



US007453712B2

(12) **United States Patent**
Kim et al.

(10) **Patent No.:** **US 7,453,712 B2**
(45) **Date of Patent:** **Nov. 18, 2008**

(54) **HYBRID FLASH MEMORY DEVICE AND METHOD FOR ASSIGNING RESERVED BLOCKS THEREOF**

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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 42 days.

(21) Appl. No.: **11/613,366**

(22) Filed: **Dec. 20, 2006**

(65) **Prior Publication Data**
US 2008/0112238 A1 May 15, 2008

(30) **Foreign Application Priority Data**
Oct. 25, 2006 (KR) 10-2006-0104151

(51) **Int. Cl.**
GI1C 5/06 (2006.01)

(52) **U.S. Cl.** **365/63**; 365/200; 365/230.03

(58) **Field of Classification Search** 365/63,
365/200, 230.03, 185.33
See application file for complete search history.

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(57) **ABSTRACT**

A hybrid flash memory device includes an array including a first area and a second area having a larger number of stored bits per cell than the first area. The device includes a hidden area including a first reserved block area and a second reserved block area, wherein the first reserved block area includes a plurality of first memory blocks having the same number of stored bits per cell as the first area, the second reserved block area includes a plurality of second memory blocks having the same number of stored bits per cell as the second area, and a flash translation layer configured to replace a bad block generated in the first main area with the first memory block and replace a bad block generated in the second main area with the second memory block, wherein the flash translation layer flexibly assigns functions of the first memory blocks or the second memory blocks depending on whether the first and second memory blocks are all used.

20 Claims, 7 Drawing Sheets

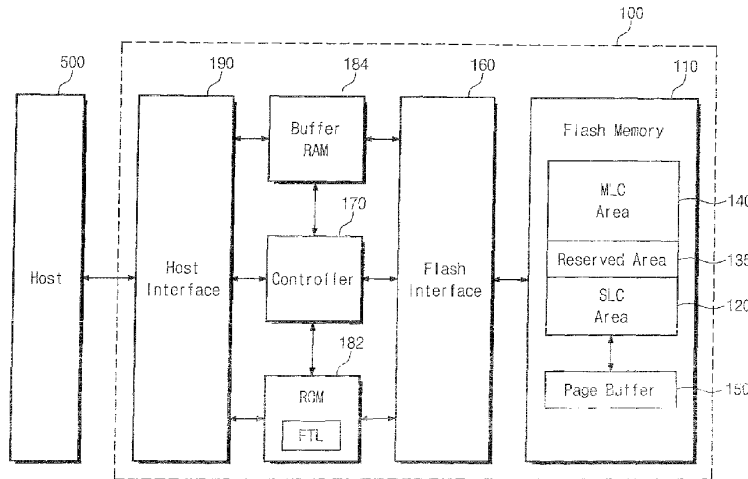


Fig. 1

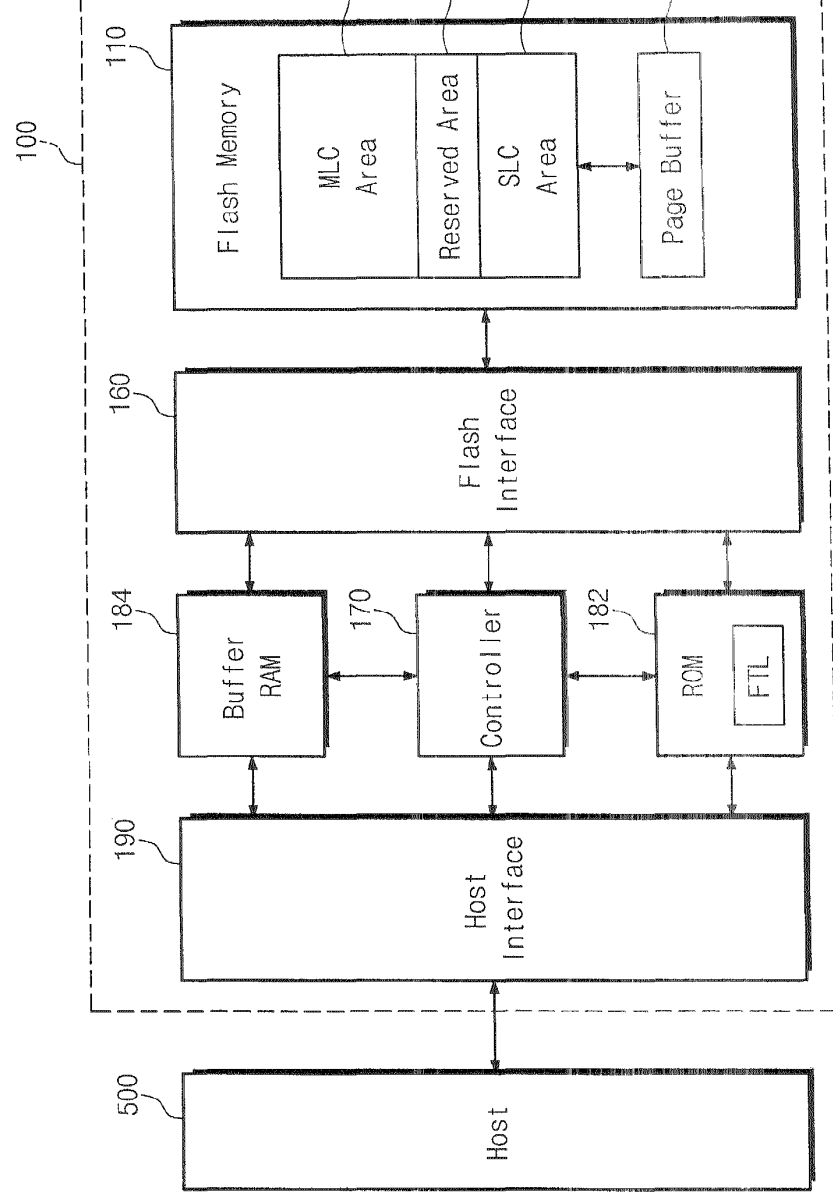


Fig. 2

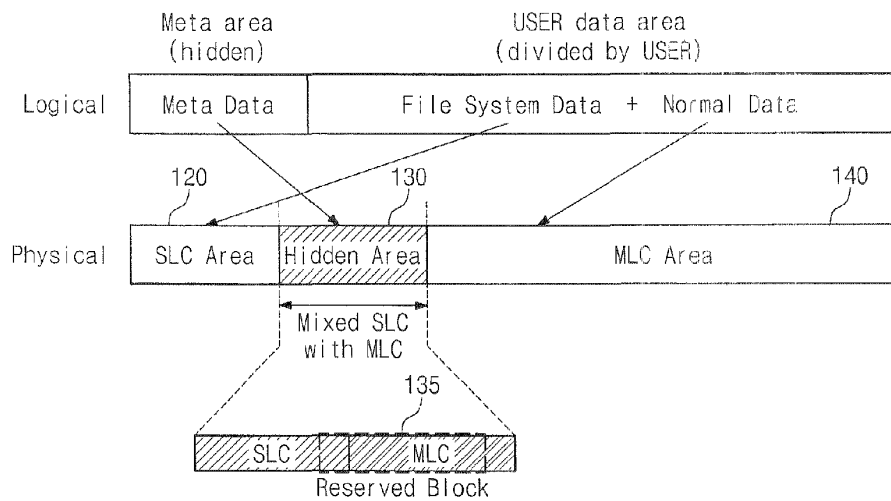


Fig. 3

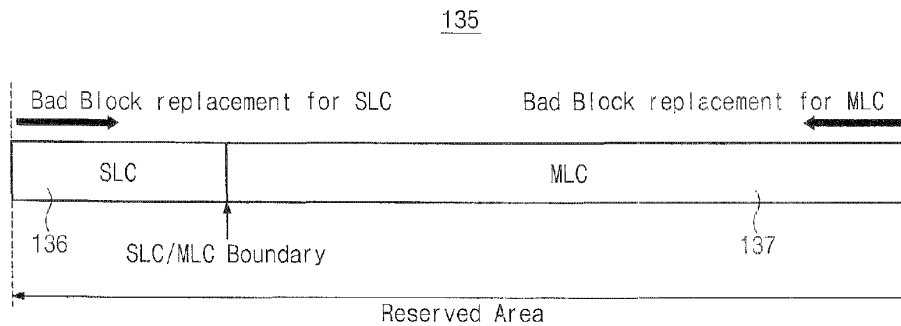


Fig. 4

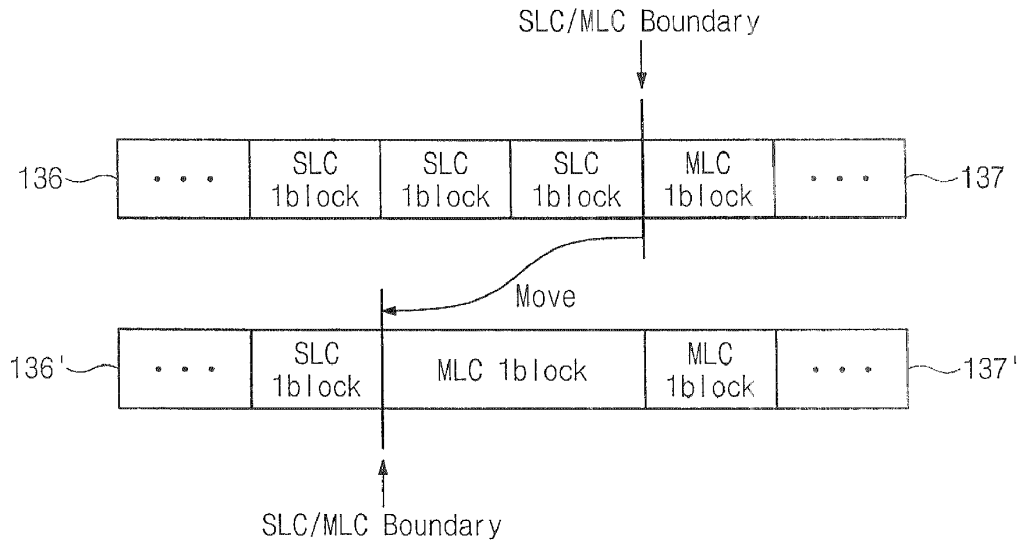


Fig. 5

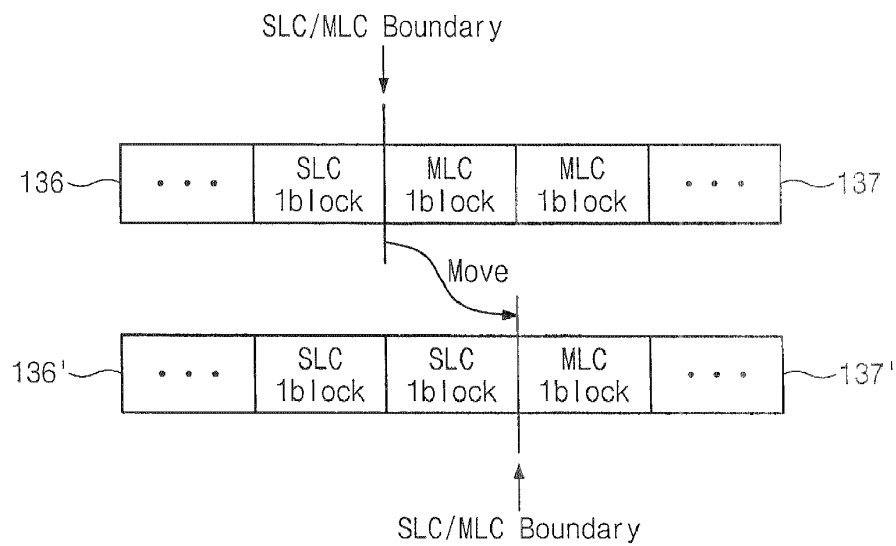
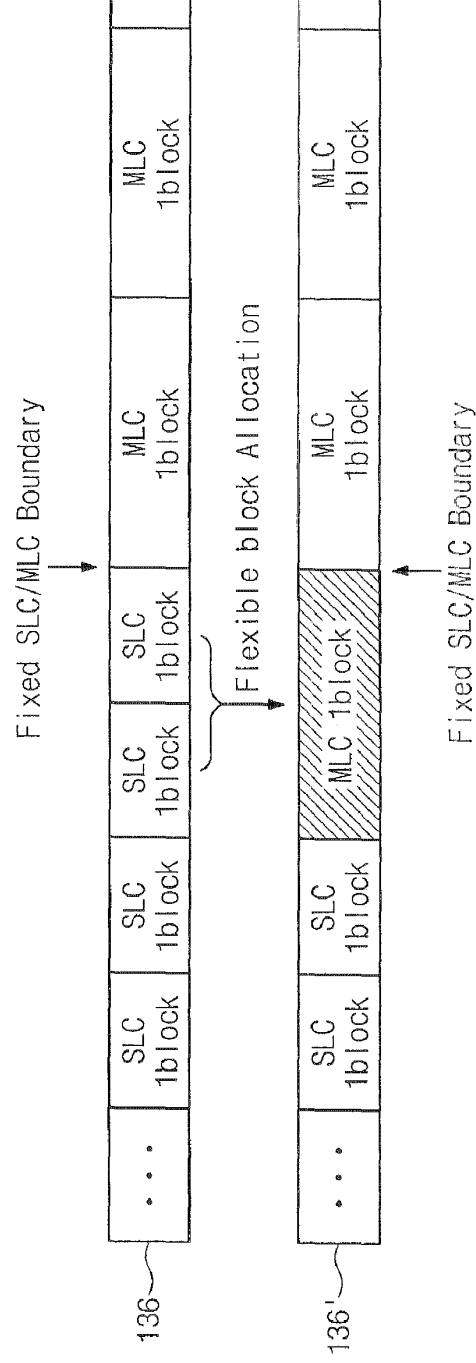


Fig. 6



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