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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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(54) **Title:** APPARATUS INCLUDING MEMORY SYSTEM CONTROLLERS AND RELATED METHODS

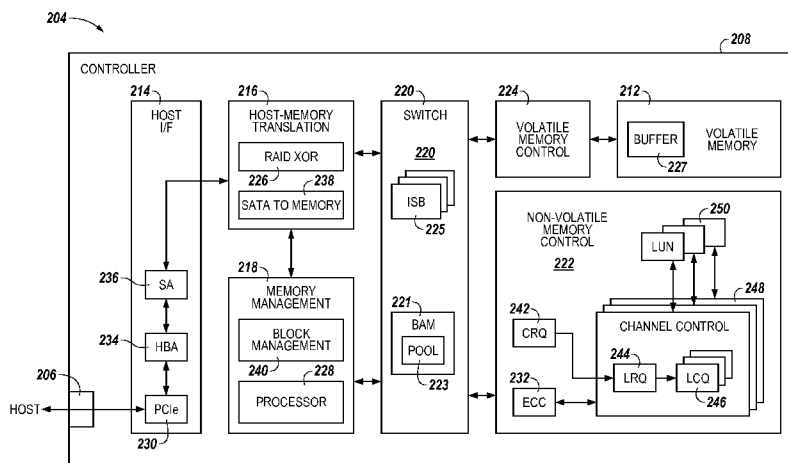


Fig. 2

- (57) **Abstract:** Memory system controllers can include hardware masters, first buffers, and a switch coupled to the hardware masters and to the first buffers. The switch can include second buffers and a buffer allocation management (BAM) circuit. The BAM circuit can include a buffer tag pool. The buffer tag pool can include tags, each identifying a respective first buffer or a respective second buffer. The BAM circuit can be configured to allocate a tag to a hardware master in response to an allocation request from the hardware masters. The BAM circuit can be configured to prioritize allocation of a tag identifying a second buffer over a tag identifying a first buffer.

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A. CLASSIFICATION OF SUBJECT MATTER*G11C 7/10(2006.01)i, G11C 16/06(2006.01)i, G06F 12/00(2006.01)i*

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G11C 7/10; G06F 3/00; G06F 13/14; G06F 12/00; G06F 13/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: buffer, allocation, management, tag, pool, SSD, prioritize, switch

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5964859 A (STEINBACH et al.) 12 October 1999 See abstract, page 3, line 44 - page 4, line 52, claims 1,3, and figures 3,4.	1-20
A	US 7107367 B1 (HUGHES) 12 September 2006 See abstract, pages 7-10, claims 1-6, and figures 2-4,6.	1-20
A	US 7017009 B2 (OKAMURA) 21 March 2006 See abstract, claim 3, and figures 1-5.	1-20

 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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"&" document member of the same patent family

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 7107367 B1	12.09.2006	None	
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		JP 4822598 B2	24.11.2011
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