



US005887145A

United States Patent [19]

[11] Patent Number: **5,887,145**

Harari et al.

[45] Date of Patent: **Mar. 23, 1999**

[54] **REMOVABLE MOTHER/DAUGHTER PERIPHERAL CARD**

[75] Inventors: **Eliyahou Harari**, Los Gatos; **Daniel C. Guterman**, Fremont; **Robert F. Wallace**, Sunnyvale, all of Calif.

5,457,590	10/1995	Barrett et al.	360/133
5,475,441	12/1995	Paralski et al.	348/552
5,488,433	1/1996	Washino et al.	395/722
5,584,043	12/1996	Burkart	395/882
5,611,057	3/1997	Pecone et al.	395/282
5,615,344	3/1997	Corder	395/309

[73] Assignee: **SanDisk Corporation**, Sunnyvale, Calif.

FOREIGN PATENT DOCUMENTS

WO9300658 1/1993 WIPO .

[21] Appl. No.: **781,539**

[22] Filed: **Jan. 9, 1997**

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Assistant Examiner—Walter D. Davis, Jr.
Attorney, Agent, or Firm—Majestic, Parsons, Siebert & Hsue

Related U.S. Application Data

[63] Continuation of Ser. No. 462,642, Jun. 5, 1995, abandoned, which is a continuation of Ser. No. 398,856, Mar. 6, 1995, abandoned, which is a continuation of Ser. No. 151,292, Nov. 12, 1993, abandoned, which is a continuation-in-part of Ser. No. 115,428, Sep. 1, 1993, abandoned.

[51] **Int. Cl.⁶** **G06F 12/00**

[52] **U.S. Cl.** **395/282**; 395/833; 395/882; 711/103; 711/115

[58] **Field of Search** 395/800, 282, 395/283, 309, 800.01, 800.37, 500, 833, 821, 882; 711/2, 103, 115; 365/52, 99

[57] ABSTRACT

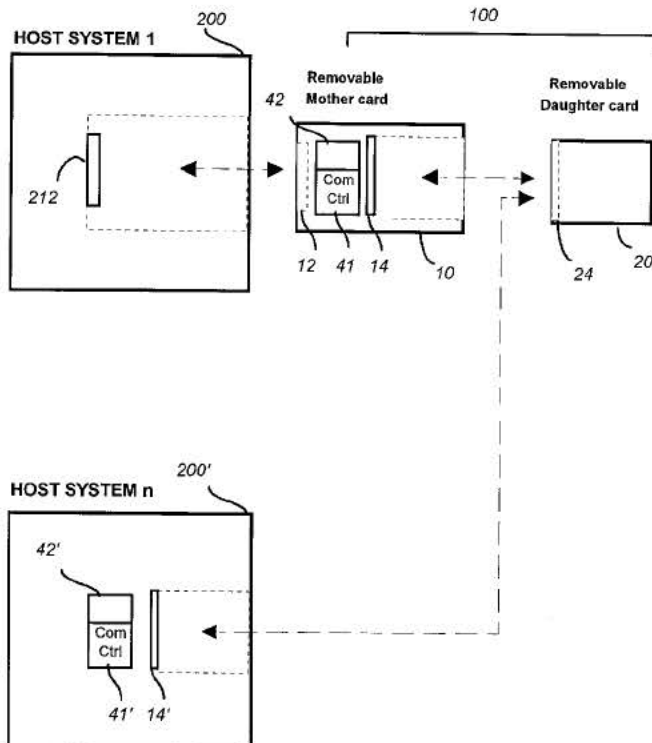
A peripheral card having a Personal Computer ("PC") card form factor and removably coupled externally to a host system is further partitioned into a mother card portion and a daughter card portion. The daughter card is removably coupled to the mother card. In the preferred embodiment, a low cost flash "floppy" is accomplished with the daughter card containing only flash EEPROM chips and being controlled by a memory controller residing on the mother card. Other aspects of the invention includes a comprehensive controller on the mother card able to control a predefined set of peripherals on daughter cards connectable to the mother card; relocation of some host resident hardware to the mother card to allow for a minimal host system; a mother card that can accommodate multiple daughter cards; daughter cards that also operates directly with hosts having embedded controllers; daughter cards carrying encoded data and information for decoding it; and daughter cards with security features.

[56] References Cited

U.S. PATENT DOCUMENTS

4,837,628	6/1989	Sasaki	358/209
5,018,017	5/1991	Sasaki et al.	358/209
5,293,236	3/1994	Adachi et al.	348/231
5,343,319	8/1994	Moore	359/152
5,438,359	8/1995	Aoki	348/207

22 Claims, 9 Drawing Sheets



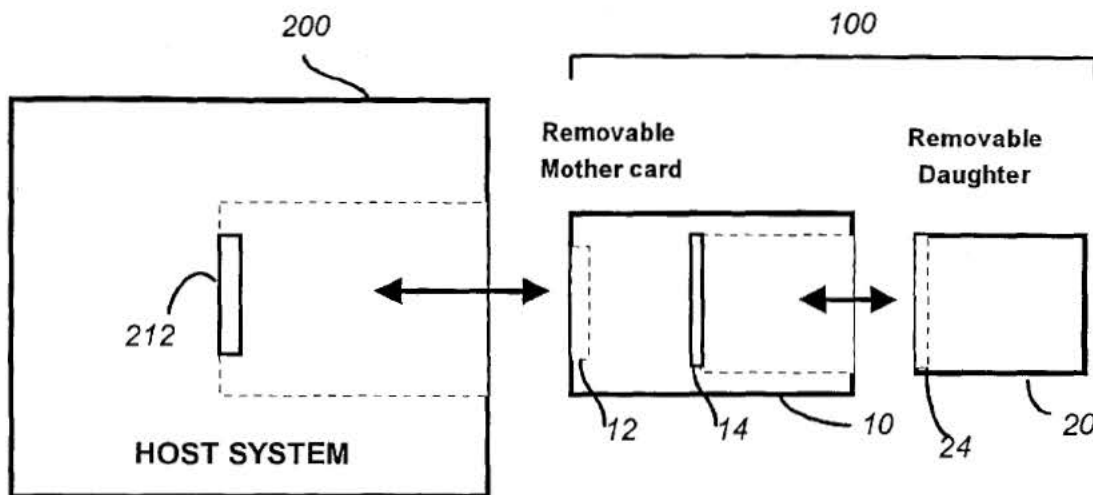


FIG. 1

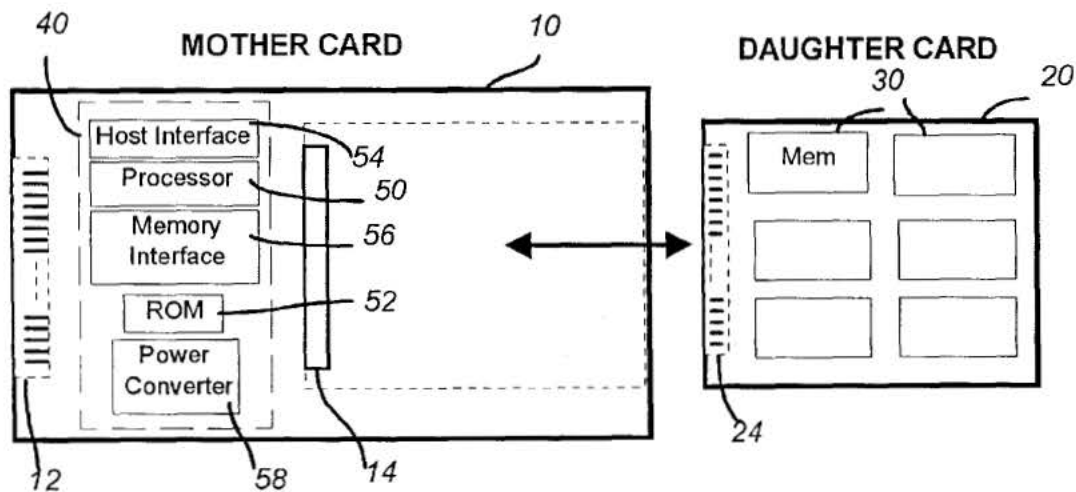


FIG. 3

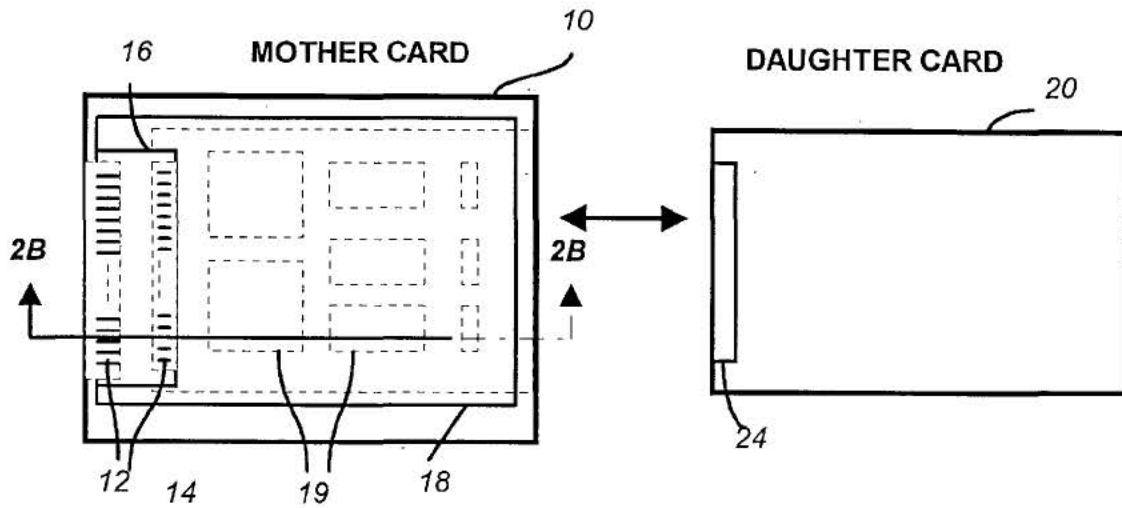


FIG. 2A

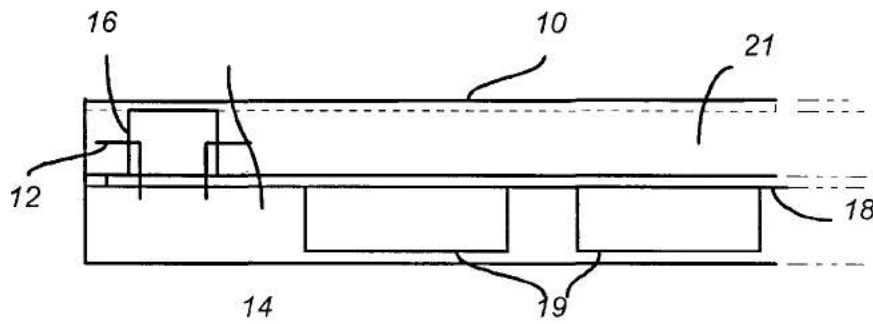


FIG. 2B

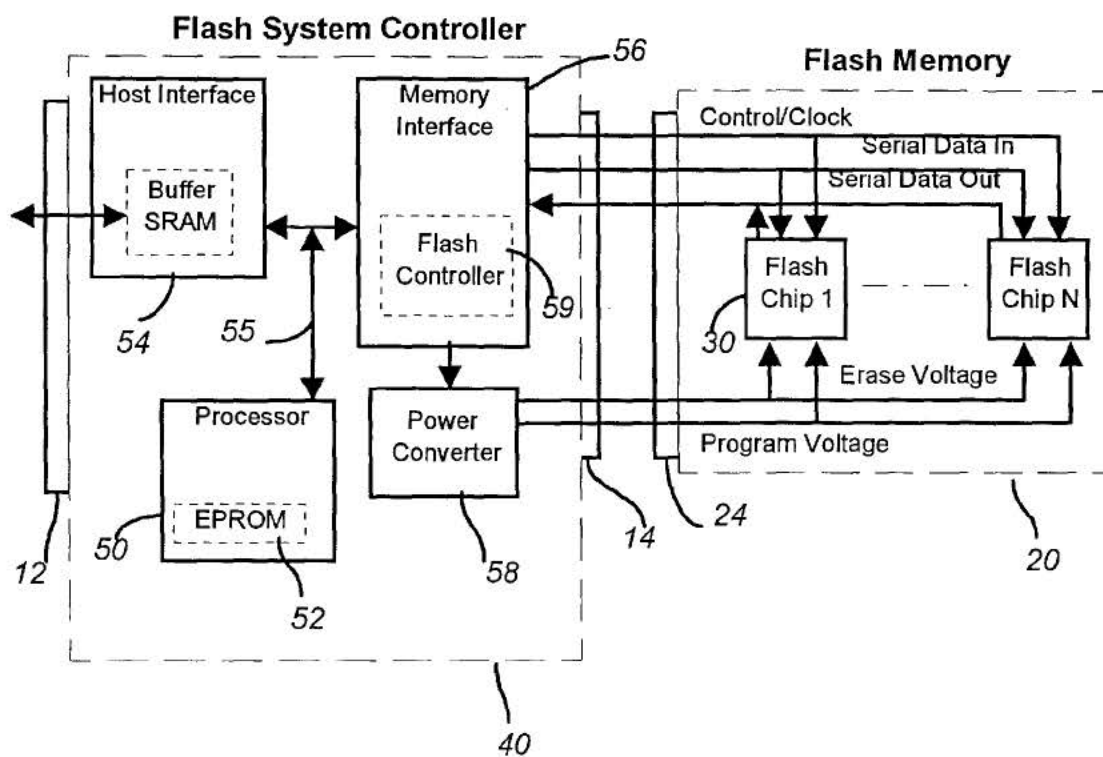


FIG. 4

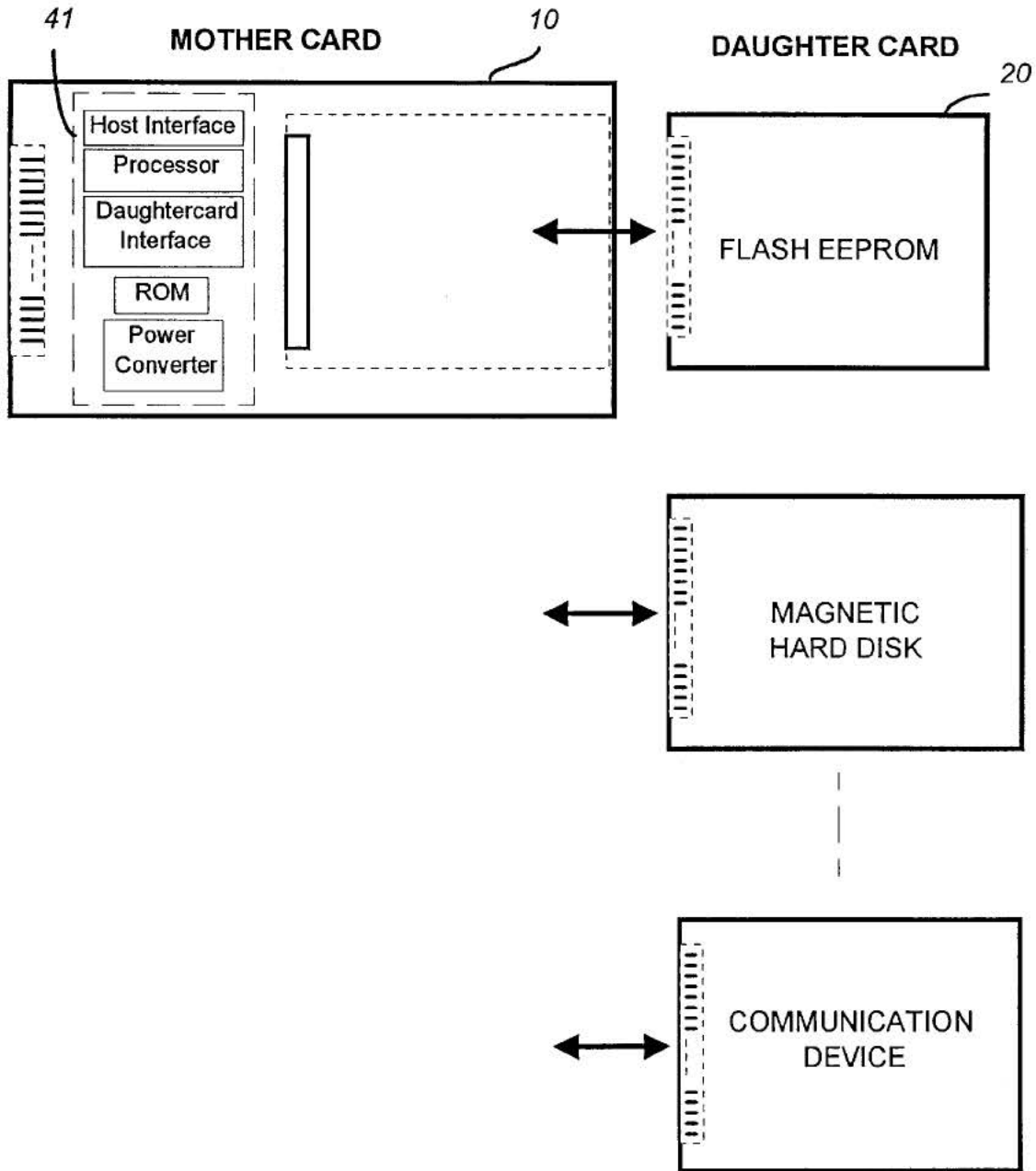


FIG. 5A

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