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(12) **United States Patent**  
**Chu**

(10) **Patent No.:** **US 8,626,977 B2**  
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(54) **COMPUTER SYSTEM INCLUDING CPU OR PERIPHERAL BRIDGE TO COMMUNICATE SERIAL BITS OF PERIPHERAL COMPONENT INTERCONNECT BUS TRANSACTION AND LOW VOLTAGE DIFFERENTIAL SIGNAL CHANNEL TO CONVEY THE SERIAL BITS**

(52) **U.S. Cl.**  
CPC ..... **G06F 13/385** (2013.01)  
USPC ..... **710/313**  
(58) **Field of Classification Search**  
USPC ..... 710/300-315, 8-19, 62-64, 72-74;  
709/214-219, 226-227; 714/43-44,  
714/11, 13  
See application file for complete search history.

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 6 days.

(21) Appl. No.: **13/560,924**

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(65) **Prior Publication Data**

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**Related U.S. Application Data**

(63) Continuation of application No. 13/087,912, filed on Apr. 15, 2011, now Pat. No. 8,234,436, which is a continuation of application No. 12/504,534, filed on Jul. 16, 2009, now Pat. No. 8,041,873, which is a continuation of application No. 12/077,503, filed on Mar. 18, 2008, now Pat. No. 7,676,624, which is a continuation of application No. 11/166,656, filed on Jun. 24, 2005, now Pat. No. 7,376,779, which is a continuation of application No. 11/097,694, filed on Mar. 31, 2005, now Pat. No. 7,363,415, which is a continuation of application No. 10/772,214, filed on Feb. 3, 2004, now Pat. No. 7,099,981, which is a continuation of application No. 09/569,758, filed on May 12, 2000, now Pat. No. 6,718,415.

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(51) **Int. Cl.**  
**G06F 13/20** (2006.01)  
**G06F 13/38** (2006.01)

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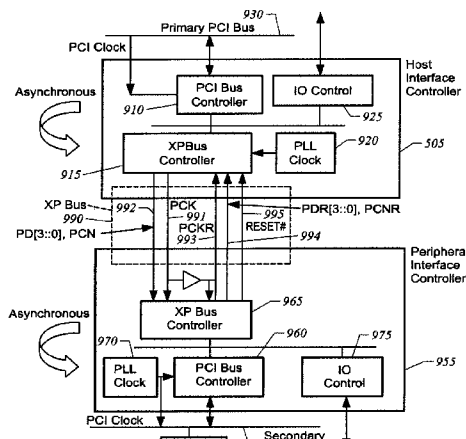
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(57) **ABSTRACT**

A computer system for multi-processing purposes. The computer system has a console comprising a first coupling site and a second coupling site. Each coupling site comprises a connector. The console is an enclosure that is capable of housing each coupling site. The system also has a plurality of computer modules, where each of the computer modules is coupled to a connector. Each of the computer modules has a processing unit, a main memory coupled to the processing unit, a graphics controller coupled to the processing unit, and a mass storage device coupled to the processing unit. Each of the computer modules is substantially similar in design to each other to provide independent processing of each of the computer modules in the computer system.

**17 Claims, 31 Drawing Sheets**



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Page 2

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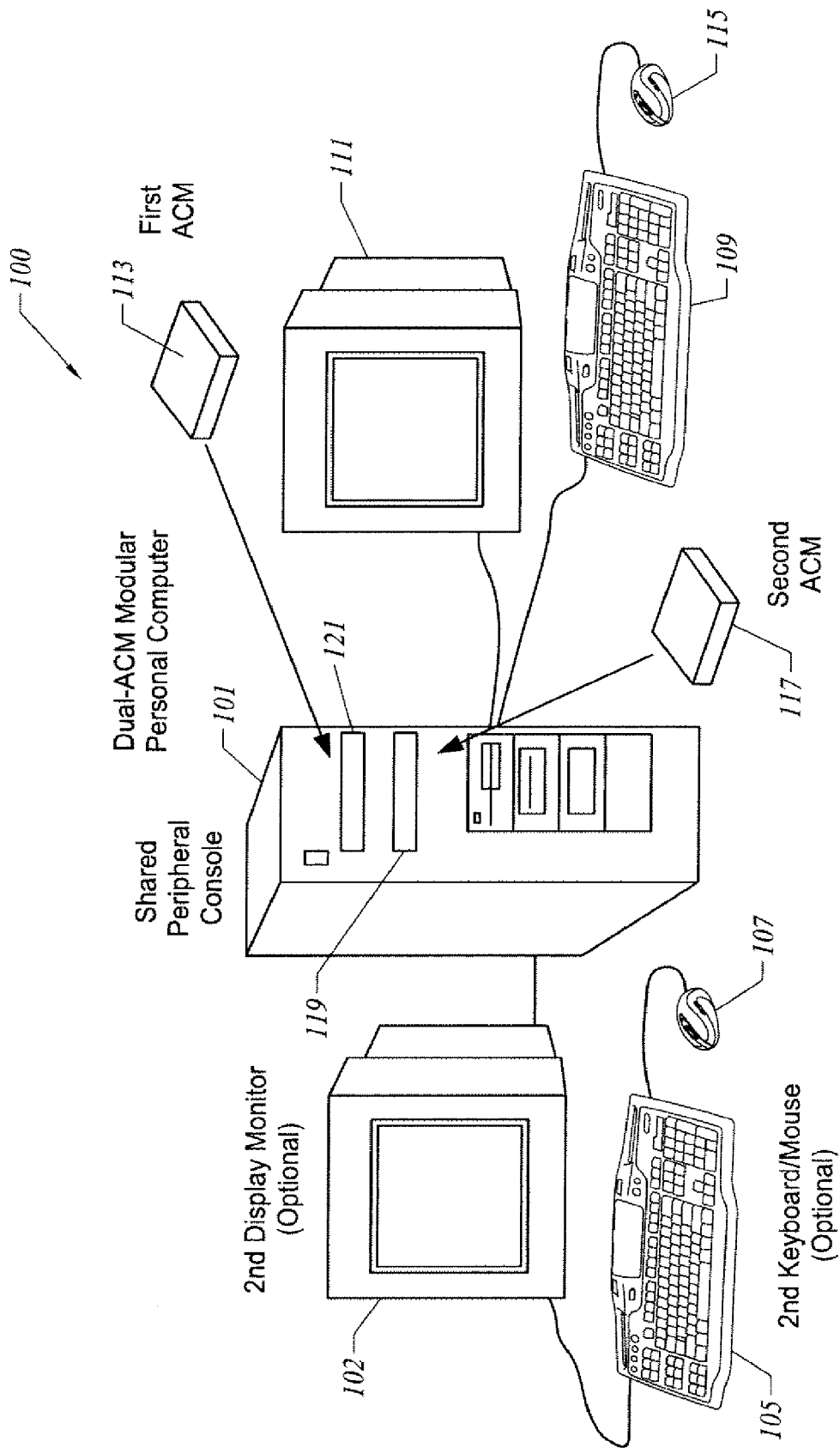


FIGURE 1

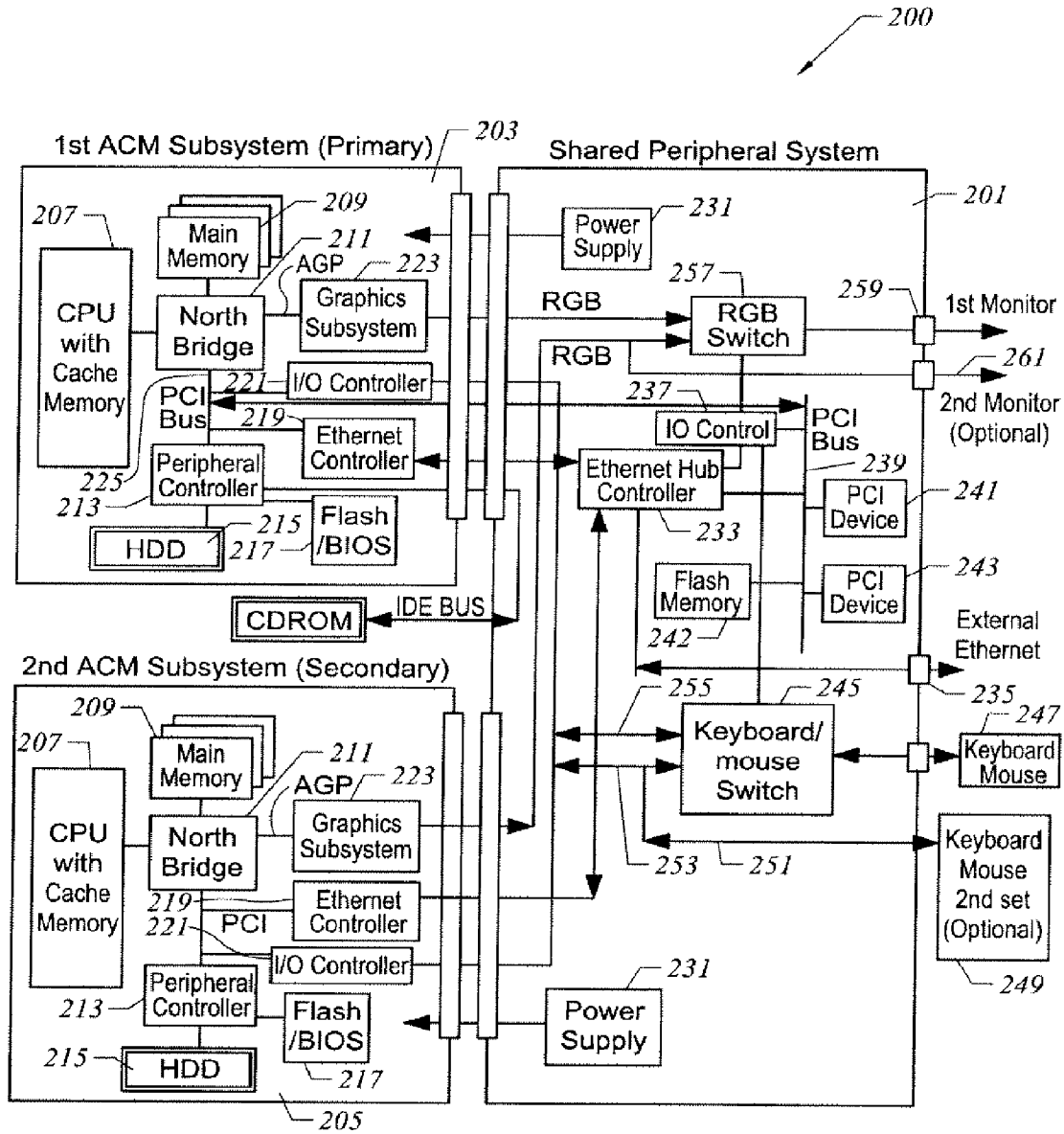


FIGURE 2

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