited Liability Company

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

states that it is:

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

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

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

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

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

OR

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

1. From: INVENTORS To: MOBILITY ELECTRONICS, INC.

The document was recorded in the United States Patent and Trademark Office at
Reel 010974 , Frame 0126 , or for which a copy thereof is attached.

2. From: MOBILITY ELECTRONICS, INC. To: TAO LOGIC SYSTEMS LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 016674 , Frame 0720 , or for which a copy thereof is attached.

3. From: _____ To: _____

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

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

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

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

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

/Jose S. Garcia/ 05-18-2011

Signature Date

Jose S. Garcia Patent Practitioner

Printed or Typed Name Title

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

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.

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

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

I hereby appoint:

☑ Practitioners associated with the Customer Number: 45590

OR

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

Name	Registration Number	Name	Registration Number

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

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

☑ The address associated with Customer Number: 45590

OR

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

Assignee Name and Address:

Tao Logic Systems LLC
3225 McLead Dr., Suite 100
Las Vegas, NV 89121

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

SIGNATURE of Assignee of Record

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

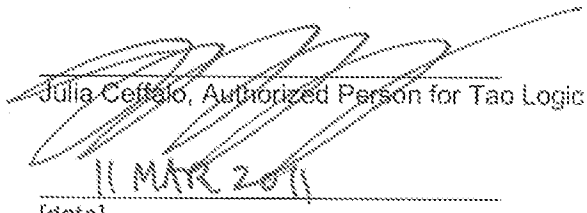
Signature		Date	11 MAR 2011
Name	Julie Ceffalo	Telephone	
Title	Authorized Person for Tao Logic Systems LLC		

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

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

DECLARATION REGARDING AUTHORITY TO SIGN ON BEHALF OF A LEGAL ENTITY
(37 C.F.R. 3.73(b)(2)(i))

I, Julia Ceffalo (whose title is supplied below), hereby declare that I am authorized to sign on behalf of Tao Logic Systems LLC.



Julia Ceffalo, Authorized Person for Tao Logic Systems LLC

11 MAR 2011

[date]

REMARKS

This patent application is a Continuation of Patent Application Serial No. 13/240,773, filed on September 22, 2011. Herein, Claims 1-46 have been canceled. New Claims 47-56 have been added. No new matter has been introduced. Accordingly, after this Preliminary Amendment, Claims 47-56 remain pending in this patent application.

It is respectfully submitted that Claims 47-56 are in a condition for allowance. The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present patent application.

Please charge any additional fees or apply any additional credits to our USPTO deposit account number: 50-4160.

Respectfully submitted,
MURABITO, HAO & BARNES LLP

Dated: October 16, 2012

//Lin C. Hsu//
Lin C. Hsu
Registration No. 46,315

Two North Market Street
Third Floor
San Jose, California 95113
(408) 938-9060

AMENDMENTS TO THE SPECIFICATION

Immediately following the title, please insert the following:

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of and claims priority to and the benefit of Patent Application Serial No. 13/240,773, filed on September 22, 2011; which claims priority to and the benefit of Patent Application Serial No. 12/644,511, filed on December 22, 2009; which claims priority to and the benefit of Patent Application Serial No. 11/300,131, filed on December 13, 2005; which claims priority to and the benefit of the Patent Application Serial No. 09/559,678, filed on April 27, 2000; which claims priority to and the benefit of the Provisional Patent Application Serial No. 60/198,317; which is a Continuation-In-Part of Patent Application Serial No. 09/130,057, filed on August 6, 1998, and is a Continuation-In-Part of Patent Application Serial No. 09/130,058, filed on August 6, 1998; all of which are incorporated by reference in their entireties.

A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation of U.S. Patent Application No. 11/300,131, filed December 13, 2005, which is hereby incorporated by reference herein. U.S. Patent Application No. 11/300,131 is a Continuation of U.S. Patent Application No. 09/559,678, filed April 27, 2000, which is hereby incorporated by reference herein. U.S. Patent Application No. 09/559,678 claims the benefit of U.S. Provisional Application No. 60/198,317, filed April 19, 2000, which is hereby incorporated by reference herein. U.S. Patent Application No. 09/559,678 is a continuation-in-part application of U.S. Application No. 09/130,057, filed August 6, 1998, now U.S. Patent 6,088,752, which is hereby incorporated by reference herein. U.S. Patent Application No. 09/559,678 is also a continuation-in-part application of U.S. Application No. 09/130,058 filed August 6, 1998, now U.S. Patent 6,070,214, which is hereby incorporated by reference herein. U.S. Patent Application No. 09/559,678 is also related to U.S. Patent Application No. 08/679,131, now US Patent 5,941,965, which is hereby incorporated by reference herein.

FIELD OF THE INVENTION

[0002] The present invention is generally related to computers and data processing systems, and more particularly to computer systems having at least one host processor and connectable to a plurality of peripherals, expansion devices, and/or other computers, including notebook and other portable and handheld computers, storage devices, displays, USB, IEEE 1394, audio, keyboards, mice and so forth.

BACKGROUND OF THE INVENTION

[0003] Computer systems today are powerful, but are rendered limited in their ability to be divided into modular components due to a variety of technical limitations of today's PCI bus technology. And in their ability to adapt to changing computing environments. The PCI bus is pervasive in the industry, but as a parallel data bus is not easily extended over any distance or bridged to other remote PCI based devices due to loading and physical constraints, most notably the inability to extend the PCI bus more than a few inches. Full bridges are known, such as used in traditional laptop computer/docking stations. However, separating the laptop computer from the docking station a significant distance has not been possible. Moreover, the processing power of computer systems has been resident within the traditional computer used by the user because the microprocessor traditionally is directly connected to and resident on the PCI motherboard. Thus, upgrading processing power usually meant significant costs and/or replacing the computer or computer system.

[0004] **PCI**

[0005] The PCI bus is primarily a wide multiplexed address and data bus that provides support for everything from a single data word for every address to very long bursts of data words for a single address, with the implication being that burst data is intended for sequential addresses. Clearly the highest performance of the PCI bus comes from the bursts of data, however most PCI devices require reasonable performance for even the smallest single data word operations. Many PCI devices utilize only the single data mode for their transfers. In addition, starting with the implementation of the PCI 2.1 version of the specification, there has been at least pseudo isochronous behavior

demanded from the bus placing limits on an individual device's utilization of the bus, thus virtually guaranteeing every device gets a dedicated segment of time on a very regular interval and within a relatively short time period. The fundamental reason behind such operation of the PCI bus is to enable such things as real time audio and video data streams to be mixed with other operations on the bus without introducing major conflicts or interruption of data output. Imagine spoken words being broken into small unconnected pieces and you get the picture. Prior to PCI 2.1 these artifacts could and did occur because devices could get on the bus and hold it for indefinite periods of time. Before modification of the spec for version 2.1, there really was no way to guarantee performance of devices on the bus, or to guarantee time slot intervals when devices would get on the bus. Purists may argue that PCI is still theoretically not an isochronous bus, but as in most things in PC engineering, it is close enough.

[0006] Traditional High Speed Serial

[0007] Typical high speed serial bus operation on the other hand allows the possibility of all sizes of data transfers across the bus like PCI, but it certainly favors the very long bursts of data unlike PCI. The typical operation of a serial bus includes an extensive header of information for every data transaction on the bus much like Ethernet, which requires on the order of 68 bytes of header of information for every data transaction regardless of length. In other words, every data transaction on Ethernet would have to include 68 bytes of data along with the header information just to approach 50% utilization of the bus. As it turns out Ethernet also requires some guaranteed dead time between operations to "mostly" prevent collisions from other Ethernet devices on the widely disperse bus, and that dead time further reduces the average performance.

[0008] The typical protocol for a serial bus is much the same as Ethernet with often much longer header information. Virtually all existing serial bus protocol implementations are very general and every block of data comes with everything needed to completely identify it. FiberChannel (FC) has such a robust protocol that virtually all other serial protocols can be transmitted across FC completely embedded within the FC protocol, sort of like including the complete family history along with object size, physical location within the room, room measurements, room number, street address, city, zip code, country, planet, galaxy, universe, ... etc. and of course all the same information about the destination location as well, even if all you want to do is move the object to the other side of the same room. Small transfers across many of these protocols, while possible, are extremely expensive from a bandwidth point of view and impractical in a bus applications where small transfers are common and would be disproportionally burdened with more high overhead than actual data transfer. Of course the possibility of isochronous operation on the more general serial bus is not very reasonable.

[0009] Recreating High Speed Serial for PCI

[0010] In creating the proprietary Split-Bridge ™ technology, Mobility electronics of Phoenix Arizona, the present applicant, actually had to go back to the drawing board and design a far simpler serial protocol to allow a marriage to the PCI bus, because none of the existing implementations could coexist without substantial loss of performance. For a detailed discussion of Applicant's proprietary Split-Bridge ™ technology, cross reference is made to Applicant's co-pending commonly assigned patent applications identified as serial number 09/130,057 and 09/130,058 both filed August 6, 1998, the teachings of each incorporated herein by reference. The Split-Bridge ™ technology approach is

essentially custom fit for PCI and very extensible to all the other peripheral bus protocols under discussion like PCIx, and LDT™ set forth by AMD Corporation. LDT requires a clock link in addition to its data links, and is intended primarily as a motherboard application, wherein Split-Bridge™ technology is primarily intended to enable remote bus recreation. As the speeds of motherboard buses continue to grow faster, Split-Bridge ™ can be readily adapted to support these by increasing the serial bus speed and adding multiple pipes. Split-Bridge ™ technology fundamentals are a natural for extending anything that exists within a computer. It basically uses a single-byte of overhead for 32 bits of data and address - actually less when you consider that byte enables, which are not really "overhead", are included as well.

[0011] Armed with the far simpler protocol, all of the attributes of the PCI bus are preserved and made transparent across a high speed serial link at much higher effective bandwidth than any existing serial protocol. The net result is the liberation of a widely used general purpose bus, and the new found ability to separate what were previously considered fundamental inseparable parts of a computer into separate locations. When the most technical reviewers grasp the magnitude of the invention, then the wheels start to turn and the discussions that follow open up a new wealth of opportunities. It now becomes reasonable to explore some of the old fundamentals, like peer-to-peer communication between computers that has been part of the basic PCI specification from the beginning, but never really feasible because of the physical limits of the bus prior to Split-Bridge ™ technology. The simplified single-byte overhead also enables very efficient high speed communication between two computers and could easily be extended beyond PCI.

[0012] The proprietary Split-Bridge ™ technology is clearly not "just another high speed link" and distinguishing features that make it different represent novel approaches to solving some long troublesome system architecture issues.

[0013] First of all is the splitting of a PCI bridge into two separate and distinct pieces. Conceptually, a PCI bridge was never intended to be resident in two separate modules or chips and no mechanism existed to allow the sharing of setup information across two separate and distinct devices. A PCI bridge requires a number of programmable registers that supply information to both ports of a typical device. For the purpose of the following discussion, the two ports are defined into a north and south segment of the complete bridge.

[0014] The north segment is typically the configuration port of choice and the south side merely takes the information from the registers on the north side and operates accordingly. The problem exists when the north and south portions are physically and spatially separated and none of the register information is available to the south side because all the registers are in the north chip. A typical system solution conceived by the applicant prior to the invention of Split-Bridge ™ technology would have been to merely create a separate set of registers in the south chip for configuration of that port. However, merely creating a separate set of registers in the south port would still leave the set up of those registers to the initialization code of the operating system and hence would have required a change to the system software.

[0015] Split-Bridge ™ technology, on the other hand, chose to make the physical splitting of the bridge into two separate and spaced devices "transparent" to the system software (in other words, no knowledge to the system software that two devices were in

fact behaving as one bridge chip). In order to make the operations transparent, all accesses to the configuration space were encoded, serialized, and "echoed" across the serial link to a second set of relevant registers in the south side. Such transparent echo between halves of a PCI bridge or any other bus bridge is an innovation that significantly enhances the operation of the technology.

[0016] Secondly, the actual protocol in the Split-Bridge ™ technology is quite unique and different from the typical state of the art for serial bus operations. Typically transfers are "packetized" into block transfers of variable length. The problem as it relates to PCI is that the complete length of a given transfer must be known before a transfer can start so the proper packet header may be sent.

[0017] Earlier attempts to accomplish anything similar to Split-Bridge ™ technology failed because the PCI bus does not inherently know from one transaction to the next when, or if, a transfer will end or how long a block or burst of information will take. In essence the protocol for the parallel PCI bus (and all other parallel, and or real time busses for that matter) is incompatible with existing protocols for serial buses.

[0018] An innovative solution to the problem was to invent a protocol for the serial bus that more or less mimics the protocol on the PCI. With such an invention it is now possible to substantially improve the performance and real time operation here to for not possible with any existing serial bus protocol.

[0019] The 8 bit to 10 bit encoding of the data on the bus is not new, but follows existing published works. However, the direct sending of 32 bits of information along with the 4 bits of control or byte enables, along with an additional 4 bits of extension represents a 40 bit for every 36 bits of existing PCI data, address, and control or a flat

10% overhead regardless of the transfer size or duration, and this approach is new and revolutionary. Extending the 4 bit extension to 12 or more bits and including other functionality such as error correction or retransmit functionality is also within the scope of the Split-Bridge ™ technology.

[0020] New Applications of the Split-Bridge ™ Technology

[0021] Basic Split-Bridge ™ technology was created for the purpose of allowing a low cost, high speed serial data communications between a parallel system bus and remote devices. By taking advantage of the standard and pervasive nature of the PCI bus in many other applications in computing, dramatic improvements in the price performance for other machines is realized. The present invention comprises a revolutionary application rendered possible due to the attributes of applicant's proprietary Split-Bridge ™ technology.

SUMMARY

[0022] The present invention achieves technical advantages as a modular computer system having a universal connectivity station adapted to connect and route data via serial data links to a plurality of devices, these serial links and interfaces at each end thereof employing proprietary Split-Bridge ™ technology disclosed and claimed in co-pending and commonly assigned patent applications identified as serial number 09/130,057 and 09/130,058, the teachings of which are incorporated herein by reference.

[0023] The present invention derives technical advantages as a modular computer system by separating into two or more spatially separate and distinct pieces, a computer core and a universal connectivity station (UCS). The core is the performance module of the modular computer system and may include some or all of the central processing unit

(CPU), memory, AGP Graphics, and System Bus Chip adapted to communicably couple these three together or in combination with other items. The UCS communicably couples the processor module via high speed serial links based on the proprietary Split-Bridge ™ technology of Mobility Electronics of Phoenix Arizona, the applicant of the present invention, to other computers or to other individual modules such as storage modules including hard disk drives, a user interface module consisting of a keyboard, mouse, monitor and printer, as well as a LAN Module such as any Internet connection or another UCS, another UCS, audiovisual device, LAN storage just to name a few. In addition, the UCS is adapted to couple via a Split-Bridge ™ technology serial link with a portable or handheld computer or device remotely located from the UCS but still functionally coupled to the modular computer system via the UCS. The UCS and associated Split-Bridge ™ technology serial links are all transparent to the modules which can have parallel data busses including those based on PCI or Cardbus architectures.

[0024] The modular computer system of the present invention including the UCS is a novel approach to computer architecture and upgrade ability. Advantageously, the separate performance module may be selectively upgraded or modified as desired and as technology increases the performance of key components including microprocessor speed, standards, and architectures without necessitating the replacement or modification of the rest of the computer system. The UCS allows the performance module to be upgraded while the rest of the system devices coupled thereto do not need to be modified. Upgrading to single or multiple processors in the performance module or modules is readily possible. Whole organizations can standardize to a single UCS regardless of the type of performance or portability required by the users, thus addressing for the first time

the means of systems level support. In security sensitivity environments, it is possible to separate the "stored media" or computer central processor, or any other component of the system and connectivity from the operators, and still maintain the speed element so important in today's businesses.

BRIEF DESCRIPTION OF THE DRAWINGS

[0025] Figure 1 illustrates prior art computer systems depicted as a traditional performance desk top computer shown at 10, and a portable computing device 12, such as a notebook or laptop computer, mechanically coupled to mechanical docking station 14;

[0026] Figure 2 is a block diagram of a prior art bridge 16 used to couple two system computing buses, such as used between the portable computing device 12 and the mechanical docking station 14 shown in Figure 1;

[0027] Figure 3 illustrates the proprietary Split-Bridge ™ technology serial communication technology of the applicant enabling high speed serial communications within the modular computer system of the present invention; and

[0028] Figure 4 is a block diagram of the modular computer system of the present invention utilizing a universal connectivity station (UCS) communicably coupled to a plurality of devices via serial links, such as the Split-Bridge ™ technology serial links employed using fixed wire, optical, or wireless communication links.

DETAILED DESCRIPTION

[0029] Referring to Figure 3, there is depicted the proprietary Split-Bridge ™ technology serial communications technology of the present applicant, discussed in great detail in commonly assigned US patent applications serial number 09/130,057 filed

August 6, 1998, and serial number 09/130,058 also filed August 6, 1998 the teachings of which are incorporated herein by reference.

[0030] Applicant Split-Bridge ™ technology revolutionizes the status quo for computer systems. The Split-Bridge ™ technology does not require the need for custom hardware or custom software to achieve full performance serial communication between devices, including devices having parallel data buses including the PCI bus. In fact, for each device in a modular computer system, the Split-Bridge ™ technology appears just like a standard PCI bridge, and all software operating systems and device drivers already take such standard devices into consideration. By utilizing standard buses within each device operating within the modular computer system, each device does not require any additional support from the Operating System (OS) software. The modular computing system has simple elegance, allowing the PCI bus which is so pervasive in the computer industry, that possible applications of the initial PCI form of Split-Bridge ™ technology are all most limitless.

[0031] Originally implemented in PCI, there is nothing fundamental that ties the Split-Bridge ™ technology to PCI, and thus, the Split-Bridge ™ technology can migrate as bus architectures grow and migrate. The 64 bit PCI is compatible with the Split-Bridge ™ technology, as is future PCIx and/or LDT or other bus technologies that are currently under consideration in the industry and which are straight forward transitions of the Split-Bridge ™ technology. Implementations with other protocols or other possible and natural evolutions of the Split-Bridge ™ technology, including digital video (DV) technology that can be streamed over the high-speed serial link.

[0032] Referring to Figure 4, there is depicted at 20 a modular computer system according to one illustrative embodiment of the present invention. The modular computer system 20 is based around one or more universal connectivity stations generally shown at 22 each having a plurality of interface ports 24 which are preferably based on the proprietary Split-Bridge ™ technology of the present applicant, Mobility Electronics of Phoenix Arizona. Each UCS 22 provides input/output, or I/O, capability of the computer or computer system 20, as well as modular expansion capability and features. UCS 22 includes all possible variations and combinations of port replication and connectivity, including but not limited to the following ports: P/S2, mouse and keyboard, serial, parallel, audio, USB, IEEE 1394, or firewire, SCSI, and the like. Each UCS 22 also includes the ability to expand the capability or features of the computer system 20 by adding any type of drive bays, including EIDE, USB, and 1394 CD Roms, DVD's, hard drives, tape back up's, ZIP drives®, Jazz® drives, and the like.

[0033] A plurality of interconnecting and interactive devices are communicably coupled to each UCS 22 via respective high speed serial links generally shown at 26 based on the proprietary Split-Bridge ™ technology. In the hardwire embodiment, the serial links 26 comprise of a pair of simplex links forms a duplex link interconnecting each end of the Split-Bridge ™ technology interfaces as shown. The serial links 26 may also employ optical fiber and optical transceivers if desired. The various modules making up modular computer system 20 may include, and a plurality of, but are not limited to, a memory/storage device 30, servers 32 having one or multiple processors and possibly serving other UCS's 22, as shown, and modular computer systems, remote users and so forth, a display 34, a portable computing device 36, such as a notebook computer,

a laptop computer, a portable digital assistant (FDA), and a remote wireless peripheral 38 which may interconnected via a wireless link shown at 40 and implementing the proprietary Split-Bridge ™ technology. Examples of remote wireless terminals 38 may include 3rd generation (3G) devices now being developed and employed, including wireless personal devices having capabilities for voice, data, video and other forms of information which can be unidirectionally or bidirectionally streamed between the remote peripheral 38 and UCS 22. An appropriate antenna resides at each of the remote peripheral 38 and UCS 22 which are interconnected to respective transceivers communicably coupled to the respective ends of the Split-Bridge ™ technology interfaces.

[0034] Moreover, multiple UCS's 22 can be integrated to communicate with each other via serially links 26, each UCS's 22 locally serving multiple modules. Multiple computers can be connected to a common UCS, or to multiple UCS's. For example, a computer or server room can have racks of computer processors or servers, each separately connected over a system of up to hundreds of feet, to one or many UCS's located throughout an office or other environment. This allows the desktop to have just a terminal or whatever capabilities the IT manager desires, enhancing security and control.

[0035] System 20 also provides the ability to simultaneously connect multiple computers 36 and allows full peer-to-peer communications, allowing the processor module (CPU) 42 to communicate with the portable device computer 36 or to the computer room computers 32, allowing all of these computers to share information and processing capability. This also allows certain of the computers, such as the portable

computer 36, to upgrade its processing capability when it is connected to the UCS 22 with other higher capability computers.

[0036] Still referring to Figure 4, the modular computer system 20 of the present invention further comprises a processor module 42, which may be remotely positioned from the UCS 22, but for purposes of inclusion, could internally reside with the UCS 22. The processor module 42, from a performance point of view, is the heart and sole of the modular computer system 20 and can be made up of one or more core parts including: the CPU, memory, APG Graphics, and a system bus interface to connect the other 3 together. The processor module 42 operates in conjunction with memory such as a hard disk drive, which can reside within the processor module 42, or be remotely located as shown at 30 if desired. The APG Graphics could be located separately within the system and interconnected via a serial link 26, or even located within UCS 22 if desired.

[0037] Advantageously, the processor module 42 which may comprise of a high speed microprocessor or microprocessors, digital signal processors (DSP's), and can be upgraded or interchanged from the systems 20 without effecting the other devices or operation of the system, thereby permitting increased performance at a very low cost. Computers today typically require the replacement or upgrading of other devices when the performance portion of the computer system is replaced. The modular computer system 20 of the present invention revolutionizes the computer architectures available by separating out the processor module 42 from the rest of the computer system 20. Each of the modules 30,32,34,36, and 38 all have functional access and use of the processor module 42 via the UCS 22 over the respective serial links 26 and 40, and from a performance point of view, appear to each of these devices to be hardwired to the

processor module 42. That is, the Split-Bridge ™ technology links interconnecting each of the devices via the UCS 22 to the processor module 42 is transparent to each device, thus requiring no change to the OS of each device, the format of data transfer therebetween, or any other changes. This is rendered possible by the revolutionary Split-Bridge ™ technology.

[0038] Another advantage of computer system 20 is that the data module 30 may be customized, portable, and used only by one user. This allows the user to take the portable module 30 with them from location to location, system 20 to system 20. The data module 30 can store each user's unique information, and can be accessed and used on any processor module 42 and UCS 22.

[0039] As discussed in considerable detail in the cross-referenced and commonly assigned patent applications, the Split-Bridge ™ technology provides that information from the parallel buses of each device be first loaded into first-in first-out (FIFO) registers before being serialized into frames for transmission over the high speed serial link. Received frames are deserialized and loaded into FIFO registers at the other end thereof, such as UCS 22, for being placed onto the destination bus of the opposing device. Interrupts, error signals and status signals are sent along the serial link. Briefly, the proprietary Split-Bridge ™ technology takes address and data from a bus, one transaction at a time, together with 4 bits that act either as control or byte enable signals. Two or more additional bits may be added to tag each transaction as either an addressing cycle, an acknowledging of a non-posted write, a data burst, end of data burst or cycle. If these transactions are posted writes they can be rapidly stored in a FIFO register before being encoded into a number of frames that are sent serially over the link. When pre-

fetched reads are allowed, the FIFO register can store pre-fetched data in case the initiator requests it. For single cycle writes or other transactions that must await a response, the bridge can immediately signal the initiator to retry the request, even before the request is passed to the target.

[0040] In the preferred embodiment of the modular computer system of the present invention, one or more of the busses in the plurality of devices, as well as in the UCS 22, employ the PCI or PCMCIA standard, although it is contemplated that other bus standards can be used as well. The preferred Split-Bridges ™ technology operates with a plurality of configuration registers that is loaded with information specified under the PCI standard. The Split-Bridges ™ technology transfers information between busses depending on whether the pending address falls within a range embraced by the configuration registers. This scheme works with devices on the other side of the Split-Bridge ™ technology, which can be given unique base addresses to avoid addressing conflicts.

[0041] As disclosed in great detail in the co-pending and cross-referenced commonly assigned patent applications, the Split-Bridges ™ technology may be formed as two separate application-specific integrated circuits (ASICs) joined by a duplex link formed as a pair of simplex links. Preferably, these two integrated ASICs have the same structure, but can act in two different modes in response to a control signal applied to one of its pins. Working with hierarchical busses (primary and secondary busses) these integrated circuits are placed in a mode appropriate for its associated bus. The ASIC associated with the secondary bus preferably has an arbitrator that can grant masters control of the secondary bus. The ASIC can also supply a number of ports to support

other devices such as a USB and generic configurable I/O ports, as well as parallel and serial ports.

[0042] The UCS preferably comprises a PCI bus having a plurality of PC card slots located with the UCS housing. Each PC card slot is provided with a Split-Bridge ™ technology interface, and preferably one of the ASICs assembled with a standardized serial connector comprising at least 4 pins, as depicted in the cross referenced commonly assigned patent applications, the teachings of which are incorporated herein by reference.

[0043] The modular computer system 20 of the present invention derives technical advantages in that the UCS station 22 with its associated interface cards and parallel data bus interconnecting each interface card, is truly functionally transparent to each of the interconnected modules including the memory storage device 30, the server 32, the display 34, the portable computing device 36, the remote wireless peripheral 38, and the processor module 42. This integration of devices into a modular computer system has truly enormous potential and uses depending on the desired needs and requirements of one's computing system. However, the physical location and proximity of each of the devices forming the modular computer system are no longer strictly limited due to the high speed serial interconnection links of the proprietary Split-Bridge ™ technology. Each of the devices can be remotely located, or located in proximity to one another as desired. For instance, the display 34 and portable computing device 36 may be resident within one's office, with the UCS 22 in another room, and with the memory storage device 30, server 32, and performance module 42 remotely located in yet still another room or location. Moreover, a plurality of portable computing devices 36 can all be remotely located from UCS 22, and from each other, allowing networking to modular

system 20 either through wireless serial links as depicted at 26, or wirelessly as depicted at 40.

[0044] The proprietary Split-Bridge ™ technology presently allows for extended communication distances of 5 meters, but through advancement in technology can continue to be extended. For instance, using optical communication links in place of copper wire simplex links, along with suitable optical transceivers, can yield links that are exceptionally long. Using wireless technology, as depicted at 40, allows a remote peripheral 38 to be located perhaps anywhere in the world, such as by implementing repeaters incorporating the proprietary Split-bridge ™ technology high speed serial communication technology. Additional techniques can be used by slowing the transfer rate, and increasing the number of pipes, to achieve link distances of hundreds of feet, and allowing the use of CAT5 cable.

[0045] Though the invention has been described with respect to a specific preferred embodiment, many variations and modifications will become apparent to those skilled in the art upon reading the present application. It is therefore the intention that the appended claims be interpreted as broadly as possible in view of the prior art to include all such variations and modifications.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Filer:	Lin C. Hsu/Mina Oliveri
Attorney Docket Number:	MOBI-0004P1C2C1C1C

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility application filing	1011	1	390	390
Utility Search Fee	1111	1	620	620
Utility Examination Fee	1311	1	250	250
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1260**

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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/652,823	10/16/2012	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☐ RATE ($)	SMALL ENTITY ☐ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	10/16/2012	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $ =		OR	X $62=	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $250=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

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Legal Instrument Examiner:
/CORALIA BETANCOURT/

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/652,823	10/16/2012	2182	1260	MOBI-0004P1C2C1C1C	20	3

CONFIRMATION NO. 2839

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

FILING RECEIPT



Date Mailed: 11/05/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

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Power of Attorney: The patent practitioners associated with Customer Number 45590

Domestic Priority data as claimed by applicant

This application is a CON of 13/240,773 09/22/2011 PAT 8291140 *
which is a CON of 12/644,511 12/22/2009 PAT 8060675
which is a CON of 11/300,131 12/13/2005 PAT 7657678
which is a CON of 09/559,678 04/27/2000 PAT 7734852
which claims benefit of 60/198,317 04/19/2000
and is a CIP of 09/130,057 08/06/1998 PAT 6088752
and is a CIP of 09/130,058 08/06/1998 PAT 6070214
(*)Data provided by applicant is not consistent with PTO records.

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If Required, Foreign Filing License Granted: 11/01/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/652,823**

Projected Publication Date: 02/14/2013

Non-Publication Request: No

Early Publication Request: No

Title

COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Preliminary Class

710

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The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C

CONFIRMATION NO. 2839

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

NOTICE

OC000000057395795

Date Mailed: 11/05/2012

INFORMATIONAL NOTICE TO APPLICANT

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.53(f).

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

A new inventor's oath or declaration that identifies this application (e.g., by Application Number and filing date) is required. The inventor's oath or declaration does not comply with 37 CFR 1.63 in that it:

- does not state that the above-identified application was made or authorized to be made by the person executing the oath or declaration.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C

CONFIRMATION NO. 2839

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

POA ACCEPTANCE LETTER

OC000000057395882

Date Mailed: 11/05/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/16/2012.

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

/tlpham/

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

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/652,823

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	390
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	620
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	250
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 62 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 250 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1260

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.



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45590 e 2012-11-09

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Paper No.

Application No.:	**13/652,823**	**Date Mailed:**	**2012-11-09**
First Named Inventor:	Ahern, Frank, W.	Examiner:	,
Attorney Docket No.:	MOBI-0004P1C2C1C1C	Art Unit:	2111
Confirmation No.:	2839	Filing Date:	2012-10-16

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

Commissioner for Patents

PTO-90c (Rev.08-06)

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 13/652,823	Applicant(s) AHERN ET AL.
		Art Unit 3998

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

The amendment document filed on *16 October, 2012* is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
  - ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other _____.
- ☐ 2. Abstract:
  - ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B. Other _____.
- ☐ 3. Amendments to the drawings:
  - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
  - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
  - ☐ C. Other _____.
- ☐ 4. Amendments to the claims:
  - ☐ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - ☐ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☐ E. Other: _____.
- ☒ 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4): For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period if the non-compliant amendment is an** after-final amendment or an amendment filed after allowance, or a drawing submission (only) If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.

2. Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a Quayle action. If any of above boxes 1 to 4 are checked, the correction required is only the corrected section of the non-compliant amendment in compliance with 37 CFR 1.121.

   Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.
   Failure to timely respond to this notice will result in:
   Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
   Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

Legal Instruments Examiner (LIE), if applicable /CORALIA BETANCOURT/ Telephone No: (571)272-0509

Double slashes in signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Ahern, F. et al.	Confirmation	: 2839
Serial No.	: 13/652,823	Examiner	: Unassigned
Filed	: October 16, 2012	Group Art Unit	: 2111
For	: A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY		

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

PRELIMINARY AMENDMENT

Dear Sir:

Prior to the examination of the Continuation patent application on the merits, please enter and consider the following preliminary amendment.

Amendments to the Specification begin on page 2 of this paper.

Amendments to the Claims are reflected in the Listing of Claims, which begins on page 3 of this paper.

Remarks begin on page 5 of this paper.

Consideration of the above captioned patent application is respectfully requested.

LISTING OF THE CLAIMS

A detailed listing of claims is presented below.

1-46. (Cancelled)

47. (New) An apparatus comprising:

a processor;

a first parallel bus of a first module; and

an interface configured to asynchronously, serially receive serial data from a second module without requiring handshaking, wherein said second module is configured to communicate peripherally over a second parallel bus, and wherein said interface is configured to send parallel data corresponding to said serial data over said first parallel bus.

48. (New) The apparatus of Claim 47, wherein said interface comprises a bridge.

49. (New) The apparatus of Claim 47, wherein a computing first module is separated from each of the one or more modules by a distance of at least a meter.

50. (New) The apparatus of Claim 49, wherein the one or more modules include one or more of: a disk drive a keyboard, a mouse, a monitor, a printer, an internet connection, a wireless accessory, or a storage module.

51. (New) The apparatus of Claim 47, wherein said interface is configured to receive second parallel data from the first parallel bus and configured to asynchronously,

serially exchange second serial data, corresponding to the second parallel data, with said second module without requiring handshaking.

52. (New) The apparatus of Claim 47, wherein said first module comprises a processor module including a CPU and memory, and wherein said second module comprises a peripheral device.

53. (New) The apparatus of Claim 52, wherein said peripheral device comprises a hard drive.

54. (New) The apparatus of Claim 52, wherein one of said first and second modules comprises a portable computing device.

55. (New) The apparatus of Claim 52, wherein said first module comprises a memory device.

56. (New) The apparatus of Claim 47, wherein said first module is configured to generate a clock signal from the received serial data.

57. (New) A method comprising:

asynchronously, serially receiving at a first module serial data from a second module without requiring handshaking, wherein said serial data corresponds to second parallel bus data of said second module; and

sending first parallel data corresponding to said serial data over a first parallel bus of said first module.

58. (New) The method of Claim 57, wherein said second module is configured to communicate peripherally over said second parallel bus, and wherein said first module is configured to communicate peripherally over said first parallel bus.

59. (New) The method of Claim 57, further comprising:

receiving third parallel bus data from the first parallel bus; and

asynchronously, serially exchanging second serial data corresponding to said third parallel bus data with said second module without requiring handshaking.

60. (New) The method of Claim 57, wherein said first module comprises a processor module including a CPU and memory, and wherein said second module comprises a peripheral device.

61. (New) The method of Claim 60, wherein said peripheral device comprises a hard drive.

62. (New) The method of Claim 57, wherein said first module is separated from said second module by at least a meter.

63 (New) The method of Claim 57, wherein said first module comprises one of: a disk drive, a keyboard, a mouse, a monitor, a printer, an internet connection, a wireless accessory, or a storage module.

64. (New) A system comprising:

means for asynchronously, serially receiving at a first module serial data from a second module without requiring handshaking, wherein said serial data corresponds to second parallel bus data of said second module; and

means for sending first parallel data corresponding to said serial data over a first parallel bus of said first module.

65. (New) The system of Claim 64, further comprising:

means for receiving third parallel bus data from the first parallel bus; and

means for asynchronously, serially exchanging second serial data corresponding to said third parallel bus data with said second module without requiring handshaking.

66. (New) The system of Claim 64, wherein said second module is configured to communicate peripherally over said second parallel bus, and wherein said first module is configured to communicate peripherally over said first parallel bus.

Electronic Acknowledgement Receipt

EFS ID:	14942193
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Katie Smith
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	12-FEB-2013
Filing Date:	16-OCT-2012
Time Stamp:	17:45:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		MOBI-0004P1C2C1C1C_PRELIMINARY_AMDT_02-12-2013.pdf	83756 e449005721c21aea326b56bfef04e58d6df0f831	yes	7

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Preliminary Amendment	1	1
	Specification	2	2
	Claims	3	6
	Applicant Arguments/Remarks Made in an Amendment	7	7
Warnings:			
Information:			
	Total Files Size (in bytes):	83756	

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.

REMARKS

This patent application is a Continuation of Patent Application Serial No. 13/240,773, filed on September 22, 2011. Herein, Claims 1-46 have been canceled. New Claims 47-56 have been added. No new matter has been introduced. Accordingly, after this Preliminary Amendment, Claims 47-56 remain pending in this patent application.

It is respectfully submitted that Claims 47-56 are in a condition for allowance. The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present patent application.

Please charge any additional fees or apply any additional credits to our USPTO deposit account number: 50-4160.

Respectfully submitted,
MURABITO, HAO & BARNES LLP

Dated: February 12, 2013

/Lin C. Hsu/
Lin C. Hsu
Registration No. 46,315

Two North Market Street
Third Floor
San Jose, California 95113
(408) 938-9060

AMENDMENTS TO THE SPECIFICATION

Immediately following the title, please insert the following:

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a continuation of and claims priority to and the benefit of Patent Application Serial No. 13/240,773, filed on September 22, 2011; which claims priority to and the benefit of Patent Application Serial No. 12/644,511, filed on December 22, 2009; which claims priority to and the benefit of Patent Application Serial No. 11/300,131, filed on December 13, 2005; which claims priority to and the benefit of the Patent Application Serial No. 09/559,678, filed on April 27, 2000; which claims priority to and the benefit of the Provisional Patent Application Serial No. 60/198,317; which is a Continuation-In-Part of Patent Application Serial No. 09/130,057, filed on August 6, 1998, and is a Continuation-In-Part of Patent Application Serial No. 09/130,058, filed on August 6, 1998; all of which are incorporated by reference in their entireties.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/652,823	10/16/2012	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☐ RATE ($)	SMALL ENTITY ☐ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 02/12/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $ =		OR	X $62=	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $ =		OR	X $250=	0
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/MARY EVANS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C

CONFIRMATION NO. 2839

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

PUBLICATION NOTICE



Title:COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Publication No.US-2013-0042046-A1
Publication Date:02/14/2013

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.		Confirmation No.: 2839
Serial No.:	13/652,823	
Filed:	October 16, 2012	
Examiner:	Vo, T.	
Art Unit:	2111	
Attorney Docket No.	MOBI-0004.P1C2C1C1C	
For:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

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

PRELIMINARY AMENDMENT

Dear Sir:

Prior to the examination of the Continuation patent application on the merits, please enter and consider the following preliminary amendment.

Amendments to the Claims are reflected in the Listing of Claims, which begins on page 2 of this paper.

Remarks begin on page 12 of this paper.

Consideration of the above captioned patent application is respectfully requested.

LISTING OF THE CLAIMS

A detailed listing of claims is presented below.

1-46. (Canceled)

47-66 (Canceled) Please cancel Claims 47-66

67. (New) A disk storage system, comprising:

a connector configured to be connectable to a serial link; and

an ASIC coupled to the connector, wherein the ASIC is operable to receive first serial data asynchronously transmitted over the serial link through the connector and asynchronously transmit second serial data from the connector to the serial link through the connector, the ASIC comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data;

a first FIFO register coupled to the circuit and operable to store the deserialized data;

a second FIFO register operable to receive parallel data, the second FIFO register coupled to a second circuit configured to serialize the parallel data to generate second serial data; and

a transmitter operable to transmit the second serial data to the serial link through the connector;

wherein the ASIC is configured to determine whether an amount of the deserialized data stored in the first FIFO register equals or exceeds a threshold value less than a full storage capacity of the first FIFO register;

wherein the ASIC is operable to generate a flow control signal in response to the amount of the deserialized data in the first FIFO register equaling or exceeding the threshold value; and

wherein the ASIC is configured to transmit the flow control signal to the serial link through the connector without passing the flow control signal through the second FIFO register.

68. (New) The disk storage system as recited in claim 67, wherein the ASIC is operable to repeatedly transmit the second serial data to the serial link through the connector without receiving acknowledgement for the transmission over the serial link.

69. (New) The disk storage system as recited in claim 67, wherein the serial link comprises a first twin axial line and a second twin axial line.

70. (New) The disk storage system as recited in claim 67, wherein the ASIC is operable to asynchronously transmit the first serial data over the serial link and to asynchronously transfer the second serial data over the serial link using differential signals.

71. (New) The disk storage system as recited in claim 67, wherein the flow control signal is to be used to control transmission of the first serial data over the serial link to prevent overflow of the first FIFO register.

72. (New) The disk storage system as recited in claim 67, wherein:

the ASIC is operable to generate control bits;

the second serial data includes serial data packages; and

the ASIC is operable to transmit the control bits to the serial link between transmissions of the second serial data packages, without passing the control bits through the second FIFO register.

73. (New) The disk storage system as recited in claim 72, wherein:

the control bits correspond to one or more of comma markers, idle markers, or flow control signals; and

the control bits are for use in establishing serial communications over the serial link.

74. (New) The disk storage system as recited in claim 67, wherein:

the parallel data received includes control bits;

the second serial data comprises serialized data packages including serialized control bits; and

the ASIC is operable to transmit the serialized data packages over the serial link.

75. (New) The disk storage system as recited in claim 67, wherein:

the ASIC is operable to transmit bits corresponding to one or more serialized interrupts, error signals, or status signals over the serial link between transmissions of the second serial data packages, without passing the bits corresponding to the one or more serialized interrupts, the error signals, or the status signals through the second FIFO register.

76. (New) The disk storage system as recited in claim 67, wherein:

the ASIC is operable to generate control bits corresponding to one or more of interrupts, error signals or status signals without the control bits passing through the second FIFO register;

the second serial data includes serial data packages; and

the ASIC is operable to form encoded control bits using the control bits and include the encoded control bits in the serial data packages.

77. (New) The disk storage system as recited in claim 67, wherein the ASIC is operable to initiate transmission of the second serial data over the serial link in response to changes to information stored in the second FIFO register so that information stored in a third FIFO register included in a second ASIC coupled to the serial link through a second connector matches the information stored in the second FIFO register.

78. (New) The disk storage system as recited in claim 77, wherein:

the second ASIC is included in a computer system; and

the first ASIC and the second ASIC are operable to cause the information stored in the third FIFO register to match the information stored in the second FIFO register without intervention by the computer system.

79. (New) The disk storage system as recited in claim 67, wherein the disk storage system includes a hard disk drive.

80. (New) The disk storage system as recited in claim 67, further comprising:

an interface included in the ASIC, coupled to the first FIFO register, and operable to receive the deserialized data from the first FIFO register;

a bus coupled to the ASIC and configured to receive the deserialized data from the interface; and

a processor coupled to the bus.

81. (New) The disk storage system as recited in claim 67, wherein the ASIC is configured to generate a clock signal, for use by the ASIC, using the first serial data.

82. (New) A method of changing storage in a second FIFO register in response to changes in storage in a first FIFO register, comprising:

storing data bits in the first FIFO register included in a first ASIC included in a computing system;

serializing the data bits to form serialized data bits using a first serializer included in the first ASIC;

transmitting the serialized data bits over a serial link;

receiving the serialized data bits at a disk drive system;

deserealizing the serialized data bits to form the data bits using a deserializer included in a second ASIC included in the disk drive system; and

storing the data bits in the second FIFO register included in the second ASIC, wherein changing of the storage in the second FIFO register is initiated by the first ASIC to result in the second FIFO register information being equivalent to the first FIFO register information and is performed without control of the changing by software in the computing system.

83. (New) The method as recited in claim 82, wherein:

the serialized data bits are included in serialized data packages; and

the data bits are provided to the first ASIC in parallel over a bus included in the computing system.

84. (New) The method as recited in claim 83, further comprising:

embedding one or more control bits within the data bits;

storing the one or more control bits embedded within the data bits in the first FIFO register;

using the first serializer, serializing the one or more control bits to form serialized one or more control bits included in the serialized data packages;

receiving the serialized one or more control bits at the disk drive system;

desearlizing the serialized one or more control bits to form the one or more control bits using the deserializer; and

storing the one or more control bits in the second FIFO register.

85. (New) The method as recited in claim 84, wherein the one or more control bits correspond to one or more interrupts, error signals, or status signals.

86. (New) The method as recited in claim 85, wherein:

two bits are used to represent the one or more interrupts, error signals, or status signals.

87. (New) The method as recited in claim 82, further comprising:

generating control bits using the first ASIC, wherein the control bits are not stored in the first FIFO register; and

using the first ASIC, transmitting the control bits over the serial link between transmissions of serialized data packages formed from the serialized data bits.

88. (New) The method as recited in claim 87, wherein the control bits correspond to one or more interrupts, error signals, or status signals.

89. (New) The method as recited in claim 88, wherein the control bits include from eight bits to ten bits.

90. (New) The method as recited in claim 82, wherein:

the serial link includes a twin axial line; and

the transmitting of the serialized data bits is performed over the twin axial line.

91. (New) The method as recited in claim 90, wherein the transmitting of the serialized data is performed over the twin axial line using differential signals.

92. (New) The method as recited in claim 82, further comprising:

using the second ASIC, generating a clock signal for use by the second ASIC using the serialized data bits.

93. (New) The method as recited in claim 82, wherein the transmitting the serialized data bits is repeatedly performed by the first ASIC without receiving acknowledgement of the transmitting from the second ASIC over the serial link.

94. (New) The method as recited in claim 82, wherein software of the computing system does not include a driver for control of the changing.

95. (New) A disk storage system, comprising:

a connector configured to be connectable to a serial link, wherein the serial link is to be used to asynchronously transfer first serial data to the connector and is to be used to asynchronously transfer second serial data from the connector; and

a module coupled to the connector, wherein the module is configured to generate a clock signal for use by the module using the first serial data, the module comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialzed data;

a first FIFO register coupled to the circuit and operable to store the deserialized data;

a second FIFO register operable to receive parallel data, the second FIFO register coupled to a second circuit configured to serialize the parallel data to generate second serial data; and

a transmitter capable of repeated transmissions of the second serial data to the serial link through the connector without receiving acknowledgement of the transmissions over the serial link.

96. (New) The disk storage system as recited in claim 95, wherein the module comprises an ASIC.

97. (New) The disk storage system as recited in claim 95, wherein the serial link comprises a first twin axial line and a second twin axial line.

98. (New) The disk storage system as recited in claim 95, wherein the disk storage system includes a hard disk drive.

99. (New) The disk storage system as recited in claim 95, further comprising:

an interface included in the module, coupled to the first FIFO register, and operable to receive the deserialized data from the first FIFO register;

a bus coupled to the module and configured to receive the deserialized data from the interface; and

a processor coupled to the bus.

100. (New) A disk storage system, comprising:

a connector configured to be connectable to a serial link, wherein the serial link is capable of transferring first asynchronous serial data to the connector and transferring second asynchronous serial data from the connector; and

a module coupled to the connector, the module comprising:

a receiver operable to receive the first asynchronous serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialzed data;

a first FIFO register coupled to the first circuit and operable to store the deserialized data;

a second FIFO register operable to receive parallel data, the second FIFO register coupled to a second circuit configured to serialize the parallel data to generate second serial asynchronous data; and

a transmitter operable to transmit the second asynchronous serial data to the serial link through the connector;

wherein the module is capable of operation to perform the transmission of the second asynchronous serial data over the serial link without receiving acknowledgement of the transmission over the serial link during the transmission.

101. (New) The disk storage system as recited in claim 100, wherein the module comprises an ASIC.

102. (New) The disk storage system as recited in claim 100, wherein the disk storage system includes a hard disk drive.

103. (New) The disk storage system as recited in claim 100, further comprising:

an interface included in the module, coupled to the first FIFO register, and operable to receive the deserialized data from the first FIFO register;

a bus coupled to the interface and configured to receive the deserialized data from the interface; and

a processor coupled to the bus.

104. (New) The disk storage system as recited in claim 100, wherein:

the serial link comprises a first twin axial line and a second twin axial line;

the transmitter is operable to transmit the second asynchronous serial data to the second twin axial line through the connector as second differential signals; and

the receiver is operable to receive the first asynchronous serial data from the first twin axial line as first differential signals.

105. (New) The disk storage system as recited in claim 100, wherein:

the module is configured to determine whether an amount of the deserialized data stored in the first FIFO register equals or exceeds a threshold value less than a full storage capacity of the first FIFO register;

the module is operable to generate a flow control signal in response to the amount of the deserialized data in the first FIFO register equaling or exceeding the threshold value; and

the module is configured to transmit the flow control signal to the connector without passing the flow control signal through the second FIFO register, wherein the flow control signal is to be used to control transmission of the first serial data over the serial link to prevent overflow of the first FIFO register.

106. (New) The disk storage system as recited in claim 100, wherein the module is configured to generate a clock signal for use by the module using the first asynchronous serial data.

Electronic Acknowledgement Receipt

EFS ID:	17286880
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Tina Mai
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	31-OCT-2013
Filing Date:	16-OCT-2012
Time Stamp:	20:50:00
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	$2020
RAM confirmation Number	7575
Deposit Account	
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1		MOBI-0004P1C2C1C1C_PRELIM_AMDT_10-31-2013.pdf	81598 9eabbb97ac8ecdf649e096d11ccb03957fd49c94	yes	13

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Preliminary Amendment	1	1
Claims	2	12
Applicant Arguments/Remarks Made in an Amendment	13	13

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Information:

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REMARKS

Herein, Claims 47-66 have been canceled. Claims 1-46 remain canceled. New Claims 67-106 have been added. No new matter has been introduced. Accordingly, after this Preliminary Amendment, Claims 67-106 remain pending in this patent application.

It is respectfully submitted that Claims 67-106 are in a condition for allowance. The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present patent application.

Please charge any additional fees or apply any additional credits to our USPTO deposit account number: 50-4160.

Respectfully submitted,
MURABITO, HAO & BARNES LLP

Dated: October 31, 2013

/Lin C. Hsu/

Lin C. Hsu
Registration No. 46,315

Two North Market Street
Third Floor
San Jose, California 95113
(408) 938-9060

Electronic Patent Application Fee Transmittal

Application Number:	13652823
Filing Date:	16-Oct-2012
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Filer:	Lin C. Hsu/Tina Mai
Attorney Docket Number:	MOBI-0004P1C2C1C1C

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

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Claims:				
Claims in Excess of 20	1202	20	80	1600
Independent claims in excess of 3	1201	1	420	420
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Petition:				
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Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
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			Total in USD ($)	**2020**

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/652,823	Filing Date 10/16/2012	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)		
	10/31/2013	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X $80 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**0**

		(Column 1)		(Column 2)	(Column 3)		
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
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/PATRICIA F. LEWIS/

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	13652823
Filing Date	2012-10-16
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	VO, TIM T
Attorney Docket Number	MOBI-0004P1C2C1C1C

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	Application Number	13652823
	Filing Date	2012-10-16
	First Named Inventor	Frank W. Ahern
	Art Unit	2111
	Examiner Name	VO, TIM T
	Attorney Docket Number	MOBI-0004P1C2C1C1C

	1	HEWLETT PACKARD; GIGABIT ETHERNET TRANSCEIVER CHIP PRELIMINARY TECHNICAL DATA; May 1997; Pages 711-725; www.datasheetcatalog.com	☐

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13652823
	Filing Date	2012-10-16
	First Named Inventor	Frank W. Ahern
	Art Unit	2111
	Examiner Name	VO, TIM T
	Attorney Docket Number	MOBI-0004P1C2C1C1C

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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	/Lin C. Hsu/	Date (YYYY-MM-DD)	2013-12-16
Name/Print	Lin C. Hsu	Registration Number	46315

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.**

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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.

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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 record s.

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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.

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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.

Electronic Acknowledgement Receipt

EFS ID:	17669792
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Arann Capri
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	16-DEC-2013
Filing Date:	16-OCT-2012
Time Stamp:	15:25:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	MOBI-0004P1C2C1C1C_IDS_12-16-2013.pdf	612382 6cde9b31238729a6d901a1a5c4c8ded3716ca6a1	no	4

Warnings:	
Information:	

2	Non Patent Literature	HDMP-1636.pdf	347539 707d65bbc8a03d825b3a784b88140afc4b1eeb50	no	16

Warnings:	
Information:	
Total Files Size (in bytes):	959921

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.		Confirmation No.: 2839
Serial No.:	13/652,823	
Filed:	October 16, 2012	
Examiner:	Vo, T.	
Art Unit:	2111	
Attorney Docket No.	MOBI-0004.P1C2C1C1C	
For:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

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

SECOND PRELIMINARY AMENDMENT

Dear Sir:

Prior to the examination of the Continuation patent application on the merits, please enter and consider the following preliminary amendment. This is a second preliminary amendment.

Amendments to the Claims are reflected in the Listing of Claims, which begins on page 2 of this paper.

Remarks begin on page 14 of this paper.

Consideration of the above captioned patent application is respectfully requested.

LISTING OF THE CLAIMS

A detailed listing of claims is presented below.

1-66. (Canceled)

67-106. (Canceled) Please cancel Claims 67-106 without prejudice.

107. (New) A system, comprising:

a connector configured to be connectable to a serial link; and

an ASIC coupled to the connector, wherein the ASIC is operable to receive first serial data transmitted over the serial link through the connector and transmit second serial data to the serial link through the connector, the ASIC comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data; and

a decoder configured to decode the deserialized data;

a first FIFO register operable to store data that has been deserialized and decoded by the first circuit and the decoder, respectively;

a second FIFO register operable to receive data, the second FIFO register in data communication with a second circuit that is configured to at least serialize data received via the second FIFO register to generate second serial data; and

a transmitter operable to transmit the second serial data to the serial link through the connector;

wherein the ASIC is configured to determine whether an amount of data stored in the first FIFO register equals or exceeds a fill amount associated with a storage capacity of the first FIFO register;

wherein the ASIC is operable to generate a flow control signal in response to the amount of data stored in the first FIFO register equaling or exceeding the fill amount and the ASIC is configured to transmit the flow control signal through the serial link and the connector without passing the flow control signal through the second FIFO register.

108. (New) The system as recited in claim 107, wherein the first serial data and the second serial data transmitted over the serial link is transmitted asynchronously.

109. (New) The system as recited in claim 107, wherein the data received by the second FIFO register comprises parallel data.

110. (New) The system as recited in claim 107, wherein:

the ASIC is operable to repeatedly transmit the second serial data through the serial link and the connector without receiving acknowledgement during transmission.

111. (New) The system as recited in claim 107, wherein:

the serial link comprises a first twin axial line and a second twin axial line.

112. (New) The system as recited in claim 107, wherein:

the ASIC is operable to transmit the first serial data over the serial link and to transfer the second serial data over the serial link using differential signals.

113. (New) The system as recited in claim 107, wherein:

the flow control signal is to be used to control transmission of the first serial data over the serial link to prevent overflow of the first FIFO register.

114. (New) The system as recited in claim 107, wherein:

the ASIC is operable to generate control bits;

the second serial data includes one or more serial data frames; and

the ASIC is operable to transmit the control bits through the serial link between transmissions of the one or more serial data frames, without passing the control bits through the second FIFO register.

115. (New) The system as recited in claim 114, wherein:

the control bits correspond to one or more of comma markers, idle markers, or flow control signals; and

the control bits are for use in establishing serial communications over the serial link.

116. (New) The system as recited in claim 107, wherein:

the data received by the second FIFO register includes one or more control bits;

the second serial data comprises serialized data frames including serialized control bits; and

the ASIC is operable to transmit the serialized data frames over the serial link.

117. (New) The system as recited in claim 107, wherein:

the ASIC is operable to transmit one or more bits corresponding to one or more serialized interrupts, error signals, or status signals over the serial link between transmissions of the second serial data, without passing the one or more bits corresponding to the one or more serialized interrupts, the error signals, or the status signals through the second FIFO register.

118. (New) The system as recited in claim 107, wherein:

the ASIC is operable to generate one or more control bits corresponding to one or more of interrupts, error signals or status signals without the control bits passing through the second FIFO register;

the second serial data includes serial data frames; and

the ASIC is operable to form one or more encoded control bits using the one or more control bits and include the one or more encoded control bits in the serial data frames.

119. (New) The system as recited in claim 107, wherein:

the ASIC is operable to initiate transmission of the second serial data over the serial link in response to changes to information stored in the second FIFO register so that information stored in a third FIFO register included in a second ASIC coupled to the serial link through a second connector matches the information stored in the second FIFO register.

120. (New) The system as recited in claim 119, wherein:

the second ASIC is included in a computer system; and

the first ASIC and the second ASIC are operable to cause the information stored in the third FIFO register to match the information stored in the second FIFO register in a manner which is transparent to system software operating on the computer system.

121. (New) The system as recited in claim 107, wherein:

the system includes a hard disk drive.

122. (New) The system as recited in claim 107, further comprising:

an interface included in the ASIC, coupled to the first FIFO register, and operable to receive the data stored in the first FIFO register;

a bus coupled to the ASIC and configured to receive the data from the interface; and

a processor coupled to the bus.

123. (New) The system as recited in claim 107, wherein:

the ASIC is configured to generate a clock signal, for use by the ASIC, using the first serial data.

124. (New) A method of changing storage in a second FIFO register in response to one or more changes in storage in a first FIFO register, comprising:

storing data bits in the first FIFO register included in a first ASIC included in a computing system;

serializing data bits obtained from the first FIFO register to form serialized data bits using a first serializer included in the first ASIC;

transmitting the serialized data bits over a serial link;

receiving the serialized data bits at a disk drive system;

deserealizing the serialized data bits using a deserializer included in a second ASIC included in the disk drive system; and

storing data bits obtained from the deserializer in the second FIFO register included in the second ASIC, wherein changing of the storage in the second FIFO register is initiated by the first ASIC to result in the second FIFO register information being equivalent to the first FIFO register information and is performed in a manner which is transparent to system software operating on the computing system.

125. (New) The method as recited in claim 124, wherein:

the serialized data bits are included in serialized data frames; and

the data bits are provided to the first ASIC over a parallel bus included in the computing system.

126. (New) The method as recited in claim 125, further comprising:

embedding one or more control bits with the data bits;

storing the one or more control bits embedded with the data bits in the first FIFO register;

using the first serializer, serializing the one or more control bits to form serialized one or more control bits included in the serialized data frames;

receiving the serialized one or more control bits at a disk drive system;

deserealizing the serialized one or more control bits using the deserializer; and

storing the one or more control bits obtained from the deserializer in the second FIFO register.

127. (New) The method as recited in claim 126, wherein:

the one or more control bits correspond to one or more interrupts, error signals, or status signals.

128. (New) The method as recited in claim 127, wherein:

at least two bits are used to represent the one or more interrupts, error signals, or status signals.

129. (New) The method as recited in claim 124, further comprising:

generating one or more control bits using the first ASIC, wherein the one or more control bits are not stored in the first FIFO register; and

using the first ASIC, transmitting the one or more control bits over the serial link between transmissions of the serialized data bits.

130. (New) The method as recited in claim 129, wherein:

the one or more control bits correspond to one or more interrupts, error signals, or status signals.

131. (New) The method as recited in claim 130, wherein:

the one or more control bits are 8 bit to 10 bit encoded.

132. (New) The method as recited in claim 124, wherein:

the serial link includes a twin axial line; and

the transmitting of the serialized data bits is performed over the twin axial line.

133. (New) The method as recited in claim 132, wherein:

the transmitting of the serialized data is performed over the twin axial line using differential signals.

134. (New) The method as recited in claim 124, further comprising:

using the second ASIC, generating a clock signal for use by the second ASIC using the serialized data bits.

135. (New) The method as recited in claim 124, wherein:

the transmitting the serialized data bits is repeatedly performed by the first ASIC without receiving acknowledgement of the transmitting from the second ASIC over the serial link during transmission.

136. (New) The method as recited in claim 124, wherein:

the system software of the computing system does not include a driver for control of the changing.

137. (New) A system, comprising:

a connector configured to be connectable to a serial link, wherein the serial link is to be used to transfer first serial data to the connector and is to be used to transfer second serial data from the connector; and

a module coupled to the connector, wherein the module is configured to generate a clock signal for use by the module using the first serial data, the module comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data; and

a first FIFO register coupled to the circuit and operable to store data that has been deserialized using the first circuit;

a second FIFO register operable to receive data from a parallel bus, the second FIFO register coupled to a second circuit configured to serialize data obtained from the second FIFO register to generate second serial data; and

a transmitter capable of repeated transmissions of the second serial data to the serial link through the connector without receiving acknowledgement of the transmissions over the serial link during transmission.

138. (New) The system as recited in claim 137, wherein:

the module comprises an ASIC.

139. (New) The system as recited in claim 137, wherein:

the serial link comprises a first twin axial line and a second twin axial line.

140. (New) The system as recited in claim 137, wherein:

the system includes a hard disk drive.

141. (New) The system as recited in claim 137, further comprising:

an interface included in the module, coupled to the first FIFO register, and operable to receive data from the first FIFO register;

a bus coupled to the module and configured to receive the data from the interface; and

a processor coupled to the bus.

142. (New) A system, comprising:

a connector configured to be connectable to a serial link, wherein the serial link is capable of transferring first serial data to the connector and transferring second serial data from the connector; and

a module in data communication with the connector, the module comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data;

a first FIFO register in data communication with the first circuit and operable to store data originating from the first circuit;

a second FIFO register operable to receive data via a parallel bus, the second FIFO register in data communication with a second circuit configured to serialize data originating from the second FIFO register to generate second serial data; and

a transmitter operable to transmit the second serial data via the serial link through the connector;

wherein the module is capable of operation to perform the transmission of the second serial data over the serial link without receiving acknowledgement of the transmission over the serial link during the transmission.

143. (New) The system as recited in claim 142, wherein:

the module comprises an ASIC.

144. (New) The system as recited in claim 142, wherein:

the system includes a hard disk drive.

145. (New) The system as recited in claim 142, further comprising:

an interface, included in the module, that is in data communication with the first FIFO register, and operable to receive the data via the first FIFO register;

a parallel bus in data communication with the interface and configured to receive the data from the interface; and

a processor coupled to the parallel bus.

146. (New) The system as recited in claim 142, wherein:

the serial link comprises a first twin axial line and a second twin axial line;

the transmitter is operable to transmit the second serial data to the second twin axial line through the connector as second differential signals; and

the receiver is operable to receive the first serial data from the first twin axial line as first differential signals.

147. (New) The system as recited in claim 142, wherein:

the module is configured to determine whether an amount of the data stored in the first FIFO register equals or exceeds a fill amount associated with a storage capacity of the first FIFO register, the module is operable to generate a flow control signal in response to the amount of the data in the first FIFO register equaling or exceeding the fill amount, and the module is configured to transmit the flow control signal through the connector without passing the flow control signal through the second FIFO register, wherein the flow control signal is to be used to control transmission of the first serial data over the serial link to prevent overflow of the first FIFO register.

148. (New) The system as recited in claim 142, wherein:

the module is configured to generate a clock signal for use by the module using the first serial data.

149. (New) A system, comprising:

a connector configured to be connectable to a serial link; and

an ASIC coupled to the connector, wherein the ASIC is operable to receive first serial data transmitted over the serial link through the connector and transmit second serial data to the serial link through the connector, the ASIC comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to at least (i) deserialize the first serial data to generate deserialized data, and (ii) decode the deserialized data;

a first FIFO (first in first out) unit operable to store data that has been deserialized and decoded by the first circuit;

a second FIFO unit operable to receive data, the second FIFO unit in data communication with a second circuit that is configured to at least serialize data received via the second FIFO unit to generate second serial data; and

a transmitter operable to transmit the second serial data to the serial link through the connector;

wherein the ASIC is configured to (i) determine that an amount of data stored in the first FIFO unit meets a prescribed criterion, (ii) generate a flow control signal in response to the determination, and (iii) cause transmission of the flow control signal via the serial link and the connector without passing the flow control signal through the second FIFO unit.

Electronic Acknowledgement Receipt

EFS ID:	18088879
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Katie Smith
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	31-JAN-2014
Filing Date:	16-OCT-2012
Time Stamp:	20:19:46
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	$2680
RAM confirmation Number	6398
Deposit Account	
Authorized User	

File Listing:

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

1		MOBI-0004P1C2C1C1C_PRELIM_AMDT_01-31-2014.pdf	92951 2565903c591632a82e3c10b5cee7a40b8a593700	yes	14

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Preliminary Amendment	1	1
Claims	2	13
Applicant Arguments/Remarks Made in an Amendment	14	14

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32294 7a50f96fcc860e455bc4c91d973f74bdc3f1c763	no	2

Warnings:

Information:

Total Files Size (in bytes):	125245

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

REMARKS

Herein, Claims 67-106 have been canceled, and Claims 1-66 remain canceled. As such, Claims 1-106 are canceled. New Claims 107-149 have been added. No new matter has been introduced. Accordingly, after this second Preliminary Amendment, Claims 107-149 remain pending in this patent application, and Applicant requests consideration of these claims.

It is respectfully submitted that Claims 107-149 are in a condition for allowance. The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present patent application.

Please charge any additional fees or apply any additional credits to our USPTO deposit account number: 50-4160.

Respectfully submitted,
MURABITO, HAO & BARNES LLP

Dated: January 31, 2014

/Lin C. Hsu/
Lin C. Hsu
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Third Floor
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Electronic Patent Application Fee Transmittal

Application Number:	13652823
Filing Date:	16-Oct-2012
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Filer:	Lin C. Hsu/Katie Smith
Attorney Docket Number:	MOBI-0004P1C2C1C1C

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:				
Claims in Excess of 20	1202	23	80	1840
Independent claims in excess of 3	1201	2	420	840
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**2680**

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/652,823	Filing Date 10/16/2012	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	01/31/2014	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 43	Minus	** 20	= 23	X $80 =	1840
	Independent (37 CFR 1.16(h))	* 5	Minus	***3	= 2	X $420 =	840
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**2680**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/DIANE JOHNSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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PTO/AIA/14 (08-12)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Frank	W.	Ahern	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Scottsdale	State/Province	AZ	Country of Residence	US

Mailing Address of Inventor:

Address 1	6233 East Janiceway		
Address 2			
City	Scottsdale	State/Province	AZ
Postal Code	85254	Country	US

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Desi		Rhoden	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Phoenix	State/Province	AZ	Country of Residence	US

Mailing Address of Inventor:

Address 1	3412 East Suncrest Court		
Address 2			
City	Phoenix	State/Province	AZ
Postal Code	85044	Country	US

Inventor 3 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jeff		Doss	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

City	Phoenix	State/Province	AZ	Country of Residence	US

Mailing Address of Inventor:

Address 1	18652 North 39th Street		
Address 2			
City	Phoenix	State/Province	AZ
Postal Code	85050	Country	US

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Charles		Mollo	

Residence Information (Select One) (•) US Residency ( ) Non US Residency ( ) Active US Military Service

City	Phoenix	State/Province	AZ	Country of Residence	US

Mailing Address of Inventor:

Address 1	13602 N. 44th St. #181		
Address 2			
City	Phoenix	State/Province	AZ
Postal Code	85032	Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	45590		
Email Address	officeaction@mhbpatents.com	Add Email	Remove Email

Application Information:

Title of the Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY		
Attorney Docket Number	MOBI-0004P1C2C1C1C	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	2	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	**Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	45590		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	13240773	2011-09-22

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
13240773	Continuation of	12644511	2009-12-22	8060675	2011-11-15

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
12644511	Continuation of	11300131	2005-12-13	7657678	2010-02-02

Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
11300131	Continuation of	09559678	2000-04-27	7734852	2010-06-08

Prior Application Status	Expired	Remove

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
09559678	non provisional of	60198317	2000-04-19
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
09559678	Continuation in part of	09130057	1998-08-06	6088752	2000-07-11
Prior Application Status	Patented			Remove	

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
09559678	Continuation in part of	09130058	1998-08-06	6070214	2000-05-30

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove

Application Number	Country	Filing Date (YYYY-MM-DD)	Priority Claimed
			○ Yes ◉ No

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Authorization to Permit Access:

☒ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

◉ Assignee	○ Legal Representative under 35 U.S.C. 117
○ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Assignee is an Organization check here. ☒

Organization Name	Intellectual Venture Funding LLC

Mailing Address Information:

Address 1	502 E. John Street		
Address 2			
City	Carson City	**State/Province**	CA
Country	US	Postal Code	89706
Phone Number		Fax Number	
Email Address			

Additional Applicant Data may be generated within this form by selecting the Add button.

Signature:

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

Signature	/Jose S. Garcia/			Date (YYYY-MM-DD)	2014-05-01
First Name	Jose	Last Name	Garcia	Registration Number	43628

Additional Signature may be generated within this form by selecting the Add button.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	MOBI-0004P1C2C1C1C
	Application Number	
Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

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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:	18922106
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Jose S. Garcia/Katie Smith
Filer Authorized By:	Jose S. Garcia
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	01-MAY-2014
Filing Date:	16-OCT-2012
Time Stamp:	18:52:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition for review by the Office of Petitions.	MOBI-0004P1C2C1C1C_Petition_to_Change_Applicant_05-01-2014.pdf	69427 c60132b0b275e443a043d15975d635df7d28d603	no	2

Warnings:	
Information:	

2	Assignee showing of ownership per 37 CFR 3.73.	MOBI-0004P1C2C1C1C_373C_Statement_signed_05-01-2014.pdf	108263 23db62786412d0fa837925de95bed7f9cc4b27c4	no	2

Warnings:

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

Information:

3	Application Data Sheet	MOBI-0004P1C2C1C1C_Corrected_AppDataSheet_with_Underlines_05-01-2014.pdf	56114 2eea720f6f361490c3d2c22ffd10566e6f019b6f	no	7

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Information:

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Total Files Size (in bytes):	233804

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

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STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Intellectual Venture Funding LLC

Application No./Patent No.: 13/652,823 Filed/Issue Date: 10/16/2012

Titled: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Intellectual Venture Funding LLC, a limited liability company

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

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

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

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

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

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

1. From: Inventors To: MOBILITY ELECTRONICS, INC.

   The document was recorded in the United States Patent and Trademark Office at

   Reel 010974, Frame 0126, or for which a copy thereof is attached.

2. From: MOBILITY ELECTRONICS, INC. To: TAO LOGIC SYSTEMS LLC

   The document was recorded in the United States Patent and Trademark Office at

   Reel 016674, Frame 0720, or for which a copy thereof is attached.

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

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

PTO/AIA/96 (08-12)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: TAO LOGIC SYSTEMS LLC To: Intellectual Venture Funding LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 031369, Frame 0442, or for which a copy thereof is attached.

4. From: _____ To: _____

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

5. From: _____ To: _____

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

6. From: _____ To: _____

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

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

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

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

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

Jose S. Garcia — Signature
5/01/2014 — Date
Jose S. Garcia — Printed or Typed Name
Attorney for Intellectual Venture Funding LLC — Title or Registration Number

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.

Application No. : 13/652,823 Group Art Unit: 2111

Filed : October 16, 2012 Examiner: VO, TIM T

Confirmation No.: 2839

For : COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

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

PETITION AND REQUEST TO CHANGE APPLICANT

PURSUANT TO 37 C.F.R. 1.46(c)

PETITION AND REQUEST TO CHANGE APPLICANT IN NONPROVISIONAL APPLICATION
(37 C.F.R. 1.46(c))

1. This Petition and Request is to change the Applicant in the present nonprovisional application.

2. The Applicant is being changed to:

Intellectual Venture Funding LLC
502 E. John Street
Carson City, NV 89706

3. Attachments

Attached are:

(a) Application Data Sheet (ADS) in accordance with 37 C.F.R. 1.76 specifying the Applicant in the Applicant information section. Inserted information is underlined in ADS.

(b) A Statement Under 37 C.F.R. 3.73(c).

4. Deposit Account Authorization

[X] The Commissioner is hereby authorized to charge any fees associated with this communication or credit any overpayment to Deposit Account No.: **50-4160**.

[ ] A check in the amount of ____

[ ] Charge any fees required or credit any overpayments associated with this filing to Deposit Account No.: **50-4160**.

Please direct all correspondence concerning the above-identified application to the following address:

MURABITO HAO & BARNES LLP
Two North Market Street, Third Floor
San Jose, California 95113
(408) 938-9060
Customer Number 45590

Respectfully submitted,

Date: 05/01/2014 By: /Jose S. Garcia/
Jose S. Garcia
Reg. No. 43,628

Electronic Acknowledgement Receipt

EFS ID:	20757835
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Mina Oliveri
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	20-NOV-2014
Filing Date:	16-OCT-2012
Time Stamp:	16:49:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for status of Application	MOBI-0004P1C2C1C1C_Status_Inquiry_11-20-2014.pdf	69453 cb8eed2af90b249f44cdef3ca4765ec83f343a3d	no	1

Warnings:	
Information:	

Total Files Size (in bytes):	69453

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.		Confirmation No.: 2839
Serial No.:	13/652,823	
Filed:	October 16, 2012	
Examiner:	Vo, T.	
Art Unit:	2111	
Attorney Docket No.	MOBI-0004.P1C2C1C1C	
For:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

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

STATUS INQUIRY

Dear Sir:

Applicants request a status of the above referenced application.

Respectfully submitted,
MURABITO, HAO & BARNES LLP

Dated: November 20, 2014

/Lin C. Hsu/
Lin C. Hsu
Registration No. 46,315

Two North Market Street
Third Floor
San Jose, California 95113
(408) 938-9060

Notice of References Cited	Application/Control No. 13/652,823	Applicant(s)/Patent Under Reexamination AHERN ET AL.	
	Examiner KIM HUYNH	Art Unit 2185	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,991,304	11-1999	Abramson, Darren L.	370/413
*	B	US-6,202,108	03-2001	Autechaud et al.	710/61
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	13652823
Filing Date	2012-10-16
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	VO, TIM T
Attorney Docket Number	MOBI-0004P1C2C1C1C

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
/K.H./	1	5848046		1998-12-08	SAWADA	

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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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

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]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13652823
	Filing Date	2012-10-16
	First Named Inventor	Frank W. Ahern
	Art Unit	2111
	Examiner Name	VO, TIM T
	Attorney Docket Number	MOBI-0004P1C2C1C1C

/K.H./	1	HEWLETT PACKARD; GIGABIT ETHERNET TRANSCEIVER CHIP PRELIMINARY TECHNICAL DATA; May 1997; Pages 711-725; www.datasheetcatalog.com	☐

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

EXAMINER SIGNATURE

Examiner Signature	/Kim Huynh/	Date Considered	08/17/2015

*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	13652823
Filing Date	2012-10-16
First Named Inventor	Frank W. Ahern
Art Unit	2111
Examiner Name	VO, TIM T
Attorney Docket Number	MOBI-0004P1C2C1C1C

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	/Lin C. Hsu/	Date (YYYY-MM-DD)	2013-12-16
Name/Print	Lin C. Hsu	Registration Number	46315

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 record s.

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.

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. 2839

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/652,823	10/16/2012 RULE	710	2185	MOBI-0004P1C2C1C1C

APPLICANTS

INVENTORS

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

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

This application is a CON of 13/240,773 09/22/2011 PAT 8291140 *
which is a CON of 12/644,511 12/22/2009 PAT 8060675
which is a CON of 11/300,131 12/13/2005 PAT 7657678
which is a CON of 09/559,678 04/27/2000 PAT 7734852
which claims benefit of 60/198,317 04/19/2000
and is a CIP of 09/130,057 08/06/1998 PAT 6088752
and is a CIP of 09/130,058 08/06/1998 PAT 6070214
(*)Data provided by applicant is not consistent with PTO records.

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

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
11/01/2012

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /KIM T HUYNH/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		AZ	2	20	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		
5960	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

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.
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C	2839

45590 7590 08/19/2015

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
2185	

MAIL DATE	DELIVERY MODE
08/19/2015	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.

Office Action Summary	Application No. 13/652,823	Applicant(s) AHERN ET AL.	
	Examiner KIM HUYNH	Art Unit 2185	AIA (First Inventor to File) Status No

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *10/16/2012*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *47-66* is/are pending in the application.

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

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *47-66* is/are rejected.

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

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

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

Application Papers

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

11)☒ The drawing(s) filed on *10/16/2012* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *12/16/2013*.

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

4) ☐ Other: _____.

DETAILED ACTION

Double Patenting

1. Claims 47-66 of this application conflict with claims 1-11 of U.S. Patent No. 8,291,140. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 47-66 are rejected on the ground of nonstatutory double patenting over claims 1-11 of U.S. Patent No. 8,291,140. Claim 47 of the instant application is

unpatentable under the judicially created doctrine of “anticipatable-type” double patenting with respect to claim 1 of parent U.S. Patent No. 8,291,140.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 47 of the instant application is anticipated by patent claim 1 in that claim 1 of the patent contains all the limitations of claim 47 of the instant application. Claim 47 of the instant application therefore is not patently distinct from the earlier patent claim and as such is unpatentable for anticipatable-type double patenting because claim 47 of the instant application is anticipated by claim 1 of patent ‘140. Claim 1 of the patent ‘140 anticipated all claimed limitations of the claim 47 of the instant application i.e. an interface configured to asynchronously, serially receive serial data from a second module over a second parallel bus to communicate peripherally and send parallel data over first parallel bus without requiring handshaking, see comparison table below. See In re Goodman(CA FC) 29 USPQ2d 2010(12/3/1993)

Claim 1 of the Patent (U.S. Patent No. 8,291,140) as shown in the table below contains every element of claim 47 of the instant application and as such anticipates claim 47 of the Instant Application.

And The limitations of the remaining claims 48-66 are found, with minor variations, in the recitation of parent claims 2-11.

Patent (U.S. Patent No. 8,291,140)	**Instant Application(13/652,823)**
An apparatus comprising:	An apparatus comprising:

A processor; A first parallel bus of a first module; and	a processor; a first parallel bus of a first module; and
interface configured to receive parallel data from the first parallel bus and configured to asynchronously, serially exchange serial data, corresponding to the parallel data, with a second module configured to communicate peripherally over a second parallel bus without requiring handshaking.	an interface configured to asynchronously, serially receive serial data from a second module without requiring handshaking, wherein said second module is configured to communicate peripherally over a second parallel bus, and wherein said interface is configured to send parallel data corresponding to said serial data over said first parallel bus.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim Huynh whose telephone number is (571)272-3635 or via e-mail addressed to [kim.huynh3@uspto.gov]. The examiner can normally be reached on M-F 7.00AM- 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached at (571)272-3642 or via e-mail addressed to [tim.vo@uspto.gov].

The fax phone numbers for the organization where this application or proceeding is assigned are (571)273-8300 for regular communications and After Final communications. Any inquiry of a general nature or relating to the status of this

application or proceeding should be directed to the receptionist whose telephone number is (571)272-2100.

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

/K. T. H./
Examiner, Art Unit 2185

/TIM T VO/

Supervisory Patent Examiner, Art Unit 2185

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

✓	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	08/06/2015								
	1	-								
	2	-								
	3	-								
	4	-								
	5	-								
	6	-								
	7	-								
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	29	-								
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	31	-								
	32	-								
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	34	-								
	35	-								
	36	-								

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

✓	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	08/06/2015								
	37	-								
	38	-								
	39	-								
	40	-								
	41	-								
	42	-								
	43	-								
	44	-								
	45	-								
	46	-								
	47	✓								
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	64	✓								
	65	✓								
	66	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
710	305-306	8/6/2015	kh
710	100	8/6/2015	kh
370	413	8/6/2015	kh

SEARCH NOTES		
Search Notes	Date	Examiner
East-search(uspat; uspgpub; epo; jpo; derwent)	8/6/2015	kh
East-text search	8/6/2015	kh

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

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L6	1	("8291140").PN.	USPAT; USOCR	OR	OFF	2015/08/06 08:34
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	19	(ASIC FPGA chip integrated) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/30 12:16
S6	19	(ASIC FPGA chip integrated) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 07:23
S7	4	@ad<"20000419" and S6	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 07:23
S8	36	(ASIC FPGA chip integrated devices! components! chips!) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 10:17
S9	10	@ad<"20000419" and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 10:25
S10	3623	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S11	41	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26

S12	2186	(ASIC chip integrated devices! components! chips!) with (fifo buffer) and serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S13	11	@ad<"20000419" and S11	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 14:26
S14	2185	(ASIC chip integrated devices! components! chips!) with (fifo buffer) and serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/02 05:44
S15	318	"710"/$.ccls. and S14	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S16	41	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/02 05:44
S17	11	@ad<"20000419" and S16	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S18	11	@ad<"20000419" and S17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S19	59	@ad<"20000419" and S15	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:45
S20	0	"serial link" with (connect?r port) with (buffer fifo) with (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 06:57
S21	40	"serial link" with (connect?r port) with (buffer fifo) and (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 07:01
S22	11	@ad<"20000419" and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 07:01
S23	49	"serial link" with (connect?r port) with (buffer fifo)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 08:58
S24	15	@ad<"20000419" and S23	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59

S25	40	"serial link" with (connect?r port) with (buffer fifo) and (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 08:59
S26	11	@ad<"20000419" and S25	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59
S27	4	S24 not S26	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59
S28	1	("5991304").PN.	USPAT; USOCR	OR	OFF	2015/08/06 05:48

8/6/2015 9:18:30 AM
C:\Users\khuynh3\Documents\EAST\Workspaces\13652823.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.		Confirmation No.: 2839
Serial No.:	13/652,823	
Filed:	October 16, 2012	
Examiner:	Huynh, K.	
Art Unit:	2185	
Attorney Docket No.	MOBI-0004.P1C2C1C1C	
For:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	

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

RESPONSES TO NON-FINAL OFFICE ACTION

Dear Madam:

In response to the Non-Final Office Action mailed August 19, 2015, Applicants respectfully request further examination and reconsideration of the above captioned patent application in view of the remarks set forth below:

Listing of Claims begin on page 2 of this paper.

Remarks begin on page 14 of this paper.

LISTING OF THE CLAIMS

A detailed listing of claims is presented below.

1-106. (Canceled)

107. (Previously Presented) A system, comprising:

a connector configured to be connectable to a serial link; and

an ASIC coupled to the connector, wherein the ASIC is operable to receive first serial data transmitted over the serial link through the connector and transmit second serial data to the serial link through the connector, the ASIC comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data; and

a decoder configured to decode the deserialized data;

a first FIFO register operable to store data that has been deserialized and decoded by the first circuit and the decoder, respectively;

a second FIFO register operable to receive data, the second FIFO register in data communication with a second circuit that is configured to at least serialize data received via the second FIFO register to generate second serial data; and

a transmitter operable to transmit the second serial data to the serial link through the connector;

wherein the ASIC is configured to determine whether an amount of data stored in the first FIFO register equals or exceeds a fill amount associated with a storage capacity of the first FIFO register;

wherein the ASIC is operable to generate a flow control signal in response to the amount of data stored in the first FIFO register equaling or exceeding the

fill amount and the ASIC is configured to transmit the flow control signal through the serial link and the connector without passing the flow control signal through the second FIFO register.

108. (Previously Presented) The system as recited in claim 107, wherein the first serial data and the second serial data transmitted over the serial link is transmitted asynchronously.

109. (Previously Presented) The system as recited in claim 107, wherein the data received by the second FIFO register comprises parallel data.

110. (Previously Presented) The system as recited in claim 107, wherein:

the ASIC is operable to repeatedly transmit the second serial data through the serial link and the connector without receiving acknowledgement during transmission.

111. (Previously Presented) The system as recited in claim 107, wherein:

the serial link comprises a first twin axial line and a second twin axial line.

112. (Previously Presented) The system as recited in claim 107, wherein:

the ASIC is operable to transmit the first serial data over the serial link and to transfer the second serial data over the serial link using differential signals.

113. (Previously Presented) The system as recited in claim 107, wherein:

the flow control signal is to be used to control transmission of the first serial data over the serial link to prevent overflow of the first FIFO register.

114. (Previously Presented) The system as recited in claim 107, wherein:

the ASIC is operable to generate control bits;

the second serial data includes one or more serial data frames; and

the ASIC is operable to transmit the control bits through the serial link between transmissions of the one or more serial data frames, without passing the control bits through the second FIFO register.

115. (Previously Presented) The system as recited in claim 114, wherein:

the control bits correspond to one or more of comma markers, idle markers, or flow control signals; and

the control bits are for use in establishing serial communications over the serial link.

116. (Previously Presented) The system as recited in claim 107, wherein:

the data received by the second FIFO register includes one or more control bits;

the second serial data comprises serialized data frames including serialized control bits; and

the ASIC is operable to transmit the serialized data frames over the serial link.

117. (Previously Presented) The system as recited in claim 107, wherein:

the ASIC is operable to transmit one or more bits corresponding to one or more serialized interrupts, error signals, or status signals over the serial link between transmissions of the second serial data, without passing the one or more bits corresponding to the one or more serialized interrupts, the error signals, or the status signals through the second FIFO register.

118. (Previously Presented) The system as recited in claim 107, wherein:

the ASIC is operable to generate one or more control bits corresponding to one or more of interrupts, error signals or status signals without the control bits passing through the second FIFO register;

the second serial data includes serial data frames; and

the ASIC is operable to form one or more encoded control bits using the one or more control bits and include the one or more encoded control bits in the serial data frames.

119. (Previously Presented) The system as recited in claim 107, wherein:

the ASIC is operable to initiate transmission of the second serial data over the serial link in response to changes to information stored in the second FIFO register so that information stored in a third FIFO register included in a second ASIC coupled to the serial link through a second connector matches the information stored in the second FIFO register.

120. (Previously Presented) The system as recited in claim 119, wherein:

the second ASIC is included in a computer system; and

the first ASIC and the second ASIC are operable to cause the information stored in the third FIFO register to match the information stored in the second FIFO register in a manner which is transparent to system software operating on the computer system.

121. (Previously Presented) The system as recited in claim 107, wherein:

the system includes a hard disk drive.

122. (Previously Presented) The system as recited in claim 107, further comprising:

an interface included in the ASIC, coupled to the first FIFO register, and operable to receive the data stored in the first FIFO register;

a bus coupled to the ASIC and configured to receive the data from the interface; and

a processor coupled to the bus.

123. (Previously Presented) The system as recited in claim 107, wherein:

the ASIC is configured to generate a clock signal, for use by the ASIC, using the first serial data.

124. (Previously Presented) A method of changing storage in a second FIFO register in response to one or more changes in storage in a first FIFO register, comprising:

storing data bits in the first FIFO register included in a first ASIC included in a computing system;

serializing data bits obtained from the first FIFO register to form serialized data bits using a first serializer included in the first ASIC;

transmitting the serialized data bits over a serial link;

receiving the serialized data bits at a disk drive system;

deserealizing the serialized data bits using a deserializer included in a second ASIC included in the disk drive system; and

storing data bits obtained from the deserializer in the second FIFO register included in the second ASIC, wherein changing of the storage in the second FIFO register is initiated by the first ASIC to result in the second FIFO register information being equivalent to the first FIFO register information and is performed in a manner which is transparent to system software operating on the computing system.

125. (Previously Presented) The method as recited in claim 124, wherein:

the serialized data bits are included in serialized data frames; and

the data bits are provided to the first ASIC over a parallel bus included in the computing system.

126. (Previously Presented) The method as recited in claim 125, further comprising:

embedding one or more control bits with the data bits;

storing the one or more control bits embedded with the data bits in the first FIFO register;

using the first serializer, serializing the one or more control bits to form serialized one or more control bits included in the serialized data frames;

receiving the serialized one or more control bits at a disk drive system;

deserealizing the serialized one or more control bits using the deserializer; and

storing the one or more control bits obtained from the deserializer in the second FIFO register.

127. (Previously Presented) The method as recited in claim 126, wherein:

the one or more control bits correspond to one or more interrupts, error signals, or status signals.

128. (Previously Presented) The method as recited in claim 127, wherein:

at least two bits are used to represent the one or more interrupts, error signals, or status signals.

129. (Previously Presented) The method as recited in claim 124, further comprising:

generating one or more control bits using the first ASIC, wherein the one or more control bits are not stored in the first FIFO register; and

using the first ASIC, transmitting the one or more control bits over the serial link between transmissions of the serialized data bits.

130. (Previously Presented) The method as recited in claim 129, wherein:

the one or more control bits correspond to one or more interrupts, error signals, or status signals.

131. (Previously Presented) The method as recited in claim 130, wherein:

the one or more control bits are 8 bit to 10 bit encoded.

132. (Previously Presented) The method as recited in claim 124, wherein:

the serial link includes a twin axial line; and

the transmitting of the serialized data bits is performed over the twin axial line.

133. (Previously Presented) The method as recited in claim 132, wherein:

the transmitting of the serialized data is performed over the twin axial line using differential signals.

134. (Previously Presented) The method as recited in claim 124, further comprising:

using the second ASIC, generating a clock signal for use by the second ASIC using the serialized data bits.

135. (Previously Presented) The method as recited in claim 124, wherein:

the transmitting the serialized data bits is repeatedly performed by the first ASIC without receiving acknowledgement of the transmitting from the second ASIC over the serial link during transmission.

136. (Previously Presented) The method as recited in claim 124, wherein:

the system software of the computing system does not include a driver for control of the changing.

137. (Previously Presented) A system, comprising:

a connector configured to be connectable to a serial link, wherein the serial link is to be used to transfer first serial data to the connector and is to be used to transfer second serial data from the connector; and

a module coupled to the connector, wherein the module is configured to generate a clock signal for use by the module using the first serial data, the module comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data; and

a first FIFO register coupled to the circuit and operable to store data that has been deserialized using the first circuit;

a second FIFO register operable to receive data from a parallel bus, the second FIFO register coupled to a second circuit configured to serialize data obtained from the second FIFO register to generate second serial data; and

a transmitter capable of repeated transmissions of the second serial data to the serial link through the connector without receiving acknowledgement of the transmissions over the serial link during transmission.

138. (Previously Presented) The system as recited in claim 137, wherein:

the module comprises an ASIC.

139. (Previously Presented) The system as recited in claim 137, wherein:

the serial link comprises a first twin axial line and a second twin axial line.

140. (Previously Presented) The system as recited in claim 137, wherein:

the system includes a hard disk drive.

141. (Previously Presented) The system as recited in claim 137, further comprising:

an interface included in the module, coupled to the first FIFO register, and operable to receive data from the first FIFO register;

a bus coupled to the module and configured to receive the data from the interface; and

a processor coupled to the bus.

142. (Previously Presented) A system, comprising:

a connector configured to be connectable to a serial link, wherein the serial link is capable of transferring first serial data to the connector and transferring second serial data from the connector; and

a module in data communication with the connector, the module comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data;

a first FIFO register in data communication with the first circuit and operable to store data originating from the first circuit;

a second FIFO register operable to receive data via a parallel bus, the second FIFO register in data communication with a second circuit configured to serialize data originating from the second FIFO register to generate second serial data; and

a transmitter operable to transmit the second serial data via the serial link through the connector;

wherein the module is capable of operation to perform the transmission of the second serial data over the serial link without receiving acknowledgement of the transmission over the serial link during the transmission.

143. (Previously Presented) The system as recited in claim 142, wherein:
the module comprises an ASIC.

144. (Previously Presented) The system as recited in claim 142, wherein:
the system includes a hard disk drive.

145. (Previously Presented) The system as recited in claim 142, further comprising:

an interface, included in the module, that is in data communication with the first FIFO register, and operable to receive the data via the first FIFO register;

a parallel bus in data communication with the interface and configured to receive the data from the interface; and

a processor coupled to the parallel bus.

146. (Previously Presented) The system as recited in claim 142, wherein:

the serial link comprises a first twin axial line and a second twin axial line;

the transmitter is operable to transmit the second serial data to the second twin axial line through the connector as second differential signals; and

the receiver is operable to receive the first serial data from the first twin axial line as first differential signals.

147. (Previously Presented) The system as recited in claim 142, wherein:

the module is configured to determine whether an amount of the data stored in the first FIFO register equals or exceeds a fill amount associated with a storage capacity of the first FIFO register, the module is operable to generate a flow control signal in response to the amount of the data in the first FIFO register equaling or exceeding the fill amount, and the module is configured to transmit the flow control signal through the connector without passing the flow control signal through the second FIFO register, wherein the flow control signal is to be used to control transmission of the first serial data over the serial link to prevent overflow of the first FIFO register.

148. (Previously Presented) The system as recited in claim 142, wherein:

the module is configured to generate a clock signal for use by the module using the first serial data.

149. (Previously Presented) A system, comprising:

a connector configured to be connectable to a serial link; and

an ASIC coupled to the connector, wherein the ASIC is operable to receive first serial data transmitted over the serial link through the connector and transmit second serial data to the serial link through the connector, the ASIC comprising:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to at least (i) deserialize the first serial data to generate deserialized data, and (ii) decode the deserialized data;

a first FIFO (first in first out) unit operable to store data that has been deserialized and decoded by the first circuit;

a second FIFO unit operable to receive data, the second FIFO unit in data communication with a second circuit that is configured to at least serialize data received via the second FIFO unit to generate second serial data; and

a transmitter operable to transmit the second serial data to the serial link through the connector;

wherein the ASIC is configured to (i) determine that an amount of data stored in the first FIFO unit meets a prescribed criterion, (ii) generate a flow control signal in response to the determination, and (iii) cause transmission of the flow control signal via the serial link and the connector without passing the flow control signal through the second FIFO unit.

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	13652823
Filing Date	2012-10-16
First Named Inventor	Frank W. AHERN
Art Unit	2185
Examiner Name	HUYNH, KIM T.
Attorney Docket Number	MOBI-0004P1C2C1C1C

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	4710922		1987-12-01	SCOTT	
	2	4689740		1987-08-25	MOELANDS, et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13652823
	Filing Date	2012-10-16
	First Named Inventor	Frank W. AHERN
	Art Unit	2185
	Examiner Name	HUYNH, KIM T.
	Attorney Docket Number	MOBI-0004P1C2C1C1C

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]
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[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	13652823
	Filing Date	2012-10-16
	First Named Inventor	Frank W. AHERN
	Art Unit	2185
	Examiner Name	HUYNH, KIM T.
	Attorney Docket Number	MOBI-0004P1C2C1C1C

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	/Lin C. Hsu/	Date (YYYY-MM-DD)	2015-11-19
Name/Print	Lin C. Hsu	Registration Number	46315

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.**

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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.

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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.

Electronic Acknowledgement Receipt

EFS ID:	24139231
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Lin C. Hsu/Arann Capri
Filer Authorized By:	Lin C. Hsu
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	19-NOV-2015
Filing Date:	16-OCT-2012
Time Stamp:	18:28:35
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	$180
RAM confirmation Number	5322
Deposit Account	
Authorized User	

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

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		MOBI-0004P1C2C1C1C_AMDT_11-19-2015.pdf	53438 dba37c22d9298a1c53f8b704ab3729f1e60cc6fc	yes	15

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	13
	Applicant Arguments/Remarks Made in an Amendment	14	15

Warnings:

Information:

2	Information Disclosure Statement (IDS) Form (SB08)	MOBI-0004P1C2C1C1C_IDS_11-19-2015.pdf	611722 78d50be9e21a602f2c4fc62ffabc119828c4ae9c	no	4

Warnings:

Information:

3	Fee Worksheet (SB06)	fee-info.pdf	30856 2e20ce30337cba4c4cbfffafc9393313db0a48f5	no	2

Warnings:

Information:

Total Files Size (in bytes):	696016

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.

REMARKS

Claims remaining in the present application are numbered 107-149. Claims 1-106 remain canceled. The rejections and comments of the Examiner set forth in the Office Action dated August 19, 2015 have been carefully considered by the Applicants. Applicants respectfully request the Examiner to consider and allow the remaining claims.

Double Patenting

Claims 47-66 of this application conflict with Claims 1-11 of U.S. Patent No. 8,291,140. However, Applicants note that Claims 47-66 were canceled in a Preliminary Amendment filed on October 31, 2013, which also introduced Claims 67-106. Additionally, Claims 67-106 were canceled in a Preliminary Amendment filed on April 31, 2014, which also introduced pending Claims 107-149.

Applicants respectfully assert that the double patenting rejection of canceled Claims 47-66 is improper. Since no examination has been made on pending claims in the current Office Action, Applicants herein request examination of pending Claims 107-149.

CONCLUSION

In light of the arguments presented herein, Applicants respectfully request reconsideration of pending claims for allowance thereof.

Based on the arguments presented above, Applicants respectfully assert that pending Claims 107-149 are patentably distinct. Therefore, Applicants respectfully solicit allowance of those claims.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application. Please charge any additional fees that may be required to maintain pendency of the present application, or apply any credits to our PTO deposit account number: 50-4160.

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: November 16, 2015

By: /Lin C. Hsu/

Lin C. Hsu
Reg. No. 46,315
Two North Market Street
Third Floor
San Jose, CA 95113

Electronic Patent Application Fee Transmittal

Application Number:	13652823
Filing Date:	16-Oct-2012
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Filer:	Lin C. Hsu/Arann Capri
Attorney Docket Number:	MOBI-0004P1C2C1C1C

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/652,823	Filing Date 10/16/2012	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **11/19/2015**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 43	Minus	** 43	= 0	X $80 =	0
Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $420 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/CHERYL CLARK/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Notice of References Cited	Application/Control No. 13/652,823	Applicant(s)/Patent Under Reexamination AHERN ET AL.	
	Examiner KIM HUYNH	Art Unit 2185	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-5,613,141 A	03-1997	Szatkowski; Michael J.	G06F13/128	710/2
*	B	US-6,192,422 B1	02-2001	Daines; Bernard Nelson	H04L12/46	709/232
*	C	US-5,832,310 A	11-1998	Morrissey; Douglas E.	G06F13/122	370/392
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	13652823
Filing Date	2012-10-16
First Named Inventor	Frank W. AHERN
Art Unit	2185
Examiner Name	HUYNH, KIM T.
Attorney Docket Number	MOBI-0004P1C2C1C1C

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
/K.H./	1	4710922		1987-12-01	SCOTT	
/K.H./	2	4689740		1987-08-25	MOELANDS, 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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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	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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NON-PATENT LITERATURE DOCUMENTS Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	13652823
	Filing Date	2012-10-16
	First Named Inventor	Frank W. AHERN
	Art Unit	2185
	Examiner Name	HUYNH, KIM T.
	Attorney Docket Number	MOBI-0004P1C2C1C1C

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	/Kim Huynh/	Date Considered	02/10/2016

*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	13652823
Filing Date	2012-10-16
First Named Inventor	Frank W. AHERN
Art Unit	2185
Examiner Name	HUYNH, KIM T.
Attorney Docket Number	MOBI-0004P1C2C1C1C

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	/Lin C. Hsu/	Date (YYYY-MM-DD)	2015-11-19
Name/Print	Lin C. Hsu	Registration Number	46315

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 record s.

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.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C	2839

45590 7590 02/23/2016

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
2185	

MAIL DATE	DELIVERY MODE
02/23/2016	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.

Office Action Summary	Application No. 13/652,823	Applicant(s) AHERN ET AL.	
	Examiner KIM HUYNH	Art Unit 2185	AIA (First Inventor to File) Status No

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

Period for Reply

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

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

Status

1)☒ Responsive to communication(s) filed on *11/19/2015*.

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

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

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

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

Disposition of Claims*

5)☒ Claim(s) *107-149* is/are pending in the application.

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

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *107-149* is/are rejected.

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

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

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

Application Papers

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

11)☒ The drawing(s) filed on *10/16/2012* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

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

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

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

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

Attachment(s)

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

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *11/19/2015*.

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

4) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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

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

2. Claims 107, 109-122, 124-142 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Szakowski et al. (US Patent 5,613,141) in view of Dalnes et al. (US Patent 6,192,422)

As per claim 107, Szakowski discloses a system, comprising:

a connector configured to be connectable to a serial link; (col.2, lines 50-65, i.e., the host adapter is housed in the host system and is connected via a serial link to a housing & as show in fig.1, i.e., adapter 10 included connector is connected via a dedicated serial link 15 to one controller 20 which is in turn connected by four serial links 25-28 to DASDs 30) and

an ASIC (fig.1, i.e., adapter 10) coupled to the connector, wherein the ASIC is operable to receive first serial data (i.e., inbound packet) transmitted over the serial link through the connector and transmit second serial data(i.e., outbound packet) to the serial link through the connector, the ASIC comprising: (col.2, lines 3-14, i.e., adapter includes a plurality of direct memory for transferring data between the host on the dedicated serial link between adapter and controller and the controller controls for transferring data between the adapter and controller buffer or between the device and the controller buffer)

a receiver (fig.5, i.e., SER/DESR 250 to/from adapter 10)operable to receive the first serial data from the serial link through the connector; (Fig.3, inbound link provide packet buffers & col.3, lines 1-26, i.e., the adapter receives packets of read data from the serial links and stores them in system memory by DMA)

a first circuit (fig.5, i.e., SER/DESR 250 to/from adapter 10)configured to deserialize the first serial data to generate deserialized data; and (col.3, lines 53-67, i.e., the controller correct the data in its buffer and restart the transfer to the adapter, the data is encoded, serialized and fed to the head. The read signal from the head is detected, deserialized and decoded)

a decoder (i.e., controller included decoder as it is performing decoding/encoding) configured to decode the deserialized data; (fig.5 & col.3, lines 53-67, i.e., the controller correct the data in its buffer and restart the transfer

to the adapter, the data is encoded, serialized and fed to the head. The read signal from the head is detected, deserialized and decoded)

a first FIFO register (fig.7, i.e., packet buffer A/B) operable to store data that has been deserialized and decoded by the first circuit and the decoder, respectively; (Fig.3, inbound link provide packet buffers & col.3, lines 1-26, i.e., the adapter receives packets of read data from the serial links and stores them in system memory by DMA)

a second FIFO register(fig.7, i.e., packet buffer A/B) operable to receive data, the second FIFO register in data communication with a second circuit that is configured to at least serialize data received via the second FIFO register to generate second serial data; and (fig.5, i.e., link packet buffers 240 and associated packet status registers 242, received and transmitted via SER/DESR 250 to devices DASD)

a transmitter(fig.5, i.e., SER/DESR 250 to/from devices DASD) operable to transmit the second serial data to the serial link through the connector; (fig.5, i.e., link packet buffers 240 and associated packet status registers 242, received and transmitted via SER/DESR 250 to devices DASD)

wherein the ASIC is configured to determine whether an amount of data stored in the first FIFO register; (col.7, lines 12-21, i.e., the outbound packets contains a value which indicates the number of bytes which have been placed in the corresponding packet buffer)

wherein the ASIC is operable to generate a flow control signal in response to the amount of data stored in the first FIFO register and the ASIC is configured to transmit the flow control signal through the serial link and the connector without passing the flow control signal through the second FIFO register. (col.7, line 60-col.8, line18, i.e., packet buffers 240 associated packet status registers 242, the packet buffers are employed to hold incoming and outgoing data. The DMA logic to fill (or empty) buffer B while buffer A is being used by the link and vice versa. Packet buffers in which microcode can build outgoing messages are also implemented. This allows the high performance microprocessor to construct message without having to withdraw one of the A/B packet buffers from servicing DMA transfer hence preventing ongoing data transfer from being adversely affected.)

Szathkowski discloses all the limitations as the above but does not explicitly disclose wherein the ASIC is configured to determine whether an amount of data stored in the first FIFO register equals or exceeds a fill amount associated with a storage capacity of the first FIFO register. However, Dalnes discloses this. (col.4, lines 4-17, i.e., a flow control mechanism comprising level indicators for the input buffers for indicating the amount of data stored in a buffer and a flow control device for monitoring the level indicators to determine if the amount of data in an input buffer crosses a first threshold)

It would have been obvious to an ordinary person skilled in the art at the time of the invention was made to incorporate the teachings of Dalnes with the

teaching of Szathkowski to have control mechanism to determine the level indicators for the buffers for indicating the amount of data stored for comparison the threshold not to exceed would have been obvious because it would enhance the system of Szathkowski to increase more functionality to prevent overloaded data in system.

As per claim 109, Szathkowski discloses wherein the data received by the second FIFO register comprises parallel data. (col.12, lines 1-9, i.e., the command process running in parallel, one for each of the four supported devices)

As per claim 110, Szathkowski discloses wherein: the ASIC is operable to repeatedly transmit the second serial data through the serial link and the connector without receiving acknowledgement during transmission. (col.7, line 60-col.8, line18, i.e., packet buffers 240 associated packet status registers 242, the packet buffers are employed to hold incoming and outgoing data. The DMA logic to fill (or empty) buffer B while buffer A is being used by the link and vice versa. Packet buffers in which microcode can build outgoing messages are also implemented. This allows the high performance microprocessor to construct message without having to withdraw one of the A/B packet buffers from servicing DMA transfer hence preventing ongoing data transfer from being adversely affected.)

As per claim 111, Szathkowski discloses wherein: the serial link comprises a first twin axial line and a second twin axial line. (col.1, lines 41-43, i.e., serial link consisting of a pair of inbound and outbound connections adapted to operate in full duplex mode)

As per claim 112, Szathkowski discloses wherein: the ASIC is operable to transmit the first serial data over the serial link and to transfer the second serial data over the serial link using differential signals. (col.1, lines 41-43, i.e., serial link consisting of a pair of inbound and outbound connections adapted to operate in full duplex mode)

As per claim 113, Szathkowski discloses wherein: the flow control signal is to be used to control transmission of the first serial data over the serial link to prevent overflow of the first FIFO register. (col.7, line 60-col.8, line18, i.e., packet buffers 240 associated packet status registers 242, the packet buffers are employed to hold incoming and outgoing data. The DMA logic to fill (or empty) buffer B while buffer A is being used by the link and vice versa.)

As per claim 114, Szathkowski discloses, wherein:
the ASIC is operable to generate control bits; the second serial data includes one or more serial data frames; and the ASIC is operable to transmit the control bits through the serial link between transmissions of the one or more serial data

frames, without passing the control bits through the second FIFO register. (col.7, line 60-col.8, line18, i.e., packet buffers 240 associated packet status registers 242, the packet buffers are employed to hold incoming and outgoing data. The DMA logic to fill (or empty) buffer B while buffer A is being used by the link and vice versa. Packet buffers in which microcode can build outgoing messages are also implemented. This allows the high performance microprocessor to construct message without having to withdraw one of the A/B packet buffers from servicing DMA transfer hence preventing ongoing data transfer from being adversely affected.)

As per claim 115, Szathkowski discloses wherein: the control bits correspond to one or more of comma markers, idle markers, or flow control signals; and the control bits are for use in establishing serial communications over the serial link. (col.7, line 60-col.8, line18, i.e., packet buffers 240 associated packet status registers 242, the packet buffers are employed to hold incoming and outgoing data. The DMA logic to fill (or empty) buffer B while buffer A is being used by the link and vice versa.)

As per claim 116, Szathkowski discloses, wherein: the data received by the second FIFO register includes one or more control bits; the second serial data comprises serialized data frames including serialized control bits; and the ASIC is operable to transmit the serialized data frames over the serial link. (col.3, lines 53-67, i.e., the controller correct the data in its buffer and restart the transfer to the adapter, the data is

encoded, serialized and fed to the head. The read signal from the head is detected, deserialized and decoded)

As per claim 117, Szathowski discloses wherein: the ASIC is operable to transmit one or more bits corresponding to one or more serialized interrupts, error signals, or status signals over the serial link between transmissions of the second serial data, without passing the one or more bits corresponding to the one or more serialized interrupts, the error signals, or the status signals through the second FIFO register. (col.21, lines 13-30, i.e., the DASD detects the presence of an error in that data, the ECC bytes indicate this to the controller which is alerted, the controller requests retransmission)

As per claim 118, Szathowski discloses wherein: the ASIC is operable to generate one or more control bits corresponding to one or more of interrupts, error signals or status signals without the control bits passing through the second FIFO register; the second serial data includes serial data frames; and the ASIC is operable to form one or more encoded control bits using the one or more control bits and include the one or more encoded control bits in the serial data frames. (fig.5 & col.3, lines 53-67, i.e., the controller correct the data in its buffer and restart the transfer to the adapter, the data is encoded, serialized and fed to the head. The read signal from the head is detected, deserialized and decoded)

As per claim 119, Szathowski discloses wherein: the ASIC is operable to initiate transmission of the second serial data over the serial link in response to changes to information stored in the second FIFO register so that information stored in a third FIFO register included in a second ASIC coupled to the serial link through a second connector matches the information stored in the second FIFO register. (fig.5 & col.3, lines 53-67, i.e., the controller correct the data in its buffer and restart the transfer to the adapter, the data is encoded, serialized and fed to the head. The read signal from the head is detected, deserialized and decoded)

As per claim 120, Szathowski discloses wherein: the second ASIC is included in a computer system;(fig.2, 120) and the first ASIC and the second ASIC are operable to cause the information stored in the third FIFO register to match the information stored in the second FIFO register in a manner which is transparent to system software operating on the computer system. (fig.5 & col.3, lines 53-67, i.e., the controller correct the data in its buffer and restart the transfer to the adapter, the data is encoded, serialized and fed to the head. The read signal from the head is detected, deserialized and decoded)

As per claim 121, Szathowski discloses wherein: the system includes a hard disk drive. (col.13, lines 47, i.e., disk)

As per claim 122, Szathowski discloses the system further comprising:

an interface included in the ASIC, coupled to the first FIFO register, and operable to receive the data stored in the first FIFO register; a bus (fig.2, i.e., i/o bus 115), coupled to the ASIC and configured to receive the data from the interface; and a processor (fig.2, 110) coupled to the bus. (fig.5, i.e., adapter serial interface)

3. Claims 108 and 123 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Szakowski et al. (US Patent 5,613,141) in view of Dalnes et al. (US Patent 6,192,422) and further in view of Morrissey et al. (US Patent 5,832,310)
As per claim 108, the modified system of Szakowski discloses all the limitations as the above but does not explicitly discloses wherein the first serial data and the second serial data transmitted over the serial link is transmitted asynchronously. However, Morrissey discloses this. (col.8, lines 20-26, i.e., data path control and switching facility automatically alternate (asynchronous with different clocks) the transmission of control data and user defined data to form frames for transmission)

It would have been obvious to one having ordinary skills in the art at the time the invention was made to incorporate Morrissey's teaching into the modified system of Szakowski system so as to provide the advantages of flexible for designing and modifying the data patterns with asynchronous mechanism.

As per claim 123, Morrissey discloses wherein: the ASIC is configured to generate a clock signal, for use by the ASIC, using the first serial data. (col.8, lines 20-26, i.e., data path control and switching facility automatically alternate (asynchronous with different

clocks) the transmission of control data and user defined data to form frames for transmission)

4. Claims 124-149 are substantially equivalent to claims 107-123 respectively as discussed above in that the claim 107 is drawn to system comprising whereas claim 124 is drawn to a method. As such, the rejection of claims 107-123 are hereby mapped to claims 124-149 respectively.

Response to Amendment

5. Applicant's amendment filed on 11/19/2015 have been fully considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kim Huynh whose telephone number is (571)272-3635 or via e-mail addressed to [kim.huynh3@uspto.gov]. The examiner can normally be reached on M-F 7.00AM- 4:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached at (571)272-3642 or via e-mail addressed to [tim.vo@uspto.gov].

The fax phone numbers for the organization where this application or proceeding is assigned are (571)273-8300 for regular communications and After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-2100.

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

/K. T. H./
Examiner, Art Unit 2185

/TIM T VO/

Supervisory Patent Examiner, Art Unit 2185

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

✓	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	08/06/2015	02/20/2016							
	1	-	-							
	2	-	-							
	3	-	-							
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CLAIM		DATE								
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	72		-							

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CLAIM		DATE								
Final	Original	08/06/2015	02/20/2016							
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	106		-							
	107		✓							
	108		✓							

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CLAIM		DATE								
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	143		✓							
	144		✓							

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	KIM HUYNH	2185

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

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CLAIM		DATE								
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	146		✓							
	147		✓							
	148		✓							
	149		✓							

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
710	305-306	8/6/2015	kh
710	100	8/6/2015	kh
370	413	8/6/2015	kh

SEARCH NOTES		
Search Notes	Date	Examiner
East-search(uspat; uspgpub; epo; jpo; derwent)	8/6/2015	kh
East-text search	8/6/2015	kh
updated prior search	2/20/2016	kh

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

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	3	"serial link" with (clk clock) with asynch$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/02/20 20:07
L5	0	@ad<"20000419" and 4	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/20 20:08
L6	10	"serial link" with (clk clock) and asynch$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/02/20 20:08
L7	1	"serial link" with (clk clock) and asynch$5 and differential	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/02/20 20:08
L8	0	@ad<"20000419" and 6	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/20 20:09
L9	31	"serial link" and (clk clock) and asynch$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2016/02/20 20:09
L10	6	@ad<"20000419" and 9	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/20 20:09
S1	21203889	@ad<"20010928"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2004/06/08 16:26
S2	0	last-first$.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	19	(ASIC FPGA chip integrated) with	US-PGPUB;	OR	ON	2015/07/30

		(fifo buffer) with (serial near5 (data and link))	USPAT; EPO; JPO; DERWENT			12:16
S6	19	(ASIC FPGA chip integrated) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 07:23
S7	4	@ad<"20000419" and S6	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 07:23
S8	36	(ASIC FPGA chip integrated devices! components! chips!) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 10:17
S9	10	@ad<"20000419" and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 10:25
S10	3623	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S11	41	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S12	2186	(ASIC chip integrated devices! components! chips!) with (fifo buffer) and serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S13	11	@ad<"20000419" and S11	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 14:26
S14	2185	(ASIC chip integrated devices! components! chips!) with (fifo buffer) and serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/02 05:44
S15	318	"710"/$.ccls. and S14	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S16	41	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/02 05:44
S17	11	@ad<"20000419" and S16	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S18	11	@ad<"20000419" and S17	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2015/08/02 05:44

			DERWENT; IBM_TDB			
S19	59	@ad<"20000419" and S15	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:45
S20	0	"serial link" with (connect?r port) with (buffer fifo) with (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 06:57
S21	40	"serial link" with (connect?r port) with (buffer fifo) and (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 07:01
S22	11	@ad<"20000419" and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 07:01
S23	49	"serial link" with (connect?r port) with (buffer fifo)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 08:58
S24	15	@ad<"20000419" and S23	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59
S25	40	"serial link" with (connect?r port) with (buffer fifo) and (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 08:59
S26	11	@ad<"20000419" and S25	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59
S27	4	S24 not S26	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59
S28	1	("5991304").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/02/13 03:20
S29	14	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links! and (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2016/02/13 03:29
S30	1	@ad<"20000419" and S29	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:29
S31	442	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface)	US-PGPUB; USPAT; EPO; JPO; DERWENT;	OR	ON	2016/02/13 03:31

			IBM_TDB			
S32	1	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface) with (FIFO buffer queue registers) with (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:32
S33	37	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface) and (FIFO buffer queue registers) with (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:33
S34	14	@ad<"20000419" and S33	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:33
S35	95	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface) and (FIFO buffer queue registers) and (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:45
S36	19	"710"/$.ccls. and S35	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:45
S37	5	@ad<"20000419" and S36	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:45
S38	14	@ad<"20000419" and S34	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:47
S39	21	@ad<"20000419" and S35	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:48
S40	0	("20070088885").PN.	USPAT; USOCR	OR	OFF	2016/02/13 09:14
S41	1	("20070088885").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/02/13 09:14
S42	0	("20100180062").PN.	USPAT; USOCR	OR	OFF	2016/02/16 10:18
S43	1	("20100180062").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/02/16 10:18
S44	1	(fifo buffer register) with (exceed$5 equal$5) with stor$5 with "serial link"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/19 04:39
S45	462	(fifo buffer register) with (exceed$5 equal$5) with stor$5 and "serial link"	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2016/02/19 04:39

			DERWENT; IBM_TDB			
S46	41	"710"/$.ccls. and S45	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/19 04:39
S47	13	@ad<"20000419" and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/19 04:40
S48	2532	determin$5 with (amount near5 data) with stor$4 with (threshold exceed equal)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2016/02/20 15:14
S49	549	determin$5 with (amount near5 data) with stor$4 with (threshold exceed equal) with (fifo register buffer)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2016/02/20 15:15
S50	76	"710"/$.ccls. and S49	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/20 15:15
S51	13	@ad<"20000419" and S50	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/20 15:15

2/20/2016 8:47:48 PM
C:\Users\khuynh3\Documents\EAST\Workspaces\13652823.wsp

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.

Serial:	13/652,823	Group Art Unit:	2185
Filed:	10/16/12	Examiner:	Huynh, Kim T.
For:	Computing Module with Serial Data Connectivity		

Honorable Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

AMENDMENT and RESPONSE

Dear Sir:

In response to the Office Action mailed 2/23/2016, please enter the following amendments and remarks for filing in the above captioned patent application.

In the Claims:

1-106. (Canceled)

107. (currently amended) A system, comprising:

a connector configured to be connectable to a serial link; and

an ASIC module coupled to the connector, wherein the ASIC module is operable to receive first serial data transmitted over the serial link through the connector and transmit second serial data to the serial link through the connector, and wherein the ASIC module comprising includes:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to deserialize the first serial data to generate deserialized data; and

a decoder configured to decode the deserialized data;

a first FIFO register buffer operable to store data that has been deserialized and decoded by the first circuit and the decoder, respectively;

a second FIFO register buffer operable to receive data, wherein the second FIFO register buffer is in data communication with a second circuit that is configured to at least serialize data received via the second FIFO register buffer to generate the second serial data; and

a transmitter operable to transmit the second serial data to the serial link through the connector;

wherein the ~~ASIC~~module is configured to determine whether an amount of data stored in the first ~~FIFO register~~buffer equals or exceeds a fill amount associated with a storage capacity of the first ~~FIFO register~~buffer; and

wherein the ~~ASIC~~module is operable to generate a flow control signal in response to the amount of data stored in the first ~~FIFO register~~buffer equaling or exceeding the fill amount, and wherein the ~~ASIC~~module is further configured to transmit the flow control signal through the serial link and the connector without passing the flow control signal through the second ~~FIFO register~~buffer.

108. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the system is configured to transmit the first serial data and the second serial data ~~transmitted~~asynchronously over the serial link ~~is transmitted asynchronously~~.

109. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the data received by the second ~~FIFO register~~buffer comprises parallel data.

110. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the ~~ASIC~~module is further operable to repeatedly transmit the second serial data through the serial link and the connector without receiving acknowledgement during transmission.

111. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the serial link comprises a first twin axial line and a second twin axial line.

112. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the ~~ASIC~~module is further operable to transmit the first serial data over the serial link and to transfer the second serial data over the serial link using differential signals.

113. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the flow control signal is configured to be used to control transmission of the first serial data over the serial link to prevent overflow of the first ~~FIFO register~~buffer.

114. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the ~~ASIC~~module is further operable to generate control bits;

the second serial data ~~includes~~ comprises one or more serial data frames; and

the ~~ASIC~~module is further operable to transmit the control bits through the serial link between transmissions of the one or more serial data frames, without passing the control bits through the second ~~FIFO register~~buffer.

115. (currently amended) The system ~~as recited in~~of claim 114, wherein:

the control bits correspond to one or more ~~of~~ comma markers~~, idle markers, or flow control signals~~; and

the control bits are ~~for use~~configured to be used in establishing serial communications over the serial link.

116. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the data received by the second ~~FIFO register~~buffer ~~includes~~ comprises one or more control bits;

the second serial data comprises serialized data frames including serialized control bits; and

the ~~ASIC~~module is further operable to transmit the serialized data frames over the serial link.

117. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the ~~ASIC~~module is further operable to transmit one or more bits corresponding to one or more serialized interrupts, error signals, or status signals over the serial link between transmissions of the second serial data, without passing the one or more bits corresponding to the one or more serialized interrupts, the error signals, or the status signals through the second ~~FIFO register~~buffer.

118. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the ~~ASIC~~module is further operable to generate one or more control bits corresponding to one or more ~~of~~ interrupts, ~~error signals or status signals~~ without the control bits passing through the second ~~FIFO register~~buffer;

the second serial data ~~includes~~ comprises serial data frames; and

the ~~ASIC~~module is further operable to form one or more encoded control bits using the one or more control bits and include the one or more encoded control bits in the serial data frames.

119. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the ~~ASIC~~module is further operable to initiate transmission of the second serial data over the serial link in response to changes to information stored in the second ~~FIFO register~~buffer so that information stored in a third ~~FIFO register~~buffer included in ~~a second~~another ~~ASIC~~module coupled to the serial link through ~~a second~~another connector matches the information stored in the second ~~FIFO register~~buffer.

120. (currently amended) The system ~~as recited in~~of claim 119, wherein:

the ~~second~~ other ~~ASIC~~module is included in a computer system; and

the ~~first ASIC~~module and the ~~second~~other ~~ASIC~~module are operable to cause the information stored in the third ~~FIFO register~~buffer to match the information stored in the second ~~FIFO register~~buffer in a manner which is transparent to system software operating on the computer system.

121. (previously presented) The system ~~as recited in~~of claim 107, wherein:

the system ~~includes~~ comprises a hard disk drive.

122. (currently amended) The system ~~as recited in~~of claim 107, further comprising:

an interface included in the ~~ASIC~~module, coupled to the first ~~FIFO register~~buffer, and operable to receive the data stored in the first ~~FIFO register~~buffer;

a bus coupled to the ~~ASIC~~module and configured to receive the data from the interface; and

a processor coupled to the bus.

123. (currently amended) The system ~~as recited in~~of claim 107, wherein:

the ~~ASIC~~module is further configured to generate a clock signal, for use by the ~~ASIC~~module, using the first serial data.

124. (currently amended) A method of changing storage in a second ~~FIFO register~~buffer in response to one or more changes in storage in a first ~~FIFO register~~buffer, the method comprising:

storing data bits in the first ~~FIFO register~~buffer ~~included in~~from a first ~~ASIC~~module included in a computing system;

serializing data bits obtained from the first ~~FIFO register~~buffer to form serialized data bits using a first serializer included in the first ~~ASIC~~module;

transmitting the serialized data bits over a serial link;

receiving the serialized data bits at a disk drive system;

~~descrealizing~~ deserializing the serialized data bits using a deserializer included in a second ~~ASIC~~module included in the disk drive system; and

storing data bits obtained from the deserializer in the second ~~FIFO registerbuffer~~ included in the second ~~ASIC~~module, wherein changing of the storage in the second ~~FIFO registerbuffer~~ is initiated by the first ~~ASIC~~module to result in the second ~~FIFO registerbuffer~~ information being equivalent to the first ~~FIFO registerbuffer~~ information and is performed in a manner which is transparent to system software operating on the computing system.

125. (currently amended) The method ~~as recited in~~of claim 124, wherein:

the serialized data bits are included in serialized data frames; and

the data bits are provided to the first ~~ASIC~~module over a parallel bus included in the computing system.

126. (currently amended) The method ~~as recited in~~of claim 125, further comprising:

embedding one or more control bits with the data bits;

storing the one or more control bits embedded with the data bits in the first ~~FIFO registerbuffer~~;

using the first serializer, serializing the one or more control bits to form serialized one or more control bits included in the serialized data frames;

receiving the serialized one or more control bits at a disk drive system;

~~deserealizing~~ deserializing the serialized one or more control bits using the deserializer; and

storing the one or more control bits obtained from the deserializer in the second ~~FIFO registerbuffer~~.

127. (currently amended) The method ~~as recited in~~of claim 126, wherein:

the one or more control bits correspond to one or more interrupts~~, error signals, or status signals~~.

128. (currently amended) The method ~~as recited in~~of claim 127, wherein:

at least two bits are used to represent the one or more interrupts~~, error signals, or status signals~~.

129. (currently amended) The method ~~as recited in~~of claim 124, further comprising:

generating one or more control bits using the first ~~ASIC~~module, wherein the one or more control bits are not stored in the first ~~FIFO register~~buffer; and

using the first ~~ASIC~~module, transmitting the one or more control bits over the serial link between transmissions of the serialized data bits.

130. (currently amended) The method ~~as recited in~~of claim 129, wherein:

the one or more control bits correspond to one or more interrupts~~,~~ or error signals~~, or status signals~~.

131. (currently amended) The method ~~as recited in~~of claim 130, wherein:

the one or more control bits are ~~8~~-8-bit to ~~10~~-10-bit encoded.

132. (currently amended) The method ~~as recited in~~of claim 124, wherein:

the serial link ~~includes~~ comprises a twin axial line; and

~~the~~ said transmitting ~~of~~ the serialized data bits is performed over the twin axial line.

133. (currently amended) The method ~~as recited in~~ of claim 132, wherein:

~~the~~ said transmitting ~~of~~ the serialized data bits is performed over the twin axial line using differential signals.

134. (currently amended) The method ~~as recited in~~ of claim 124, further comprising:

using the second ~~ASIC~~module, generating a clock signal, for use by the second ~~ASIC~~module, using the serialized data bits.

135. (currently amended) The method ~~as recited in~~ of claim 124, wherein:

~~the~~ said transmitting the serialized data bits is repeatedly performed by the first ~~ASIC~~module without receiving acknowledgement of ~~the~~ said transmitting from the second ~~ASIC~~module over the serial link during transmission.

136. (currently amended) The method ~~as recited in~~ of claim 124, wherein:

the system software of the computing system does not include a driver for control of ~~the~~ said changing.

137 – 148 (Canceled)

149. (currently amended) A system, comprising:

a connector configured to be connectable to a serial link; and

a ASIC module coupled to the connector, wherein the ASIC module is operable to receive first serial data transmitted over the serial link through the connector and transmit second serial data to the serial link through the connector, and wherein the ASIC module ~~comprising~~includes:

a receiver operable to receive the first serial data from the serial link through the connector;

a first circuit configured to ~~at least (i)~~ deserialize the first serial data to generate deserialized data, and ~~(ii)~~ decode the deserialized data;

a first FIFO buffer ~~(first in first out) unit~~ operable to store data that has been deserialized and decoded by the first circuit;

a second FIFO buffer ~~unit~~ operable to receive data, wherein the second FIFO buffer is ~~unit~~ in data communication with a second circuit that is configured to ~~at least~~ serialize data received via the second FIFO ~~unit~~buffer to generate second serial data; and

a transmitter operable to transmit the second serial data to the serial link through the connector;

wherein the ASIC module is configured to:

~~(i)~~ determine that an amount of data stored in the first FIFO ~~unit~~buffer meets a prescribed criterion~~,~~;

~~(ii)~~ generate a flow control signal in response to the determination~~,~~; and

~~(iii)~~ cause transmission of the flow control signal via the serial link and the connector without passing the flow control signal through the second ~~FIFO unit~~buffer.

150. (New) A system, comprising:

a module configured to generate a clock signal, for use by the module, using first serial data, wherein the module includes:

a receiver operable to receive the first serial data from a serial link;

a first circuit configured to deserialize the first serial data to generate deserialized data;

a first buffer coupled to the first circuit and operable to store data that has been deserialized using the first circuit;

a second buffer operable to receive data from a bus, wherein the second buffer is coupled to a second circuit configured to serialize data obtained from the second buffer to generate second serial data; and

a transmitter configured to transmit the second serial data to the serial link;

wherein the module is configured to request retransmission of the first serial data in response to the module detecting a transmission error in the first serial data.

151. (New) The system of claim 150, wherein:

the module comprises an ASIC.

152. (New) The system of claim 150, wherein the module is configured to:

determine that an amount of data stored in the first buffer meets a prescribed criterion;

generate a flow control signal in response to the determination; and

cause transmission of the flow control signal via the serial link and the connector without passing the flow control signal through the second buffer.

153. (New) The system of claim 152, further comprising:

an interface included in the module, coupled to the first buffer, and operable to receive data from the first buffer;

a bus coupled to the module and configured to receive the data from the interface; and

a processor coupled to the bus.

154. (New) The system of claim 153, wherein:

the serial link comprises a first twin axial line and a second twin axial line.

155. (New) The system of claim 153, wherein:

the system comprises a hard disk drive.

156. (New) A system, comprising:

a module including:

a receiver operable to receive first serial data from a serial link;

a first circuit configured to deserialize the first serial data to generate deserialized data;

a first buffer in data communication with the first circuit and operable to store data originating from the first circuit;

a second buffer operable to receive data via a bus, wherein the second buffer is in data communication with a second circuit configured to serialize data originating from the second buffer to generate second serial data; and

a transmitter operable to transmit the second serial data via the serial link;

wherein the module is configured to request retransmission of the first serial data in response to the module detecting a transmission error in the first serial data; and

wherein the module is further configured to detect whether an amount of stored data exceeds an acceptable threshold and, if the amount of data exceeds the acceptable threshold, cause the transmitter to send a flow control signal through the serial link without passing the flow control signal through the second buffer.

157. (New) The system of claim 156, wherein:

the module comprises an ASIC.

158. (New) The system of claim 156, wherein:

the system comprises a hard disk drive.

159. (New) The system of claim 156, further comprising:

an interface, included in the module, in data communication with the first buffer and operable to receive the data via the first buffer;

a bus in data communication with the interface and configured to receive the data from the interface; and

a processor coupled to the bus.

160. (New) The system of claim 156, wherein:

the serial link comprises a first twin axial line and a second twin axial line;

the receiver is operable to receive the first serial data from the first twin axial line as first differential signals; and

the transmitter is operable to transmit the second serial data to the second twin axial line through the connector as second differential signals .

161. (New) The system of claim 156, wherein:

the flow control signal is configured to be used to control transmission of the first serial data over the serial link to prevent overflow of the first buffer.

162. (New) The system of claim 156, wherein:

the module is further configured to generate a clock signal, for use by the module, using the first serial data.

163. (New) The system of claim 149, wherein:

the second buffer comprises a FIFO.

Electronic Acknowledgement Receipt

EFS ID:	26160993
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Anthony C. Murabito/Julie Giaramita
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	23-JUN-2016
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Time Stamp:	20:12:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$200
RAM confirmation Number	062416INTEFSW20143000
Deposit Account	null
Authorized User	Julie Giaramita

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

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		MOBI-0004P1C2C1C1C_AMDT_6-23-16.pdf	171362 533b3adc155f723c735369207b110b368f8243d5	yes	45

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	16
	Applicant Arguments/Remarks Made in an Amendment	17	45

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	31165 363739fa204fe4723d829db9db18fbb35a653841	no	2

Warnings:

Information:

Total Files Size (in bytes):	202527

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New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

REMARKS

Claims 107-136 and 149-163 are pending in the present application. Claims 1-106 were previously canceled. Claims 137-148 are canceled herein. Claims 107-136, and 149 are amended. Claims 150-163 are newly added. No new matter is added. Applicants respectfully request reconsideration of the present application in view of the indicated amendments and the following remarks.

Amendments

Support for newly added independent Claim 150 may be found at least in the exemplary embodiments disclosed in FIG. 1 and its accompanying disclosure of U.S. Patent No. 6,070,214, incorporated by reference at paragraph [0001] of the present application as filed, as well as at Col. 6, lines 58 – 63 of U.S. Patent No. 6,070,214, *et seq., inter alia.*

Support for newly added independent Claim 156 may be found at least in the exemplary embodiments disclosed in FIG. 1 and its accompanying disclosure of U.S. Patent No. 6,070,214, incorporated by reference at paragraph [0001] of the present application as filed, as well as at Col. 6, lines 47 – 63 of U.S. Patent No. 6,070,214, *et seq., inter alia.*

35 U.S.C. § 103

Claims 107, 109-122, and 124-142 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Szatkowski et al. (U.S. Patent 5,613,141, "Szatkowski") in view of Daines et al. (U.S. Patent 6,192,422, "Daines"). The instant Claims are patentable over the cited art for at least the following reasons.

The proposed combination of Szatkowski in view of Daines is improper, as Szatkowski and Daines are non-analogous art. Szatkowski is directed to "dedicated, point to point… serial links" (Szatkowski, Abstract, *inter alia*). In contrast, Daines is directed to "a local area network" (Daines, Abstract, *inter alia*). One of ordinary skill in the art would not find the cited art to be analogous due to the numerous and well understood differences between the "dedicated, point to point… serial links" of Szatkowski and the "local area network" of Daines. For example, the "local area network" of Daines requires "arbitration" and "an arbitration mechanism" (Daines, Abstract, *inter alia*), wherein the "dedicated, point to point… serial links" of Szatkowski have no such need. In addition, the "dedicated, point to point… serial links" of Szatkowski do not share a communication media among multiple ports, in contrast to the teachings of Daines, e.g., "bus" 22.

Per MPEP § 2141.01(a), "Patent Office classification of references … are some evidence of 'nonanalogy.'" Szatkowski is classified in 395/800. Daines is classified in 710/29. The marked differences in classification indicate that the USPTO has found that the references are not in analogous fields.

In addition, the differences in structure and function of the cited art "carry far greater weight." *In re Ellis,* 476 F.2d 1370, 1372, 177 U.S.P.Q. 526, 527 (C.C.P.A. 1973). As previously presented, one of ordinary skill in the art would not find the cited art to be analogous due to the numerous and well understood differences in structure and function of the "dedicated, point to point… serial links" of Szatkowski in contrast with the "local area network" of Daines.

As Szatkowski and Daines are non-analogous art, the proposed combination is improper, and the rejection has failed to establish *prima facie* obviousness. All rejections over Szatkowski in view of Daines are overcome. Claims 107-136 and 149-163 are patentable over the cited art.

In addition, the proposed modification of Szatkowski in view of Daines is improper, as there is no motivation to combine the references, as proposed. The rejection proposes modification in view of Daines "to have the control mechanism … to increase more functionality to prevent overloaded data in system" (pages 5-6). Applicants traverse.

Szatkowski teaches a "flow control" mechanism, which prevents buffer overflow. For example:

> The link has a simple protocol. Each node may transmit a packet on its outbound link subject to pacing responses and acknowledgements received from the remote node on its inbound link. (column 4, line 14 *et seq.*)

Thus, Szatkowski teaches a "flow control" mechanism that prevents buffer overflow. Szatkowski's use of an acknowledgement-based protocol may eliminate most or all occurrences of buffer overflow, or "near" overflow. For example, Szatkowski teaches waiting on an acknowledgement from a receiver that the receiver has processed a message and is ready to receive another message before sending a subsequent message. Such a protocol may eliminate most or all occurrences of buffer overflow, or "near" overflow at the receiver.

There is no teaching or suggestion in the art of record that Daines' system, alleged by the rejection to implement flow control, improves the primary art in any manner. In contrast, the flow-control mechanisms of Szatkowski and Daines appear to be similar. For example, Daines teaches:

> If (the amount of data in an input buffer crosses a first threshold level), the flow control mechanism inserts congestion indication data into an output buffer for the port to alert the associated node to cease transmitting data packets to the port. (column 4, line 4 *et seq.*)

Szatkowski teaches a "pacing response" message that appears to serve the same function as Daines' "congestion indication" message, e.g., both are messages from a receiver to a transmitter to suspend transmissions.

As understood by those of ordinary skill in the art, there is no motivation to replace a function with the same function. The rejection proposes to modify the working flow control mechanism of Szatkowski with the flow control mechanism of Daines, which operates according to one of the same principles as Szatkowski, e.g., sending a "pacing response/congestion indication" message from a receiver to a transmitter for the purpose of suspending a transmission.

Further, the acknowledgement-based protocol of Szatkowski may eliminate most or all occurrences of buffer overflow, or "near" overflow, rendering unmodified Szatkowski superior to Daines in terms of flow control. Thus, the proposed modification in view of Daines may actually be detrimental to Szatkowski, e.g., by eliminating the advantageous acknowledgement-based protocol of unmodified Szatkowski.

Per *In re Vaeck*, 947 F.2d 488, 493, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991), "[A] proper analysis under § 103 requires, *inter alia*, consideration of... whether the prior art would have suggested to those of ordinary skill in the art that they should make the claimed composition or device, or carry out the claimed process."

Regardless of the type of disclosure, the prior art must provide some motivation or suggestion to one of ordinary skill in the art to make the claimed invention in order to support a conclusion of obviousness.

As there is no suggestion in the art that the proposed modification provides any benefit to the primary art, Applicants respectfully assert that the rejection relies upon impermissible use of hindsight to forge a combination of references guided only by the disclosure and claims of the present application.

For this additional reason, all rejections over Szatkowski in view of Daines are overcome. Claims 107-136 and 149-163 are patentable over the cited art.

Further with respect to the proposed modification of Szatkowski in view of Daines, the proposed modification must change a principle of operation of the primary art Szatkowski. The proposed modification is not a substitution of "like for like." As previously presented, Szatkowski teaches a "flow control" mechanism, based on acknowledging received packets, which prevents buffer overflow. The rejection proposes changing this functioning principle of operation to a different method allegedly taught by Daines. The proposed change inherently changes this principle of operation of the primary art Szatkowski.

Per *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (C.C.P.A. 1959), "if the proposed modification or combination of the prior art would change the principle of

operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious."

As the proposed modification of Szatkowski in view of Daines changes the principle of operation of the primary reference Szatkowski, the teachings of the references are not sufficient to render the claims *prima facie* obvious.

For this further reason, all rejections over Szatkowski in view of Daines are overcome. Claims 107-136 and 149-163 are patentable over the cited art.

With respect to independent Claim 107, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> wherein the module is operable to generate a flow control signal in response to the amount of data stored in the first buffer equaling or exceeding the fill amount, and wherein the module is further configured to transmit the flow control signal through the serial link and the connector <u>without passing the flow control signal through the second buffer</u>

as recited by Claim 107.

In contrast, Szatkowski Figure 7 shows that <u>all</u> serial data, including control bits or packets, both outbound and inbound, passes through the A/B packet buffers 11. Thus, the taught flow control messages, comprising "pacing responses and

acknowledgements," are taught to pass through the buffer, in direct opposition to the claimed limitations of "without passing the flow control signal through the second buffer," as recited by Claim 107. In this manner, Szatkowski actually teaches away from these instant claimed limitations.

Daines is not alleged to correct these deficiencies of Szatkowski, and it does not. Moreover, Daines teaches that its flow control message, e.g., the taught "congestion indication," is transmitted though the data transmission buffer, e.g., "the flow control mechanism inserts congestion indication data into an output buffer for the port" (column 4, line 9 *et seq.*, emphasis added). Thus Daines also teaches away from the instant claimed limitations of "transmit the flow control signal through the serial link and the connector without passing the flow control signal through the second buffer" as recited by Claim 107.

Thus, Szatkowski in view of Daines, alone or in combination, fails to teach or suggest the instant claimed limitations. Moreover, both references teach away from these instant claimed limitations. For this reason, Claim 107 overcomes the rejections of record, and is patentable over the cited art.

In addition with respect to independent Claim 107, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of "a connector configured to be connectable to a serial link" as recited by Claim 107.

Szatkowski is silent as to the recited connector. It is noted that the rejection fails to cite a specific portion of the relied on art alleged to teach or suggest the recited "connector." Daines is not alleged to correct these deficiencies of the primary art, and it does not. For example, Daines fails to teach or suggest "a connector configured to be connectable to a serial link" as recited by Claim 107.

A connector is not inherently a part of a serial link. For example, Szatkowski adapter 10 and controller 20 may be mounted to the same printed wiring board, e.g., without a connector. In addition, it is well known for wires to be directly soldered to a printed wiring board, e.g., without a connector. Accordingly, a connector is not inherently a part of a serial link.

The rejection has failed to establish *prima facie* obviousness, as not all recited elements, e.g., a "connector" as recited, are present in the relied-on art. Further, at least the missing element of a "connector" is not inherent. For this additional reason, Claim 107 overcomes the rejections of record, and is patentable over the cited art.

Claims 108-123 overcome the rejections of record at least by virtue of their dependence from Claim 107, and are patentable over the cited art.

In addition with respect to dependent Claim 110, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of "the module is further

operable to repeatedly transmit the second serial data through the serial link and the connector without receiving acknowledgement during transmission" as recited by Claim 110. In direct opposition to these instant claimed limitations, Szatkowski teaches that data transmission is dependent upon receiving acknowledgements. For example, Szatkowski teaches, "Each node may transmit a packet on its outbound link subject to pacing responses and acknowledgements received from the remote node..." (column 4, line 14 *et seq*., emphasis added).

Accordingly, Szatkowski explicitly teaches away from these instant claimed limitations. For this additional reason, Claim 110 overcomes the rejections of record, and is patentable over the cited art.

In addition with respect to dependent Claim 111, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of "the serial link comprises a first twin axial line and a second twin axial line" as recited by Claim 111. As best understood, the rejection equates, without support, "a pair of inbound and outbound connections adapted to operate in full duplex mode" with the recited first and second twin axial lines, as recited by Claim 111. Applicants traverse.

As is known to those of ordinary skill in the art, the recited twin axial line is a term of art, referring to a very specific type of coupling, and is not suggested by generic "connections," as alleged by the rejection.

During patent examination, the pending claims must be given the broadest reasonable interpretation consistent with the specification. *In re Hyatt,* 211 F.3d 1367, 1372, 54 U.S.P.Q.2d 1664, 1667 (Fed. Cir. 2000, emphasis added). When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning.... *In re Zletz,* 893 F.2d 319, 13 U.S.P.Q.2d 1320 (Fed. Cir. 1989). The rejection's interpretation of the recited term "twin axial line" is not consistent with the specification.

The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright,* 165 F.3d 1353, 1359, 49 U.S.P.Q.2d 1464, 1468 (Fed. Cir. 1999, emphasis added). The rejection's interpretation of the recited term "twin axial line" is not consistent with the interpretation that those skilled in the art would reach.

The Supreme Court states,"'[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. ,,, *KSR Int'l Co.* v. *Teleflex Inc.,* 550 U.S. 398,418 (2007) (quoting *In re Kahn,* 441 F.3d 977, 988 (Fed. Cir. 2006)).

> The claims, of course, do not stand alone. Rather, they are part of "a fully integrated written instrument" consisting principally of a specification that concludes with the claims. For that reason, claims "must be read in view of the specification, of which they are a part."

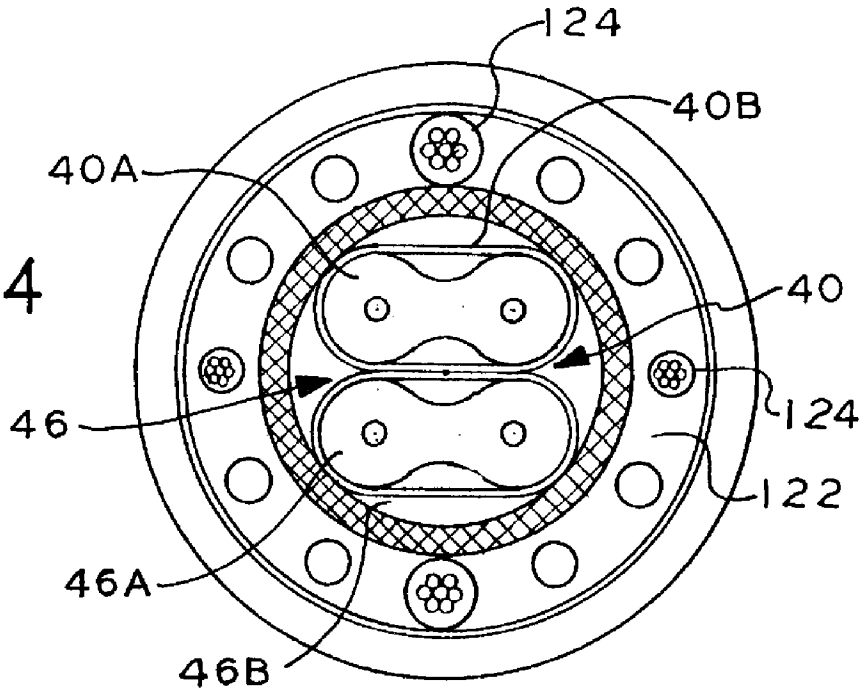
> .... [T]he specification "is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term."

Phillips v. *AWH Corp.,* 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) (citations omitted).

The rejection's interpretation of "twin axial line" to apparently include any type of "coupling," does not take into account the disclosure of the present application. The specification is the single best guide to the meaning of the disputed terms "twin axial line." *See Phillips,* 415 F.3d at 1315.

For example, Figure 4 of U.S. Patent No. 6,070,214, incorporated by reference into the present application, discloses "twin axial lines 40A and 46A" (column 9, line 4). Figure 4 is reproduced for reference, below:

FIG. 4



The cited art is completely silent as to any "twin axial lines," as the term is understood by those of ordinary skill in the art, as used in the present application, and as recited by Claim 111. For this additional reason, Claim 111 overcomes the rejections of record, and is patentable over the cited art.

In addition with respect to dependent Claim 112, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of "the module is further operable to transmit the first serial data over the serial link and to transfer the second serial data over the serial link using differential signals" as recited by Claim 112.

As best understood, the rejection appears to equate "a pair of inbound and outbound connections adapted to operate in full duplex mode" with the recited "differential signals." Applicants traverse.

As is known to those of skill in the art, "differential signals" describes or refers to a system of encoding a signal as a voltage difference between two different conductors. The receiving circuit responds to the electrical difference between the two conductors, rather than an absolute voltage, e.g., Vcc/2. Generally, differential signaling offers greater noise immunity than the alternative. The term "full duplex" is unrelated to the recited "differential signals."

Szatkowski is silent as to the recited "differential signals." Daines is not alleged to correct these deficiencies of the primary art, and it does not.

For this additional reason, Claim 112 overcomes the rejections of record, and is patentable over the cited art.

In addition with respect to dependent Claim 114, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> the module is further operable to transmit the control bits through the serial link between transmissions of the one or more serial data frames, without passing the control bits through the second buffer

as recited by Claim 114.

As previously presented, e.g., with respect to Claim 1, Szatkowski teaches in Figure 7, *inter alia*, that all serial data, including control bits or packets, both outbound and inbound, passes through the A/B packet buffers 11.

Thus, any "control bits" that may be present in Szatkowski are taught to pass through the buffer, in direct opposition to the claimed limitations of "without passing the control bits through the second buffer" as recited by Claim 114. In this manner, Szatkowski actually teaches away from these instant claimed limitations.

For this additional reason, Claim 114 overcomes the rejections of record, and is patentable over the cited art.

In addition with respect to dependent Claim 115, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of "the control bits correspond to one or more comma markers," as recited by amended Claim 115.

As best understood, the rejection equates "packet status registers 242" of Szatkowski as allegedly suggesting these instant claimed limitations. Applicants traverse. Szatkowski is silent as to "comma markers," as the term is understood by those of ordinary skill in the art, and as used in the present application and claims, including art incorporated by reference. Daines is not alleged to correct these

deficiencies of the primary art, and it does not. Accordingly, the rejection fails to establish *prima facie* obviousness, as not all recited elements are present in the relied-upon art.

For this additional reason, Claim 115 overcomes the rejections of record, and is patentable over the cited art.

In addition with respect to dependent Claim 118, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> the module is further operable to generate one or more control bits corresponding to one or more interrupts

as recited by amended Claim 118.

The present rejection does not address these amended claimed limitations; as best understood, the rejection merely alleges a teaching of control bits. Szatkowski and Daines are silent as to control bits that correspond to one or more <u>interrupts</u> encoded into serial data frames, as recited by Claim 118. Accordingly, the rejection fails to establish *prima facie* obviousness, as not all recited elements are present in the relied-upon art.

For this additional reason, Claim 118 overcomes the rejections of record, and is patentable over the cited art.

With respect to independent Claim 124, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> wherein changing of the storage in the second buffer is initiated by the first module to result in the second buffer information being equivalent to the first buffer information

as recited by Claim 124.

As best understood, the rejection appears to allege that the instant claimed limitations are suggested by Szatkowski at Fig. 5 and Col. 3, lines 53 – 67, per the rejection of Claim 119. Applicants traverse. The cited portion of Szatkowski teaches:

> If the DASD detects a data error then the controller requests the DASD to supply the error pattern and displacement. The controller will then correct the data in its buffer and restart the transfer to the adapter.

This passage is unrelated to "equivalent" information in first and second buffers. Rather, this cited passage teaches recovery of read error(s) detected by the DASD device, e.g., via "ECC." The ECC corrects errors in the DASD read chain. However,

the ECC is not configured to correct transmission errors across a serial bus. For example:

> The ECC hardware is contained in the DASD to allow the controller to support a range of DASD that may lave [sic, have] different ECC algorithms (column 3, line49 *et seq.*, emphasis added).

Thus, the taught ECC does not correct transmission errors across the serial bus. The cited passage, and the whole of Szatkowski, fails to teach or suggest "equivalent" information in first and second buffers.

Moreover, Szatkowski teaches that the first buffer information is not equivalent to the second buffer information. For example, Szatkowski teaches that the DASD sends "the error pattern and displacement" to the controller to enable the controller to "correct the data in its (the controller's) buffer" (column 3, line 55, emphasis added). Thus, the DASD's output buffer contains the taught "error pattern and displacement," while the controller's buffer contains a data record, corrected or uncorrected. Szatkowski teaches that the transmit and receive buffers contain different data.

Accordingly, Szatkowski actually teaches away from the recited "equivalent" information in the first and second buffers. Daines is not alleged to correct these deficiencies of the primary art, and it does not.

For this reason, Claim 124 overcomes the rejections of record, and is patentable over the cited art.

In addition with respect to independent Claim 124, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> wherein changing of the storage in the second buffer is initiated by the first module to result in the second buffer information being equivalent to the first buffer information

as recited by Claim 124. As recited by Claim 124, the first buffer is on a transmitting side of a serial link, while the second buffer is on a receiving side of the serial link.

As taught by Szatkowski, "[i]f the DASD detects a data error then the controller requests the DASD to supply the error pattern and displacement" (Column 3, lines 53 – 67, emphasis added). The taught controller is on the receiving side of the serial link. Thus, Szatkowski teaches that the receiving side of the serial link initiates a transfer of error correction information.

If, *arguendo*, such error correction information resulted in the first and second buffers contain equivalent information, then Szatkowski's teaching that the receiving side of the serial link initiates a transfer of error correction information

would be seen to teach away from the claimed limitations of "wherein changing of the storage in the second buffer is initiated by the first module (on the transmitting side)" as recited by Claim 124.

For this additional reason, Claim 124 overcomes the rejections of record, and is patentable over the cited art.

Claims 125-136 overcome the rejections of record at least by virtue of their dependence from Claim 124, and are patentable over the cited art.

With respect to independent Claim 149, Claim 149 overcomes the rejections of record for at least the rationale previously presented with respect to Claim 107. For example, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of "without passing the flow control signal through the second buffer" as recited by Claim 149. As previously presented, Szatkowski teaches in Figure 7, *inter alia*, that all serial data, including control bits or packets, both outbound and inbound, passes through the A/B packet buffers 11.

For these reasons, Claim 149 overcomes the rejections of record, and is patentable over the cited art.

Although not presently rejected, newly presented independent Claim 150 is differentiated over the present cited art. For example, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> wherein the module is configured to request retransmission of the first serial data in response to the module detecting a transmission error in the first serial data

as recited by Claim 150.

As previously presented with respect to Claim 124, Szatkowski teaches that a controller "requests the DASD to supply the error pattern and displacement" (column 3, line 53 *et seq.*) The taught "error pattern and displacement" is not equivalent to the recited "first serial data."

In teaching to transmit the taught "error pattern and displacement," Szatkowski actually teaches away from the claimed limitations of "request retransmission of the first serial data," as recited by Claim 150. For example, Szatkowski does not "request retransmission of the first serial data." Rather, Szatkowski requests different information, e.g., "the error pattern and displacement." Daines is not alleged to correct these deficiencies of the primary art, nor does it.

For this reason, Claim 150 is differentiated over Szatkowski in view of Daines, and is patentable over the cited art.

Claims 150-155 are differentiated over Szatkowski in view of Daines at least by virtue of their dependence from Claim 150, and are patentable over the cited art.

Although not presently rejected, newly presented independent Claim 156 is differentiated over the present cited art. For example, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> wherein the module is configured to request retransmission of the first serial data in response to the module detecting a transmission error in the first serial data

as recited by Claim 156.

As previously presented with respect to Claim 124, Szatkowski teaches that a controller "requests the DASD to supply the error pattern and displacement" (column 3, line 53 *et seq.*) The taught "error pattern and displacement" is <u>not</u> equivalent to the recited "first serial data."

In teaching to transmit the taught "error pattern and displacement," Szatkowski actually <u>teaches away</u> from the claimed limitations of "request

retransmission of the first serial data," as recited by Claim 156. Daines does not correct these deficiencies of the primary art.

For this reason, Claim 156 is differentiated over Szatkowski in view of Daines, and is patentable over the cited art.

In addition with respect to newly presented independent Claim 156, Szatkowski in view of Daines fails to teach or suggest the claimed limitations of:

> send a flow control signal through the serial link without passing the flow control signal through the second buffer

as recited by Claim 156. As previously presented, Szatkowski teaches in Figure 7, *inter alia*, that all serial data, including control bits or packets, both outbound and inbound, passes through the A/B packet buffers 11.

In teaching that all serial data, including control bits or packets, both outbound and inbound, passes through the A/B packet buffers 11, Szatkowski actually teaches away from the claimed limitations of "send a flow control signal through the serial link without passing the flow control signal through the second buffer" as recited by Claim 156. Daines does not correct these deficiencies of the primary art. As previously presented, Daines teaches that its flow control message,

e.g., the taught "congestion indication," is transmitted though the data transmission buffer, and thus also teaches away from these instant claimed limitations.

Thus, Szatkowski in view of Daines, alone or in combination, fails to teach or suggest the instant claimed limitations. Moreover, both references teach away from these instant claimed limitations. For this additional reason, Claim 156 is differentiated over Szatkowski in view of Daines, and is patentable over the cited art.

Claims 157-162 are differentiated over Szatkowski in view of Daines at least by virtue of their dependence from Claim 156, and are patentable over the cited art. Claim 163 is differentiated over Szatkowski in view of Daines at least by virtue of its dependence from Claim 149, and is patentable over the cited art.

Claims 108 and 123 are rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Szatkowski et al. (U.S. Patent 5,613,141, "Szatkowski") in view of Daines and further in view of Morrissey et al. (U.S. Patent 5,832,310, "Morrissey"). The instant Claims are patentable over the cited art for at least the following reasons.

With respect to dependent Claim 108, Szatkowski in view of Daines and further in view of Morrissey fails to teach or suggest the claimed limitations of "the system is configured to transmit the first serial data and the second serial data

asynchronously over the serial link," as recited by Claim 108. The rejection concedes that Szatkowski and Daines fail to teach or suggest these instant claimed limitations. Morrissey is introduced to correct these deficiencies of Szatkowski and Daines. However, it does not.

The rejection appears to have misinterpreted Morrissey. While Morrissey does utilize the term "asynchronously," the mere presence of the term fails to teach or suggest the instant claimed limitations. In Morrissey, the term "asynchronously" is used to compare a time relation among various functions, e.g., "[t]he functions 72-76 all operate asynchronously from the host processor 23, the parallel storage medium 24 and the data buffer 38" (column 5, line 25 *et seq.*, emphasis added).

As cited by the rejection, Morrissey teaches, "[t]his alternating is asynchronous with the activities of microprocessor 52" (column 8, lines 20-26, emphasis added). As used in this cited portion, the term "asynchronous" refers to a time relation of two functions, a first function of alternating between "transmission of control data and user defined data" and a second function consisting of "the activities of microprocessor 52." The rejection's cited portion does not teach or suggest asynchronous serial data transmission.

In contrast, Morrissey teaches synchronous transmission of data across a serial link. For example, Morrissey teaches:

> Multiplexer 110 selects either ordinary character (frame) data 109a, or special character data 109b. ... The special character data 109b include ordered sequences that are transmitted while establishing the link, and idle characters that occur to maintain synchronization in between frames after the link is established. (column 6, line 36 *et seq*., emphasis added).

Thus, Morrissey teaches establishing and maintaining a synchronous serial link.

In addition, Morrissey teaches an error condition known as a "loss-of-synchronization state" (column 22, line 48 *et. seq*.) The teaching of a "loss-of-synchronization state" further emphasizes and confirms that Morrissey teaches synchronous transmission of data across a serial link. For example, there is no "synchronization state" to be lost during asynchronous transmissions.

Thus, Morrissey teaches synchronous transmission of data across a serial link, in direct opposition to the claimed limitations of "asynchronous" transmission over a serial link. In this manner, Morrissey actually teaches away from embodiments in accordance with the present claimed invention that recite asynchronous data transmission over a serial link, for example, as recited by Claim 108.

For this additional reason, Claim 108 overcomes the rejections of record, and is patentable over the cited art.

With respect to dependent Claim 123, Szatkowski in view of Daines and further in view of Morrissey fails to teach or suggest the claimed limitations of "the module is further configured to generate a clock signal, for use by the module, using the first serial data" as recited by Claim 123. The rejection concedes that Szatkowski in view of Daines fail to teach or suggest these instant claimed limitations. Morrissey is introduced to correct these deficiencies of Szatkowski and Daines. However, it does not.

The rejection cites Morrissey column 8, lines 20-26 as allegedly suggesting these instant claimed limitations. Applicants traverse.

The cited portion reads:

> Cycled Burst Mode register 95c is set to operate the data path control 90 in Cycled Burst Mode. In Cycled Burst Mode, the data path control 90 and switching facility 80 automatically alternate the transmission of control data and user defined data to form frames for transmission (This alternating is asynchronous with the activities of microprocessor 52).

This cited passage, as well as the whole of Morrissey, is silent as to "generat(ing) a clock signal, for use by the module, using the first serial data" as recited by Claim 123.

In contrast, Morrissey teaches a "20 Megahertz crystal oscillator clock signal (CLK)" (column 8, line 46 *et seq*.) is supplied to the transmit/receive media interfaces. The taught supplying a clock signal directly teaches away from "generat(ing) a clock signal, for use by the module, using the first serial data" as recited by Claim 123.

For this additional reason, Claim 123 overcomes the rejections of record, and is patentable over the cited art.

CONCLUSION

Claims 107-136 and 149-163 are pending in the present application.

The Examiner is invited to contact Applicants' undersigned representative if the Examiner believes such action would expedite resolution of the present Application.

Please charge any additional fees or apply any credits to our PTO deposit account number: 504160.

Respectfully submitted,

MURABITO, HAO & BARNES LLP

Date: June 23, 2016

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Electronic Patent Application Fee Transmittal

Application Number:	13652823
Filing Date:	16-Oct-2012
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Filer:	Anthony C. Murabito/Julie Giaramita
Attorney Docket Number:	MOBI-0004P1C2C1C1C

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Extension - 1 month with $0 paid	1251	1	200	200
Miscellaneous:				
			Total in USD ($)	**200**

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/652,823	Filing Date 10/16/2012	☒ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	06/23/2016	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 45	Minus	** 43	= 2	X $80 =	160
	Independent (37 CFR 1.16(h))	* 5	Minus	***5	= 0	X $420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	**160**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/ANGELA JOHNSON/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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Notice of References Cited	Application/Control No. 13/652,823	Applicant(s)/Patent Under Reexamination AHERN ET AL.	
	Examiner KIM HUYNH	Art Unit 2185	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
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*	B	US-7,263,564 B2	08-2007	Chen; Yung-Huei	G06F1/3215	710/109
*	C	US-5,862,375 A	01-1999	Gephardt; Douglas D.	G06F12/0684	710/10
*	D	US-6,070,214 A	05-2000	Ahern; Frank	G06F13/4045	710/106
	E	US-				
	F	US-				
	G	US-				
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	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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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. 2839

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/652,823	10/16/2012 RULE	710	2185	MOBI-0004P1C2C1C1C

APPLICANTS

INVENTORS

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

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

This application is a CON of 13/240,773 09/22/2011 PAT 8291140 *
which is a CON of 12/644,511 12/22/2009 PAT 8060675
which is a CON of 11/300,131 12/13/2005 PAT 7657678
which is a CON of 09/559,678 04/27/2000 PAT 7734852
which claims benefit of 60/198,317 04/19/2000
and is a CIP of 09/130,057 08/06/1998 PAT 6088752
and is a CIP of 09/130,058 08/06/1998 PAT 6070214
(*)Data provided by applicant is not consistent with PTO records.

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

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
11/01/2012

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /KIM T HUYNH/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		AZ	2	20	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		
6120	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	**Art Unit**
	KIM HUYNH	2185

✓	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	08/06/2015	02/20/2016	09/30/2016						
	1	-	-							
	2	-	-							
	3	-	-							
	4	-	-							
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	35	-	-							
	36	-	-							

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

CLAIM		DATE								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	08/06/2015	02/20/2016	09/30/2016						
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	102		-							
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	104		-							
	105		-							
	106		-							
1	107		✓	=						
2	108		✓	=						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

✓	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	08/06/2015	02/20/2016	09/30/2016						
3	109		✓	=						
4	110		✓	=						
5	111		✓	=						
6	112		✓	=						
7	113		✓	=						
8	114		✓	=						
9	115		✓	=						
10	116		✓	=						
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17	123		✓	=						
18	124		✓	=						
19	125		✓	=						
20	126		✓	=						
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	137		✓	-						
	138		✓	-						
	139		✓	-						
	140		✓	-						
	141		✓	-						
	142		✓	-						
	143		✓	-						
	144		✓	-						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

✓	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	08/06/2015	02/20/2016	09/30/2016						
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	146		✓	-						
	147		✓	-						
	148		✓	-						
31	149		✓	=						
32	150			=						
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38	156			=						
39	157			=						
40	158			=						
41	159			=						
42	160			=						
43	161			=						
44	162			=						
45	163			=						

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	**Art Unit**
	KIM HUYNH	2185

CPC							
Symbol						**Type**	**Version**
G06F		1	/	1632		F	2013-01-01
G06F		13	/	4013		I	2013-01-01
G06F		13	/	4045		I	2013-01-01
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			/				

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
			/					
			/					

/KIM T. HUYNH/ Examiner.Art Unit 2185	9/30/2016	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	45	
/TIM T VO/ Supervisory Patent Examiner, Art Unit 2185		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	107	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	**Art Unit**
	KIM HUYNH	2185

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
		G	0	6	F	13 / 00 (2006.01.01)						
CROSS REFERENCE(S)												
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)											

/KIM T. HUYNH/ Examiner.Art Unit 2185	9/30/2016	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	45	
/TIM T VO/ Supervisory Patent Examiner, Art Unit 2185		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	107	1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	**Art Unit**
	KIM HUYNH	2185

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

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	107	17	123		139	37	155								
2	108	18	124		140	38	156								
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7	113	23	129		145	43	161								
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11	117	27	133	31	149										
12	118	28	134	32	150										
13	119	29	135	33	151										
14	120	30	136	34	152										
15	121		137	35	153										
16	122		138	36	154										

/KIM T. HUYNH/ Examiner.Art Unit 2185	9/30/2016	**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	45	
/TIM T VO/ Supervisory Patent Examiner, Art Unit 2185		O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	107	1

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NOTICE OF ALLOWANCE AND FEE(S) DUE

45590 7590 10/04/2016

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
2185	

DATE MAILED: 10/04/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C	2839

TITLE OF INVENTION: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	01/04/2017

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

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

HOW TO REPLY TO THIS NOTICE:

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

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

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

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

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

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

45590 7590 10/04/2016
Patent Prosecution Dept.
MURABITO, HAO & BARNES LLP
TWO NORTH MARKET STREET
THIRD 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.

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C	2839

TITLE OF INVENTION: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$960	$0	$0	$960	01/04/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
HUYNH, KIM T	2185	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,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

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

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

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

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

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

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

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

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

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

WD EX 1002
Page 267 of 349

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/652,823	10/16/2012	Frank W. Ahern	MOBI-0004P1C2C1C1C	2839

45590 7590 10/04/2016

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
2185	

DATE MAILED: 10/04/2016

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

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

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

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

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

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

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

Privacy Act Statement

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

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

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

Notice of Allowability	Application No. 13/652,823	Applicant(s) AHERN ET AL.	
	Examiner KIM HUYNH	Art Unit 2185	AIA (First Inventor to File) Status No

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

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

1. ☒ This communication is responsive to *6/23/2016*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *107-136; 149-163*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

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

   * Certified copies not received: _____.

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

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

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

Attachment(s)

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

Kim T. Huynh Examiner Art Unit: 2185	/TIM T VO/ Supervisory Patent Examiner, Art Unit 2185

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13652823	AHERN ET AL.
	Examiner	Art Unit
	KIM HUYNH	2185

CPC- SEARCHED		
Symbol	Date	Examiner
G06F13/14; G06F13/16; G06F13/20; G06F13/36	9/30/2016	kh

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
710	305-306	8/6/2015	kh
710	100	8/6/2015	kh
370	413	8/6/2015	kh

SEARCH NOTES		
Search Notes	Date	Examiner
East-search(uspat; uspgpub; epo; jpo; derwent)	8/6/2015	kh
East-text search	8/6/2015	kh
updated prior search	2/20/2016	kh
updated prior search	9/30/2016	kh

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
710	106; 305	9/30/2016	kh

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	desi-rhoden$.in.	US-PGPUB; USPAT	OR	ON	2016/09/30 17:32
L2	25	rhoden-desi$.in.	US-PGPUB; USPAT	OR	ON	2016/09/30 17:33
L3	0	frank-ahern$.in.	US-PGPUB; USPAT	OR	ON	2016/09/30 17:36
L4	0	frank-ahem$.in.	US-PGPUB; USPAT	OR	ON	2016/09/30 17:37
L5	0	frank-ahern$.in.	US-PGPUB; USPAT	OR	ON	2016/09/30 17:37
L6	29	ahern-frank$.in.	US-PGPUB; USPAT	OR	ON	2016/09/30 17:37
L7	807	module with storage with (capacity size space) with buffer	US-PGPUB; USPAT	OR	ON	2016/09/30 17:52
L8	0	module with storage with (capacity size space) with buffer with "serial link"	US-PGPUB; USPAT	OR	ON	2016/09/30 17:52
L9	10	module with storage with (capacity size space) with buffer and "serial link"	US-PGPUB; USPAT	OR	ON	2016/09/30 17:52
L13	40396	(G06F13/00)".cpc"	US-PGPUB; USPAT	OR	ON	2016/09/30 18:16
L14	1	module with storage with (capacity size space) with buffer and "serial link" and 13	US-PGPUB; USPAT	OR	ON	2016/09/30 18:16
L15	19791	(G06F13/14)".cpc"	US-PGPUB; USPAT	OR	ON	2016/09/30 18:16
L16	18006	(G06F13/16)".cpc"	US-PGPUB; USPAT	OR	ON	2016/09/30 18:16
L17	17484	(G06F13/20)".cpc"	US-PGPUB; USPAT	OR	ON	2016/09/30 18:17
L18	18604	(G06F13/36)".cpc"	US-PGPUB; USPAT	OR	ON	2016/09/30 18:18
L19	0	module with storage with (capacity size space) with buffer and "serial link" and 15	US-PGPUB; USPAT	OR	ON	2016/09/30 18:19
L20	3	module with storage with (capacity size space) with buffer and "serial link" and 16	US-PGPUB; USPAT	OR	ON	2016/09/30 18:19
L21	0	module with storage with (capacity size space) with buffer and "serial link" and 17	US-PGPUB; USPAT	OR	ON	2016/09/30 18:19
L22	0	module with storage with (capacity size space) with buffer and "serial link" and 18	US-PGPUB; USPAT	OR	ON	2016/09/30 18:19
L23	1	module with storage with (capacity	US-PGPUB;	OR	ON	2016/09/30

		size space) with buffer and link and 18	USPAT			18:20
L24	1	module with storage with (capacity size space) with buffer and link and 17	US-PGPUB; USPAT	OR	ON	2016/09/30 18:20
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	19	(ASIC FPGA chip integrated) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/30 12:16
S6	19	(ASIC FPGA chip integrated) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 07:23
S7	4	@ad<"20000419" and S6	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 07:23
S8	36	(ASIC FPGA chip integrated devices! components! chips!) with (fifo buffer) with (serial near5 (data and link))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 10:17
S9	10	@ad<"20000419" and S8	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/07/31 10:25
S10	3623	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S11	41	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S12	2186	(ASIC chip integrated devices! components! chips!) with (fifo buffer) and serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/07/31 14:26
S13	11	@ad<"20000419" and S11	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2015/07/31 14:26

			DERWENT; IBM_TDB			
S14	2185	(ASIC chip integrated devices! components! chips!) with (fifo buffer) and serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/02 05:44
S15	318	"710"/$.ccls. and S14	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S16	41	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links!	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/02 05:44
S17	11	@ad<"20000419" and S16	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S18	11	@ad<"20000419" and S17	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:44
S19	59	@ad<"20000419" and S15	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/02 05:45
S20	0	"serial link" with (connect?r port) with (buffer fifo) with (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 06:57
S21	40	"serial link" with (connect?r port) with (buffer fifo) and (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 07:01
S22	11	@ad<"20000419" and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 07:01
S23	49	"serial link" with (connect?r port) with (buffer fifo)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 08:58
S24	15	@ad<"20000419" and S23	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59
S25	40	"serial link" with (connect?r port) with (buffer fifo) and (threshold size max min exceed)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2015/08/04 08:59
S26	11	@ad<"20000419" and S25	US-PGPUB; USPAT; EPO; JPO;	OR	ON	2015/08/04 08:59

			DERWENT; IBM_TDB			
S27	4	S24 not S26	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2015/08/04 08:59
S28	1	("5991304").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/02/13 03:20
S29	14	(ASIC chip integrated devices! components! chips!) with (fifo buffer) with serial with links! and (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2016/02/13 03:29
S30	1	@ad<"20000419" and S29	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:29
S31	442	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:31
S32	1	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface) with (FIFO buffer queue registers) with (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:32
S33	37	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface) and (FIFO buffer queue registers) with (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:33
S34	14	@ad<"20000419" and S33	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 03:33
S35	95	(connect?r port$4 slot$5) with "serial link" with (ASIC chip component interface) and (FIFO buffer queue registers) and (serializ$5 deserializ$5)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:45
S36	19	"710"/$.ccls. and S35	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:45
S37	5	@ad<"20000419" and S36	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:45
S38	14	@ad<"20000419" and S34	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:47

S39	21	@ad<"20000419" and S35	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/13 04:48
S40	0	("20070088885").PN.	USPAT; USOCR	OR	OFF	2016/02/13 09:14
S41	1	("20070088885").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/02/13 09:14
S42	0	("20100180062").PN.	USPAT; USOCR	OR	OFF	2016/02/16 10:18
S43	1	("20100180062").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2016/02/16 10:18
S44	1	(fifo buffer register) with (exceed$5 equal$5) with stor$5 with "serial link"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/19 04:39
S45	462	(fifo buffer register) with (exceed$5 equal$5) with stor$5 and "serial link"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/19 04:39
S46	41	"710"/$.ccls. and S45	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/19 04:39
S47	13	@ad<"20000419" and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/19 04:40
S48	2532	determin$5 with (amount near5 data) with stor$4 with (threshold exceed equal)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2016/02/20 15:14
S49	549	determin$5 with (amount near5 data) with stor$4 with (threshold exceed equal) with (fifo register buffer)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2016/02/20 15:15
S50	76	"710"/$.ccls. and S49	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/20 15:15
S51	13	@ad<"20000419" and S50	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2016/02/20 15:15
S52	3	("5941965").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2016/09/20 14:05
S53	2	("6070214").PN.	US-PGPUB;	OR	OFF	2016/09/20

			USPAT; USOCR; EPO; JPO; DERWENT			14:06
S54	2	("20100115167").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2016/09/20 17:20
S55	2	(("6070214") or ("6070214")).PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2016/09/30 14:20

9/30/2016 6:47:09 PM
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/652,823	10/16/2012	2185	6120	MOBI-0004P1C2C1C1C	20	3

CONFIRMATION NO. 2839

CORRECTED FILING RECEIPT

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



Date Mailed: 10/11/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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

Applicant(s)

Intellectual Venture Funding LLC, Carson City, CA

Power of Attorney: The patent practitioners associated with Customer Number 45590

Domestic Priority data as claimed by applicant

This application is a CON of 13/240,773 09/22/2011 PAT 8291140 *
which is a CON of 12/644,511 12/22/2009 PAT 8060675
which is a CON of 11/300,131 12/13/2005 PAT 7657678
which is a CON of 09/559,678 04/27/2000 PAT 7734852
which claims benefit of 60/198,317 04/19/2000
and is a CIP of 09/130,057 08/06/1998 PAT 6088752
and is a CIP of 09/130,058 08/06/1998 PAT 6070214
(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/01/2012
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/652,823**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
Title

COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Preliminary Class

710

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

CORRECTED ADS FORM

Application Number	13652823
Title of Invention	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number		
Name		
Residence Information		
Residency		
City		
State		
Country of Residence		
Mailing Address of Inventor		
Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Application Information

	Data of Record	Updated Data
Title of Invention	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	
Attorney Docket Number	MOBI-0004P1C2C1C1C	
Entity Type	Regular Undiscounted	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S. C. 119(e) or 120, and 37 CFR 1.78(a).

		Data of Record	Updated Data
	Prior Application Status		
	Application Number		
	Continuity Type		
	Prior Application Number		
	Filing Date (YYYY-MM-DD)		
	Patent Number		
	Issue Date (YYYY-MM-DD)		

Foreign Priority Information

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

****If no data is shown, no data has been corrected****

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

		Data of Record	Updated Data
	Application Number		
	Country		
	Filing Date		
	Access Code		

Applicant Information

****If no data is shown, no data has been corrected****
Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

	Data of Record	Updated Data
Applicant Type		
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is		
Name of the Deceased or Legally Incapacitated Inventor		
Applicant is an Organization	Yes	
Name		
Organization Name	~~Intellectual Venture Funding LLC~~	INTELLECTUAL VENTURES I LLC
Address 1		2711 CENTERVILLE ROAD
Address 2		SUITE 400

City,State/Province,Postal Code	~~Carson City CA~~	WILMINGTON DE 19808
Country	US	
Phone Number		
Fax Number		
Email Address		

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****
Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		
Organization Name		

Mailing Address

Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Anthony C. Murabito/	Registration Number	35295
First Name	Anthony	Last Name	Murabito

Electronic Acknowledgement Receipt

EFS ID:	27211590
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	
Customer Number:	45590
Filer:	Anthony C. Murabito/Donna Petford
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	13-OCT-2016
Filing Date:	16-OCT-2012
Time Stamp:	20:21:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$140
RAM confirmation Number	101416INTEFSW20212900
Deposit Account	504160
Authorized User	Donna Petford

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet to update/ correct info	CorrectedADS.pdf	65322 66137e64784e43d04bf53703f24268d4e03e3260	no	5
Warnings:					
Information:					
2	Assignee showing of ownership per 37 CFR 3.73	MOBI-0004P1C2C1C1C_373c_Statement_10-13-2016.pdf	762911 69a8a0cc13e7c2547b337d89bf2408032b6358ba	no	2
Warnings:					
Information:					
3	Petition for review by the Office of Petitions	MOBI-0004P1C2C1C1C_Petition_to_Change_Applicant.pdf	89179 24c69a175f2960959be90b6b0dd4f795c64d8595	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30645 69807f0200bb3f6730a6afc1b613cb4c8fd2a995	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	948057		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: INTELLECTUAL VENTURES I LLC

Application No./Patent No.: 13/652,823 Filed/Issue Date: 10/16/2012

Titled: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

INTELLECTUAL VENTURES I LLC, a Limited Liability Company

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

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

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

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

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

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

1. From: Inventors To: MOBILITY ELECTRONICS, INC.

   The document was recorded in the United States Patent and Trademark Office at

   Reel 010974, Frame 0126, or for which a copy thereof is attached.

2. From: MOBILITY ELECTRONICS, INC. To: TAO LOGIC SYSTEMS LLC

   The document was recorded in the United States Patent and Trademark Office at

   Reel 016674, Frame 0720, or for which a copy thereof is attached.

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

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

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: TAO LOGIC SYSTEMS LLC To: INTELLECTUAL VENTURES I LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 031369, Frame 0442, or for which a copy thereof is attached.

4. From: _____ To: _____

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

5. From: _____ To: _____

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

6. From: _____ To: _____

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

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

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

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

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

Signature	10/13/2016 Date
Anthony C. Murabito Printed or Typed Name	Attorney for INTELLECTUAL VENTURES I LLC Title or Registration Number

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.

Application No. : 13/652,823 Group Art Unit: 2111

Filed : October 16, 2012 Examiner: VO, TIM T

Confirmation No.: 2839

For : COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

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

PETITION AND REQUEST TO CHANGE APPLICANT

PURSUANT TO 37 C.F.R. 1.46(c)

PETITION AND REQUEST TO CHANGE APPLICANT IN NONPROVISIONAL APPLICATION
(37 C.F.R. 1.46(c))

1. This Petition and Request is to change the Applicant in the present nonprovisional application.

2. The Applicant is being changed to:

INTELLECTUAL VENTURES I LLC
2711 CENTERVILLE ROAD
SUITE 400
WILMINGTON, DELAWARE 19808

3. Attachments

Attached are:

(a) Application Data Sheet (ADS) in accordance with 37 C.F.R. 1.76 specifying the Applicant in the Applicant information section. Inserted information is underlined in ADS.

(b) A Statement Under 37 C.F.R. 3.73(c).

4. Deposit Account Authorization

[X] The Commissioner is hereby authorized to charge any fees associated with this communication or credit any overpayment to Deposit Account No.: **50-4160**.

[ ] A check in the amount of ____

[ ] Charge any fees required or credit any overpayments associated with this filing to Deposit Account No.: **50-4160**.

Please direct all correspondence concerning the above-identified application to the following address:

MURABITO HAO & BARNES LLP
Two North Market Street, Third Floor
San Jose, California 95113
(408) 938-9060
Customer Number 45590

Respectfully submitted,

Date: 10/13/2016

By: /Anthony C. Murabito/
Anthony C. Murabito
Reg. No. 35,295

Electronic Patent Application Fee Transmittal

Application Number:	13652823
Filing Date:	16-Oct-2012
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	
Filer:	Anthony C. Murabito/Donna Petford
Attorney Docket Number:	MOBI-0004P1C2C1C1C

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
PROCESSING FEE, EXCEPT PROV. APPLS.	1830	1	140	140
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**140**

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 NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/652,823	10/16/2012	2185	6120	MOBI-0004P1C2C1C1C	20	3

CONFIRMATION NO. 2839

CORRECTED FILING RECEIPT

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



Date Mailed: 10/27/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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

Applicant(s)

INTELLECTUAL VENTURES I LLC, Carson City, CA

Power of Attorney: The patent practitioners associated with Customer Number 45590

Domestic Priority data as claimed by applicant

This application is a CON of 13/240,773 09/22/2011 PAT 8291140 *
which is a CON of 12/644,511 12/22/2009 PAT 8060675
which is a CON of 11/300,131 12/13/2005 PAT 7657678
which is a CON of 09/559,678 04/27/2000 PAT 7734852
which claims benefit of 60/198,317 04/19/2000
and is a CIP of 09/130,057 08/06/1998 PAT 6088752
and is a CIP of 09/130,058 08/06/1998 PAT 6070214
(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/01/2012
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/652,823**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
Title

COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Preliminary Class

710

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Electronic Acknowledgement Receipt

EFS ID:	27507310
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Anthony C. Murabito/Julie Giaramita
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	14-NOV-2016
Filing Date:	16-OCT-2012
Time Stamp:	18:35:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	MOBI-0004P1C2C1C1C_SUB_STATEMENT_11-14-16.pdf	2724482 15c6dca0b6b0c0df8b41b2684679d1fc5a8c4863	no	6

Warnings:

Information:	
Total Files Size (in bytes):	2724482

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New Applications Under 35 U.S.C. 111

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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.

Doc code: Oath
Document Description: Oath or declaration filed

PTO/AIA/02 (07-13)
Approved for use through 04/30/2017. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)

Title of Invention	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number 13/652,823 filed on 10-16-2012

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Desi Rhoden

Residence (except for a deceased or legally incapacitated inventor):

City	State	Country
Phoenix	AZ	US

Mailing Address (except for a deceased or legally incapacitated inventor):

3412 East Suncrest Court

City	State	Zip	Country
Phoenix	AZ	85044	US

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

- ☐ Legal Representative (for deceased or legally incapacitated inventor only),
- ☒ Assignee,
- ☐ Person to whom the inventor is under an obligation to assign,
- ☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or
- ☐ Joint Inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

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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.

SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased.
- ☐ Inventor is under legal incapacity.
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

- ☐ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) has not been submitted. Thus, a Substitute Statement Supplemental Sheet (PTO/AIA/11 or equivalent) naming the entire inventive entity and providing inventor information is attached. See 37 CFR 1.64(b).

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: Tracy Lemke — Date (Optional): 10/18/16

Signature: Tracy Lemke

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: INTELLECTUAL VENTURES I LLC

Title of Person Executing This Substitute Statement: Authorized Person for INTELLECTUAL VENTURES I LLC

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City WILMINGTON | State DE | Country US

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2711 CENTERVILLE ROAD, SUITE 400

City WILMINGTON | State DE | Zip 19808 | Country US

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

Doc code: Oath
Document Description: Oath or declaration filed

PTO/AIA/02 (07-13)
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SUBSTITUTE STATEMENT IN LIEU OF AN OATH OR DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (35 U.S.C. 115(d) AND 37 CFR 1.64)

Title of Invention	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number 13/652,823 filed on 10-16-2012

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Charles Mollo

Residence (except for a deceased or legally incapacitated inventor):

City Phoenix | State AZ | Country US

Mailing Address (except for a deceased or legally incapacitated inventor):

13602 N. 44th St. #181

City Phoenix | State AZ | Zip 85032 | Country US

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Relationship to the inventor to whom this substitute statement applies:

☐ Legal Representative (for deceased or legally incapacitated inventor only),

☒ Assignee,

☐ Person to whom the inventor is under an obligation to assign,

☐ Person who otherwise shows a sufficient proprietary interest in the matter (petition under 37 CFR 1.46 is required), or

☐ Joint Inventor.

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SUBSTITUTE STATEMENT

Circumstances permitting execution of this substitute statement:

- ☐ Inventor is deceased.
- ☐ Inventor is under legal incapacity.
- ☒ Inventor cannot be found or reached after diligent effort, or
- ☐ Inventor has refused to execute the oath or declaration under 37 CFR 1.63.

If there are joint inventors, please check the appropriate box below:

- ☒ An application data sheet under 37 CFR 1.76 (PTO/AIA/14 or equivalent) naming the entire inventive entity has been or is currently submitted.

OR

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: Tracy Lemke — Date (Optional): 10/18/16

Signature: Tracy Lemke

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: INTELLECTUAL VENTURES I LLC

Title of Person Executing This Substitute Statement: Authorized Person for INTELLECTUAL VENTURES I LLC

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

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City WILMINGTON | State DE | Country US

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2711 CENTERVILLE ROAD, SUITE 400

City WILMINGTON | State DE | Zip 19808 | Country US

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Doc code: Oath
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Title of invention	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

This statement is directed to:

☐ The attached application,

OR

☒ United States application or PCT international application number 13/652,823 filed on 10-16-2012

LEGAL NAME of inventor to whom this substitute statement applies:

(*E.g.*, Given Name (first and middle (if any)) and Family Name or Surname)

Jeff Doss

Residence (except for a deceased or legally incapacitated inventor):

City Phoenix | State AZ | Country US

Mailing Address (except for a deceased or legally incapacitated inventor):

18652 North 39th Street

City Phoenix | State AZ | Zip 85050 | Country US

I believe the above-named inventor or joint inventor to be the original inventor or an original joint inventor of a claimed invention in the application.

The above-identified application was made or authorized to be made by me.

I hereby acknowledge that any willful false statement made in this statement is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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- ☐ Joint inventor.

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PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

Name: Tracy Lemke — Date (Optional): 10/18/16

Signature: Tracy Lemke

APPLICANT NAME AND TITLE OF PERSON EXECUTING THIS SUBSTITUTE STATEMENT:

If the applicant is a juristic entity, list the applicant name and the title of the signer:

Applicant Name: INTELLECTUAL VENTURES I LLC

Title of Person Executing This Substitute Statement: Authorized Person for INTELLECTUAL VENTURES I LLC

The signer, whose title is supplied above, is authorized to act on behalf of the applicant.

Residence of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent):

City WILMINGTON | State DE | Country US

Mailing Address of the signer (unless provided in an application data sheet, PTO/AIA/14 or equivalent)

2711 CENTERVILLE ROAD, SUITE 400

City WILMINGTON | State DE | Zip 19808 | Country US

Note: Use an additional PTO/AIA/02 form for each inventor who is deceased, legally incapacitated, cannot be found or reached after diligent effort, or has refused to execute the oath or declaration under 37 CFR 1.63.

Attorney Docket No.: MOBI-0004P1C2C1C1C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.

Application Serial No.: 13/652,823 Group Art Unit: 2185

Filed : 10/16/2012 Examiner: HUYNH, KIM T.

Confirmation No.: 2839

For : COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

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

REQUEST FOR CORRECTED FILING RECEIPT

1. This Request is to correct an error in the filing receipt of the present application.

2. The Applicant information in the filing receipt is corrected as follows:

"Carson City, CA" in the filing receipt is replaced by "Wilmington, DE"

3. The Applicant of the present application was changed with documents filed on 10/13/2016 to be:

INTELLECTUAL VENTURES I LLC
2711 CENTERVILLE ROAD, SUITE 400
WILMINGTON, DELAWARE 19808

4. Attachments

Attached are:

(a) Copy of Change of Applicant documents filed 10/13/2016.

(b) Copy of filing receipt with changes noted thereon.

5. Fee Payment

[X] The Commissioner is hereby authorized to charge any fees associated with this communication or credit any overpayment to Deposit Account No.: **50-4160**.

[ ] A check in the amount of ____

[ ] Charge any fees required or credit any overpayments associated with this filing to Deposit Account No.: **50-4160**.

Please direct all correspondence concerning the above-identified application to the following address:

MURABITO HAO & BARNES LLP
Two North Market Street, Third Floor
San Jose, California 95113
(408) 938-9060

Respectfully submitted,

Date: 11/15/2016

By: /Jose S. Garcia/
Jose S. Garcia
Reg. No. 43,628

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 NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/652,823	10/16/2012	2185	6120	MOBI-0004P1C2C1C1C	20	3

CONFIRMATION NO. 2839

CORRECTED FILING RECEIPT

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



Date Mailed: 10/27/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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

Applicant(s)

INTELLECTUAL VENTURES I LLC, ~~Carson City, CA~~ Wilmington, DE

Power of Attorney: The patent practitioners associated with Customer Number 45590

Domestic Priority data as claimed by applicant

This application is a CON of 13/240,773 09/22/2011 PAT 8291140 *
which is a CON of 12/644,511 12/22/2009 PAT 8060675
which is a CON of 11/300,131 12/13/2005 PAT 7657678
which is a CON of 09/559,678 04/27/2000 PAT 7734852
which claims benefit of 60/198,317 04/19/2000
and is a CIP of 09/130,057 08/06/1998 PAT 6088752
and is a CIP of 09/130,058 08/06/1998 PAT 6070214
(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/01/2012
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/652,823**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
Title

COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Preliminary Class

710

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Electronic Acknowledgement Receipt

EFS ID:	27211590
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	
Customer Number:	45590
Filer:	Anthony C. Murabito/Donna Petford
Filer Authorized By:	Anthony C. Murabito
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	13-OCT-2016
Filing Date:	16-OCT-2012
Time Stamp:	20:21:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$140
RAM confirmation Number	101416INTEFSW20212900
Deposit Account	504160
Authorized User	Donna Petford

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet to update/ correct info	CorrectedADS.pdf	65322 66137e64784e43d04bf53703f24268d4e03e3260	no	5
Warnings:					
Information:					
2	Assignee showing of ownership per 37 CFR 3.73	MOBI-0004P1C2C1C1C_373c_Statement_10-13-2016.pdf	762911 69a8a0cc13e7c2547b337d89bf2408032b6358ba	no	2
Warnings:					
Information:					
3	Petition for review by the Office of Petitions	MOBI-0004P1C2C1C1C_Petition_to_Change_Applicant.pdf	89179 24c69a175f2960959be90b6b0dd4f795c64d8595	no	2
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	30645 69807f0200bb3f6730a6afc1b613cb4c8fd2a995	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	948057		

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.

Electronic Patent Application Fee Transmittal

Application Number:	13652823
Filing Date:	16-Oct-2012
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	
Filer:	Anthony C. Murabito/Donna Petford
Attorney Docket Number:	MOBI-0004P1C2C1C1C

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
PROCESSING FEE, EXCEPT PROV. APPLS.	1830	1	140	140
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**140**

Attorney Docket No.: MOBI-0004P1C2C1C1C

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Ahern et al.

Application No. : 13/652,823 Group Art Unit: 2111

Filed : October 16, 2012 Examiner: VO, TIM T

Confirmation No.: 2839

For : COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

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

PETITION AND REQUEST TO CHANGE APPLICANT

PURSUANT TO 37 C.F.R. 1.46(c)

PETITION AND REQUEST TO CHANGE APPLICANT IN NONPROVISIONAL APPLICATION
(37 C.F.R. 1.46(c))

1. This Petition and Request is to change the Applicant in the present nonprovisional application.

2. The Applicant is being changed to:

INTELLECTUAL VENTURES I LLC
2711 CENTERVILLE ROAD
SUITE 400
WILMINGTON, DELAWARE 19808

3. Attachments

Attached are:

(a) Application Data Sheet (ADS) in accordance with 37 C.F.R. 1.76 specifying the Applicant in the Applicant information section. Inserted information is underlined in ADS.

(b) A Statement Under 37 C.F.R. 3.73(c).

4. Deposit Account Authorization

[X] The Commissioner is hereby authorized to charge any fees associated with this communication or credit any overpayment to Deposit Account No.: **50-4160**.

[ ] A check in the amount of ____

[ ] Charge any fees required or credit any overpayments associated with this filing to Deposit Account No.: **50-4160**.

Please direct all correspondence concerning the above-identified application to the following address:

MURABITO HAO & BARNES LLP
Two North Market Street, Third Floor
San Jose, California 95113
(408) 938-9060
Customer Number 45590

Respectfully submitted,

Date: 10/13/2016

By: /Anthony C. Murabito/
Anthony C. Murabito
Reg. No. 35,295

CORRECTED ADS FORM

Application Number	13652823
Title of Invention	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Inventor Information

****If no data is shown, no data has been corrected****

	Data of Record	Updated Data
Order Number		
Name		
Residence Information		
Residency		
City		
State		
Country of Residence		
Mailing Address of Inventor		
Address 1		
Address 2		
City,State/Province, Postal Code		
Country		

Application Information

	Data of Record	Updated Data
Title of Invention	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY	
Attorney Docket Number	MOBI-0004P1C2C1C1C	
Entity Type	Regular Undiscounted	

Domestic Benefit/National Stage Information

****If no data is shown, no data has been corrected****

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121,365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S. C. 119(e) or 120, and 37 CFR 1.78(a).

		Data of Record	Updated Data
	Prior Application Status		
	Application Number		
	Continuity Type		
	Prior Application Number		
	Filing Date (YYYY-MM-DD)		
	Patent Number		
	Issue Date (YYYY-MM-DD)		

Foreign Priority Information

Document Description: Application Data Sheet to update/correct info
Doc Code: ADS.CORR

****If no data is shown, no data has been corrected****

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

		Data of Record	Updated Data
	Application Number		
	Country		
	Filing Date		
	Access Code		

Applicant Information

****If no data is shown, no data has been corrected****
Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

	Data of Record	Updated Data
Applicant Type		
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is		
Name of the Deceased or Legally Incapacitated Inventor		
Applicant is an Organization	Yes	
Name		
Organization Name	~~Intellectual Venture Funding LLC~~	INTELLECTUAL VENTURES I LLC
Address 1		2711 CENTERVILLE ROAD
Address 2		SUITE 400

City,State/Province,Postal Code	~~Carson City CA~~	WILMINGTON DE 19808
Country	US	
Phone Number		
Fax Number		
Email Address		

Assignee Information including Non-Applicant Assignee Information

****If no data is shown, no data has been corrected****
Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office

	Data of Record	Updated Data
Order		
Applicant is an Organization		
Name		
Organization Name		
Mailing Address		
Address 1		
Address 2		
City,State/Province,Postal Code		
Country		
Phone Number		
Fax Number		
Email Address		

Signature

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Anthony C. Murabito/	Registration Number	35295
First Name	Anthony	Last Name	Murabito

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: INTELLECTUAL VENTURES I LLC

Application No./Patent No.: 13/652,823 Filed/Issue Date: 10/16/2012

Titled: COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

INTELLECTUAL VENTURES I LLC, a Limited Liability Company

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

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

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

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

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

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

1. From: Inventors To: MOBILITY ELECTRONICS, INC.

   The document was recorded in the United States Patent and Trademark Office at

   Reel 010974, Frame 0126, or for which a copy thereof is attached.

2. From: MOBILITY ELECTRONICS, INC. To: TAO LOGIC SYSTEMS LLC

   The document was recorded in the United States Patent and Trademark Office at

   Reel 016674, Frame 0720, or for which a copy thereof is attached.

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

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

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: TAO LOGIC SYSTEMS LLC To: INTELLECTUAL VENTURES I LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 031369, Frame 0442, or for which a copy thereof is attached.

4. From: _____ To: _____

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

5. From: _____ To: _____

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

6. From: _____ To: _____

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

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

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

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

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

Signature	10/13/2016 Date
Anthony C. Murabito Printed or Typed Name	Attorney for INTELLECTUAL VENTURES I LLC Title or Registration Number

Electronic Acknowledgement Receipt

EFS ID:	27511700
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Jose S. Garcia
Filer Authorized By:	
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	15-NOV-2016
Filing Date:	16-OCT-2012
Time Stamp:	10:58:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	MOBI-0004P1C2C1C1C_AHERN_OATH.pdf	181649 5c3f116cbe05a5ec04e291aeeee53978ba52279c	no	1

Warnings:

Information:	
Total Files Size (in bytes):	181649

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.

Electronic Acknowledgement Receipt

EFS ID:	27511767
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
Title of Invention:	COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY
First Named Inventor/Applicant Name:	Frank W. Ahern
Customer Number:	45590
Filer:	Jose S. Garcia
Filer Authorized By:	
Attorney Docket Number:	MOBI-0004P1C2C1C1C
Receipt Date:	15-NOV-2016
Filing Date:	16-OCT-2012
Time Stamp:	11:01:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	MOBI-0004P1C2C1C1C_Request_For_Corrected_Filing_Receipt.pdf	685437 e325a7c7ead8d43aae0b8389d6f58b869878a288	no	20

Warnings:

Information:	
Total Files Size (in bytes):	685437

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	A COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 13/652,823 filed on October 16, 2012.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Frank W. Ahern Date (Optional): 6/14/2013

Signature: Frank W. Ahern

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/652,823	10/16/2012	2185	6120	MOBI-0004P1C2C1C1C	20	3

CONFIRMATION NO. 2839

CORRECTED FILING RECEIPT

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

OC000000087256573

Date Mailed: 11/16/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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

Applicant(s)

INTELLECTUAL VENTURES I LLC, Wilmington, DE

Power of Attorney: The patent practitioners associated with Customer Number 45590

Domestic Priority data as claimed by applicant

This application is a CON of 13/240,773 09/22/2011 PAT 8291140 *
which is a CON of 12/644,511 12/22/2009 PAT 8060675
which is a CON of 11/300,131 12/13/2005 PAT 7657678
which is a CON of 09/559,678 04/27/2000 PAT 7734852
which claims benefit of 60/198,317 04/19/2000
and is a CIP of 09/130,057 08/06/1998 PAT 6088752
and is a CIP of 09/130,058 08/06/1998 PAT 6070214
(*)Data provided by applicant is not consistent with PTO records.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: No

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 11/01/2012
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/652,823**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
Title

COMPUTING MODULE WITH SERIAL DATA CONNECTIVITY

Preliminary Class

710

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications:

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

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)
11/28/2016	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/652,823	10-16-2012	Frank W. Ahern	MOBI-0004P1C2C1C1C	2839

TITLE OF INVENTION:

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$960	$0	$0	$960	01/04/2017

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: INTELLECTUAL VENTURES I LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Wilmington, DE

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 504160 (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 /Anthony C. Murabito/ Date 11/28/2016

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.

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 Acknowledgement Receipt

EFS ID:	27627160
Application Number:	13652823
International Application Number:	
Confirmation Number:	2839
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-0004P1C2C1C1C
Receipt Date:	28-NOV-2016
Filing Date:	16-OCT-2012
Time Stamp:	17:54:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	$960
RAM confirmation Number	112916INTEFSW17570100
Deposit Account	504160
Authorized User	Donna Petford

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

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	MOBI-0004P1C2C1C1C_ISSUEFEE_11-28-2016.pdf	75927 18af012a439aada8fd705c3f1b3e820d6173ec66	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30882 fcb9d7b66a1865a0103c178c50d6fb45c2dc5285	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	106809		

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.

Electronic Patent Application Fee Transmittal

Application Number:	13652823
Filing Date:	16-Oct-2012
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-0004P1C2C1C1C

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	960	960

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

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.
13/652,823	01/03/2017	9535454	MOBI-0004P1C2C1C1C	2839

45590 7590 12/14/2016

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 942 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, Scottsdale, AZ;
INTELLECTUAL VENTURES I LLC, Wilmington, DE
Desi Rhoden, Phoenix, AZ;
Jeff Doss, Phoenix, AZ;
Charles Mollo, Phoenix, AZ;

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

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

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 of Western District of Texas on the following

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

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
6:20-cv-00696	7/29/2020	of Western District of Texas

PLAINTIFF	DEFENDANT
SHAMROCK INNOVATIONS, LLC	ACER AMERICA CORPORATION and ACER INC.,

	PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1	8,060,675	11/15/2011	SHAMROCK INNOVATIONS, LLC
2	9,535,454	1/3/2017	SHAMROCK INNOVATIONS, LLC
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	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	(BY) DEPUTY CLERK	DATE

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**

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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.	DATE FILED	U.S. DISTRICT COURT
1:21-cv-222-RP	3/9/2021	Western District of Texas - Austin Division

PLAINTIFF	DEFENDANT
Shamrock Innovations, LLC	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	HOLDER OF PATENT OR TRADEMARK
1		
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3		
4		
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
JEANNETTE J. CLACK		3/9/2021

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**

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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.	DATE FILED	U.S. DISTRICT COURT
1:21-cv-222-RP	3/9/2021	Western District of Texas - Austin Division

PLAINTIFF	DEFENDANT
Shamrock Innovations, LLC	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	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
See attached Order Granting Stipulation of Dismissal entered 12/02/2021

CLERK	(BY) DEPUTY CLERK	DATE
JEANNETTE J. CLACK	Jay Vicha	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.



David Alan Ezra
Senior United States District Judge

AO 120 (Rev. 08/10)

TO:	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	

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.	DATE FILED	U.S. DISTRICT COURT
5:22-CV-102-FL	3/21/2022	Eastern District of North Carolina

PLAINTIFF	DEFENDANT
SHAMROCK INNOVATIONS, LLC	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	(BY) DEPUTY CLERK	DATE
PETER A. MOORE, JR.		3/22/2022

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**