



US008356152B2

(12) **United States Patent**
You

(10) **Patent No.:** **US 8,356,152 B2**
(45) **Date of Patent:** **Jan. 15, 2013**

- (54) **INITIATIVE WEAR LEVELING FOR NON-VOLATILE MEMORY**
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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 580 days.

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- (21) Appl. No.: **12/519,521**
- (22) PCT Filed: **Dec. 27, 2006**
- (86) PCT No.: **PCT/CN2006/003615**
§ 371 (c)(1),
(2), (4) Date: **Feb. 11, 2010**
- (87) PCT Pub. No.: **WO2008/077284**
PCT Pub. Date: **Jul. 3, 2008**
- (65) **Prior Publication Data**
US 2010/0161880 A1 Jun. 24, 2010

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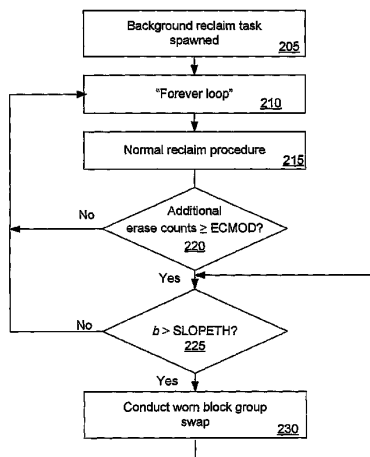
- (51) **Int. Cl.**
G06F 12/00 (2006.01)
- (52) **U.S. Cl.** **711/165; 711/103; 711/173**
- (58) **Field of Classification Search** **711/103, 711/165, 173**
See application file for complete search history.

(57) **ABSTRACT**

A method and apparatus for initiative wear leveling for non-volatile memory. An embodiment of a method includes counting erase cycles for each of a set of multiple memory blocks of a non-volatile memory, the counting of erase cycles for each memory block including incrementing a first count for a physical block address of the memory block, and if the memory block is not a spare memory block, incrementing a second count for a logical block address of the memory block. The method also includes determining whether the non-volatile memory has uneven wear of memory blocks based at least in part on the counting of the erase cycles of the plurality of memory blocks.

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16 Claims, 9 Drawing Sheets



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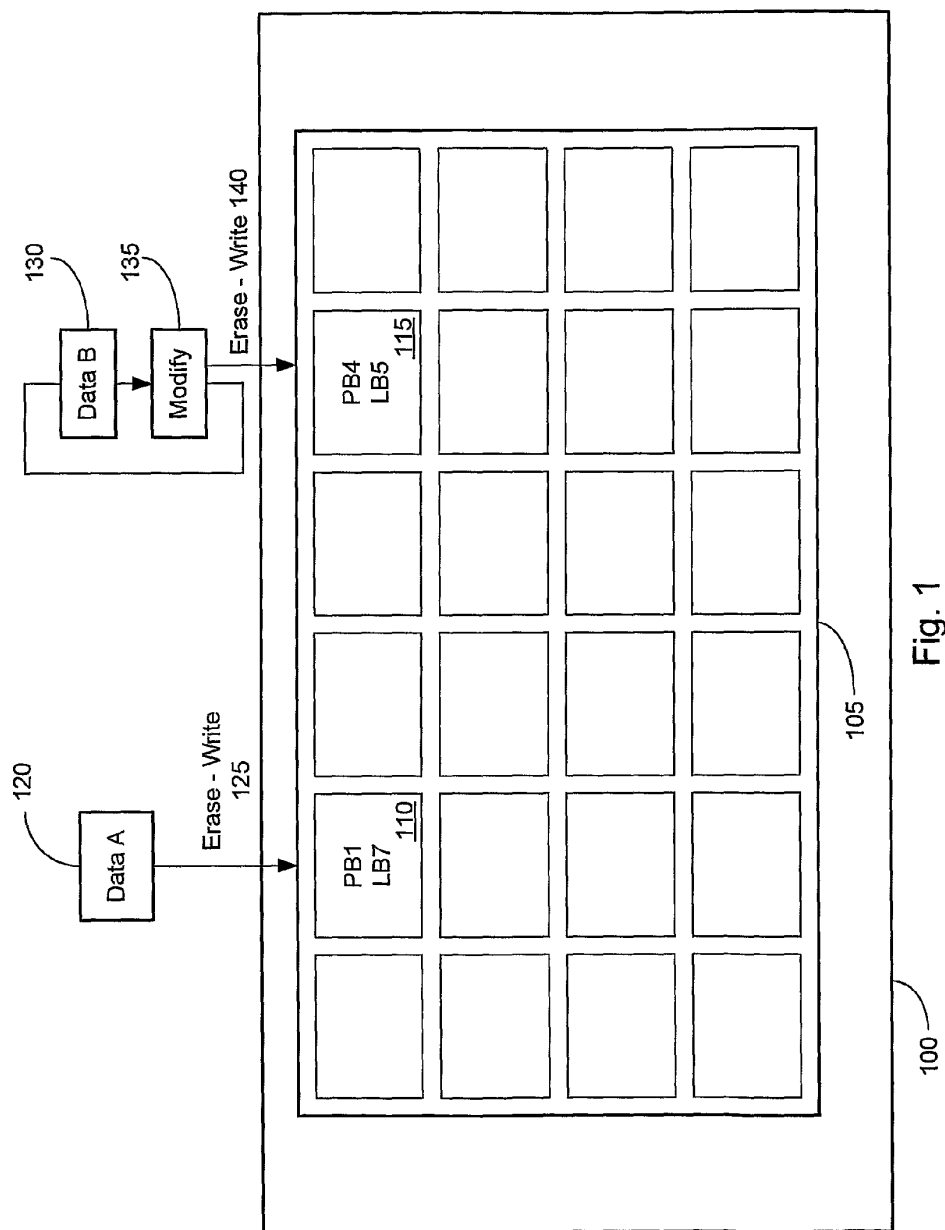


Fig. 1

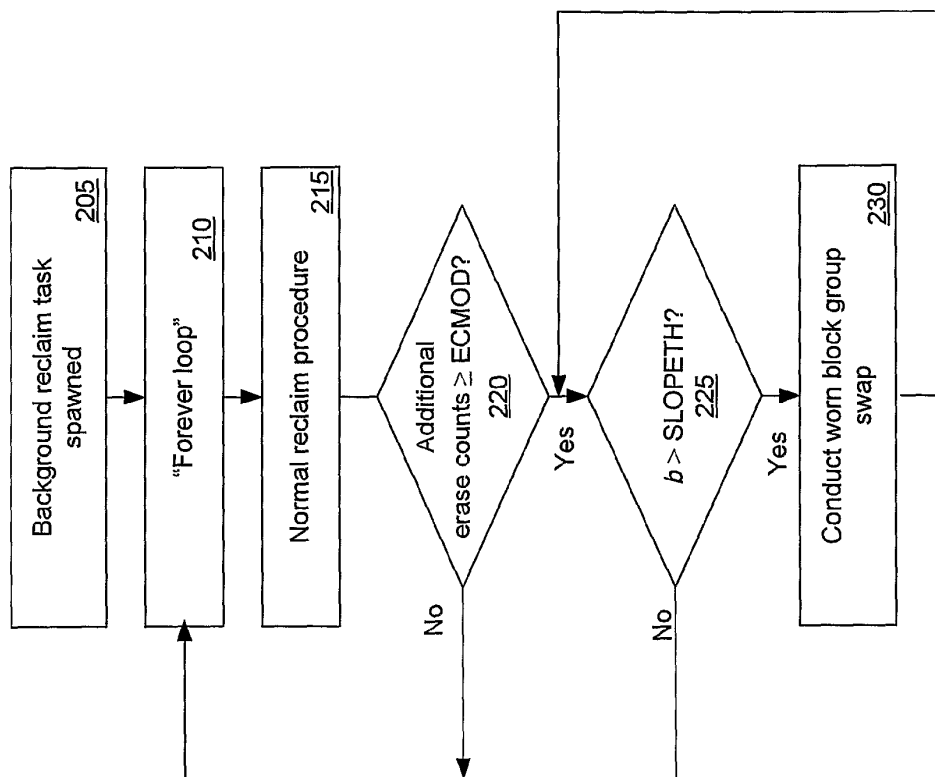


Fig. 2

Fig. 3A

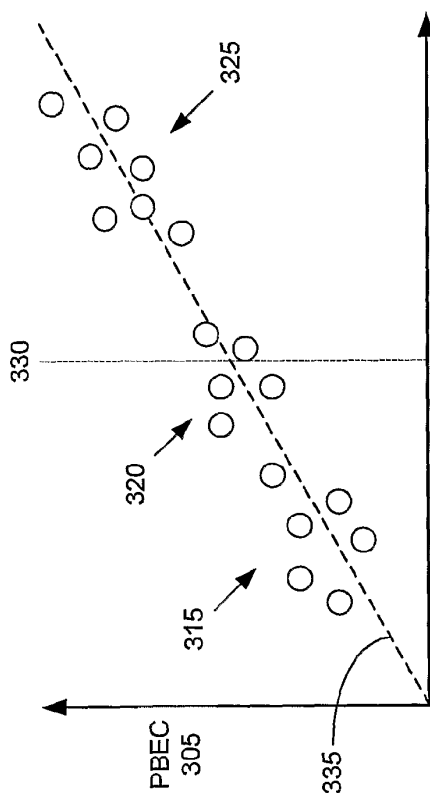
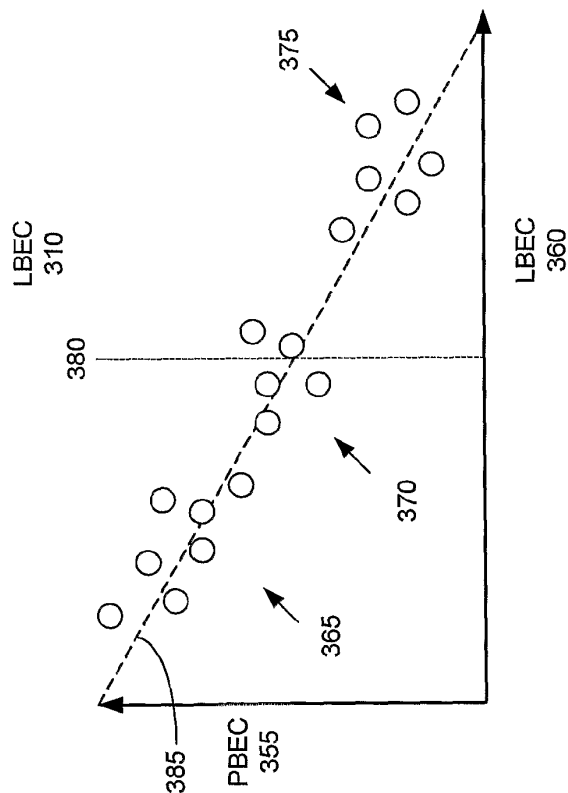


Fig. 3B



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