(12) **United States Patent**

Reid

(10) **Patent No.:** US 8,285,940 B2

(45) **Date of Patent:** Oct. 9, 2012

(54) **METHOD AND APPARATUS FOR HIGH SPEED CACHE FLUSHING IN A NON-VOLATILE MEMORY**

(75) Inventor: **Robert Alan Reid**, Superior, CO (US)

(73) Assignee: **Cadence Design Systems, Inc.**, San Jose, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 555 days.

(21) Appl. No.: **12/040,782**

(22) Filed: **Feb. 29, 2008**

(65) **Prior Publication Data**

US 2009/0222627 A1   Sep. 3, 2009

(51) **Int. Cl.**
G06F 12/00 (2006.01)

(52) **U.S. Cl.** **711/135**; 711/144
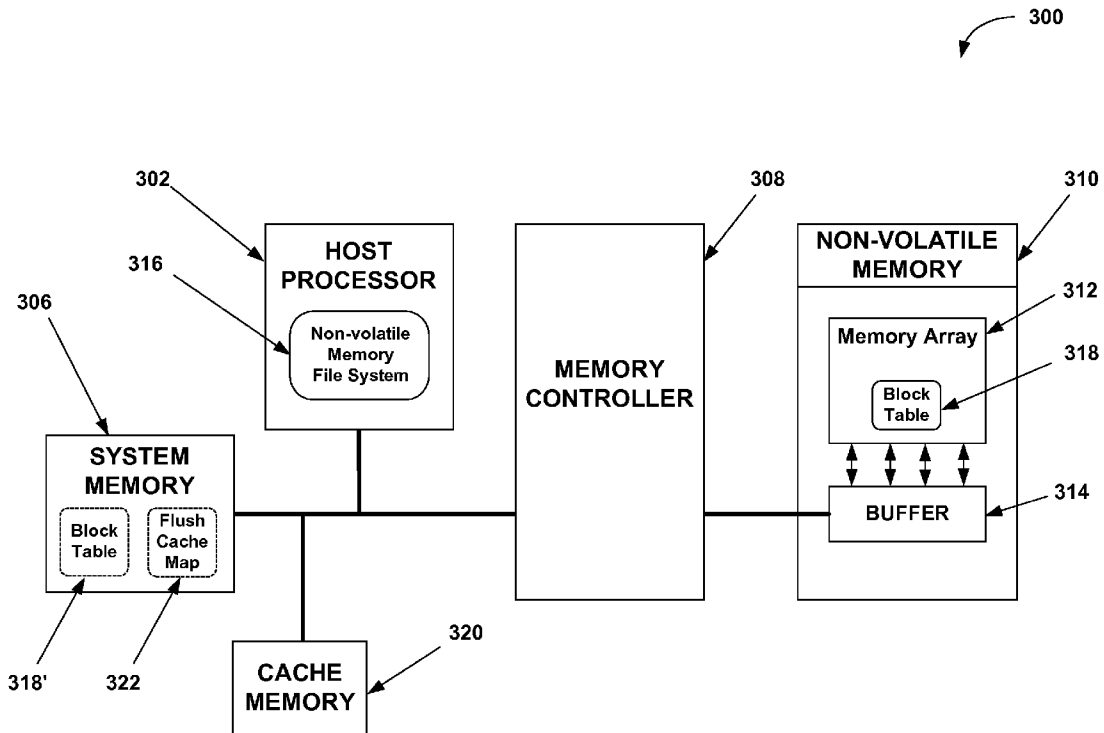
(58) **Field of Classification Search** 711/135
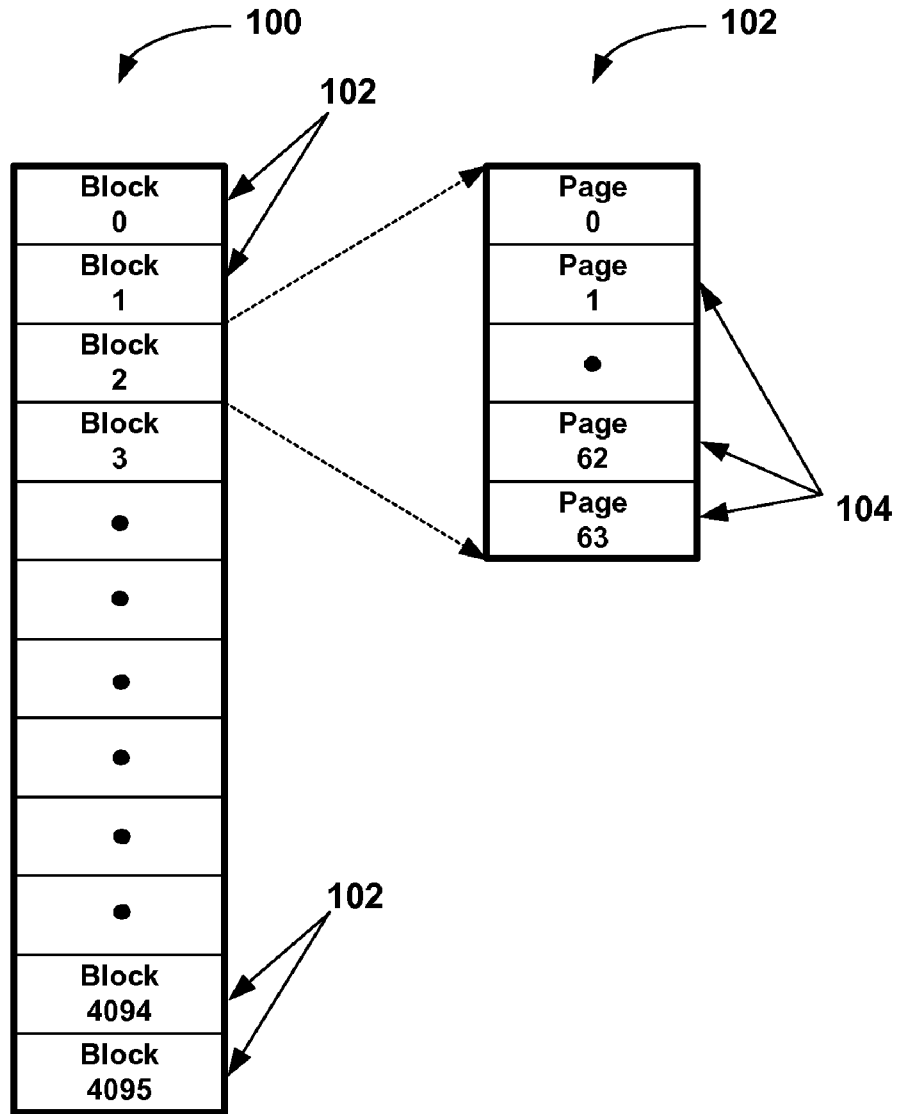See application file for complete search history.
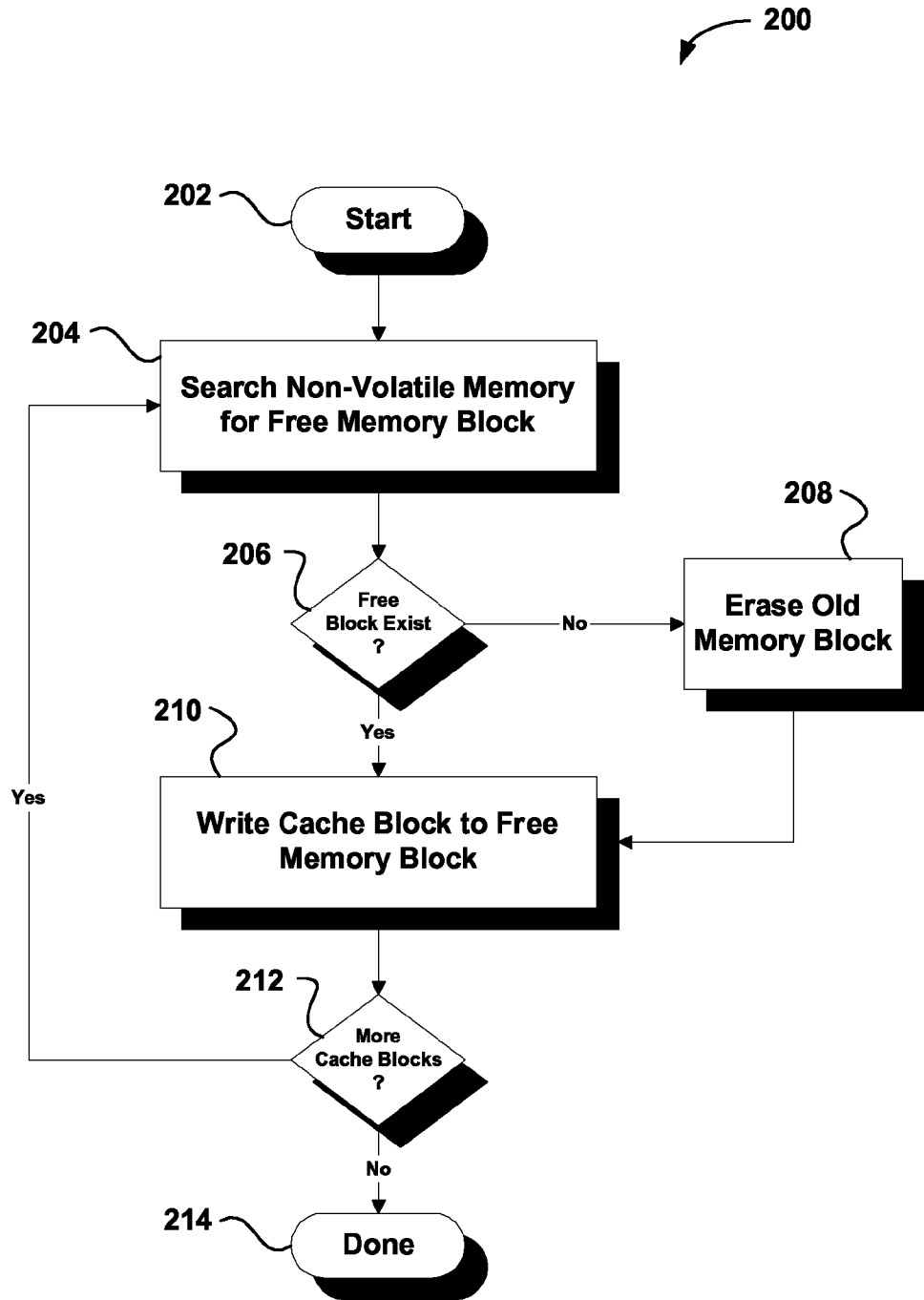
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Primary Examiner — Tuan Thai
Assistant Examiner — Ngoc Dinh
(74) *Attorney, Agent, or Firm* — Sawyer Law Group, P.C.

(57) **ABSTRACT**

An invention is provided for performing flush cache in a non-volatile memory. The invention includes maintaining a plurality of free memory blocks within a non-volatile memory. When a flush cache command is issued, a flush cache map is examined to obtain a memory address of a memory block in the plurality of free memory blocks within the non-volatile memory. The flush cache map includes a plurality of entries, each entry indicating a memory block of the plurality of free memory blocks. Then, a cache block is written to a memory block at the obtained memory address within the non-volatile memory. In this manner, when a flush cache command is received, the flush cache map allows cache blocks to be written to free memory blocks in the non-volatile memory without requiring a non-volatile memory search for free blocks or requiring erasing of memory blocks storing old data.

14 Claims, 7 Drawing Sheets

FIG. 1
(Prior Art)

200

202 — **Start**

204 — **Search Non-Volatile Memory for Free Memory Block**

206 — **Free Block Exist ?** — No → 208 — **Erase Old Memory Block**

Yes

210 — **Write Cache Block to Free Memory Block**

212 — **More Cache Blocks ?**

Yes

No

214 — **Done**

FIG. 2
(Prior Art)

FIG. 3

312

| Block 0 | Block 1 | Block 2 | Block 3 | • | • | Block 2023 | • | • | • | Block 4094 | Block 4095 |

322

| 2 | 2023 | • | • | • | 4094 |

FLUSH CACHE MAP

400

FIG. 4

DOCKET ALARM
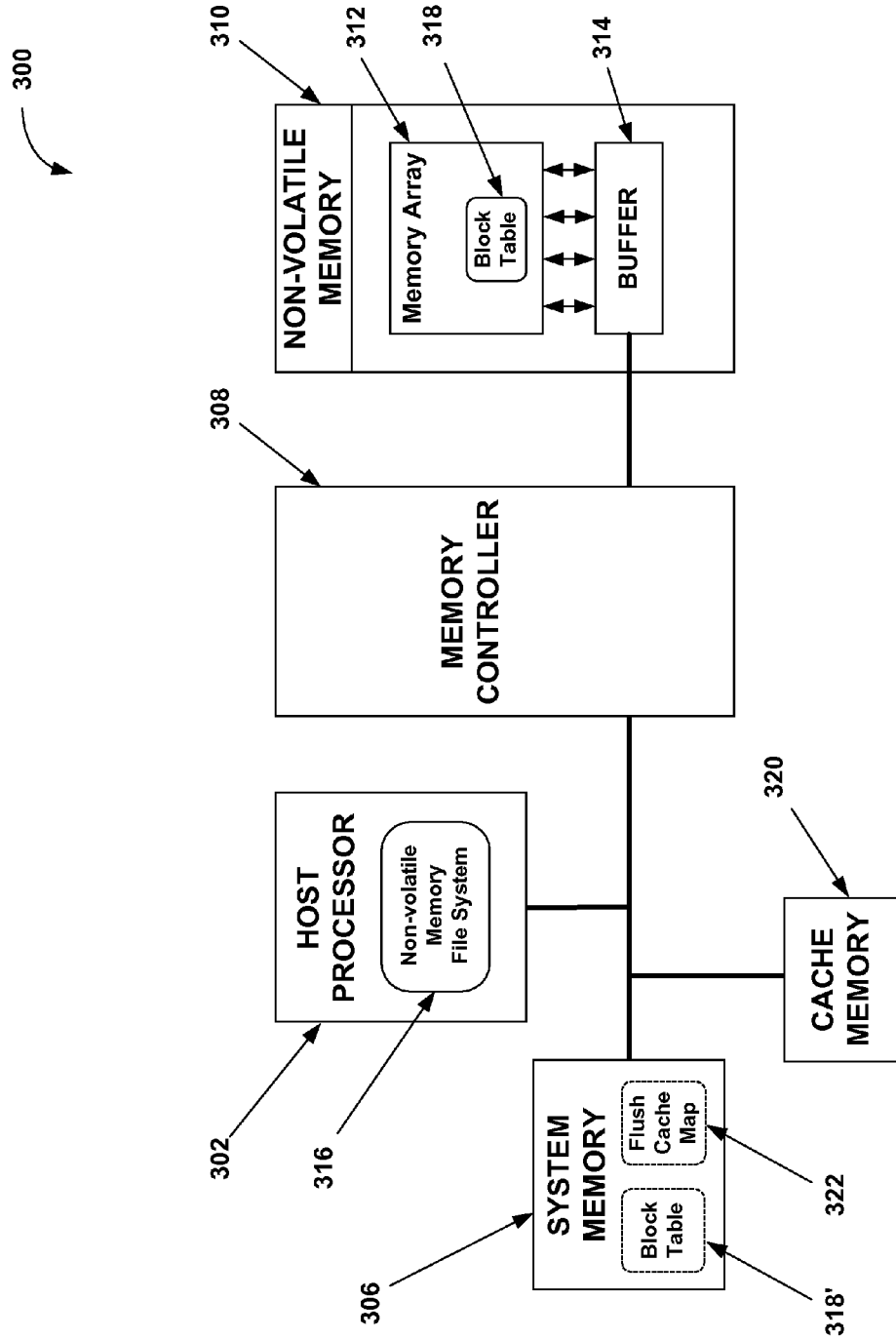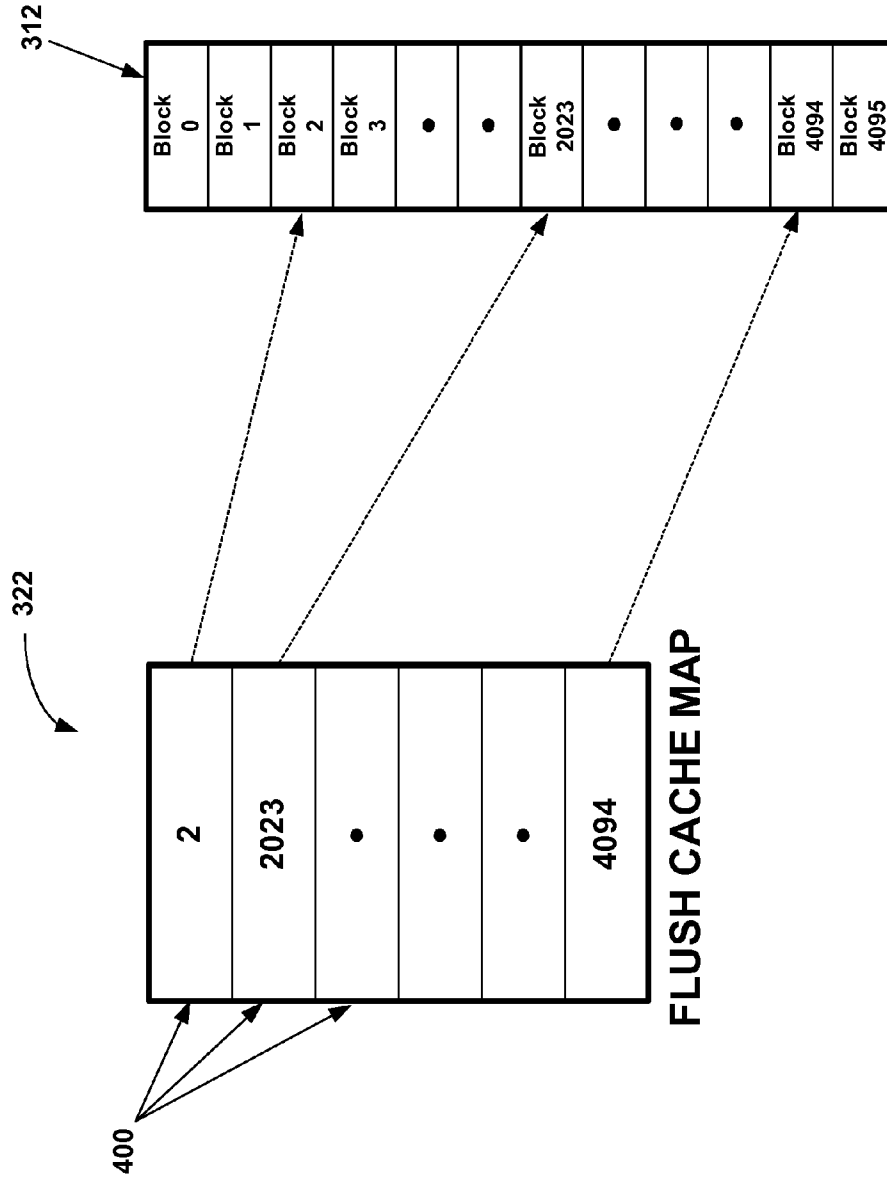
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