



- (51) International Patent Classification:
G06F 12/16 (2006.01) *G11C 7/24* (2006.01)
- (21) International Application Number:
PCT/US2012/039846
- (22) International Filing Date:
29 May 2012 (29.05.2012)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
13/118,638 31 May 2011 (31.05.2011) US
- (71) Applicant (for all designated States except US): **MI-CRON TECHNOLOGY, INC.** [US/US]; 8000 South Federal Way, Boise, Idaho 83716-9632 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **RATNAM, Sampath K.** [IN/US]; 5881 South Teak Way, Boise, Idaho 83716 (US). **LARSEN, Troy D.** [US/US]; 3856 W. Daisy Creek St., Meridian, Idaho 83642 (US). **RIVERS, Doyle W.** [US/US]; 12338 Canyonlands Dr., Rancho Cordova, California 95742 (US). **MANNING, Troy A.** [US/US]; 4753 S. Ten Mile Road, Meridian, Idaho 83642 (US). **CULLEY, Martin L.** [US/US]; 7336 W. Coho Drive, Boise, Idaho 83709 (US).
- (74) Agent: **KERN, Jacob T.**; Brooks, Cameron & Huebsch, PLLC, 1221 Nicollet Ave., Suite 500, Minneapolis, Minnesota 55403 (US).
- (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.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: DATA PROTECTION ACROSS MULTIPLE MEMORY BLOCKS

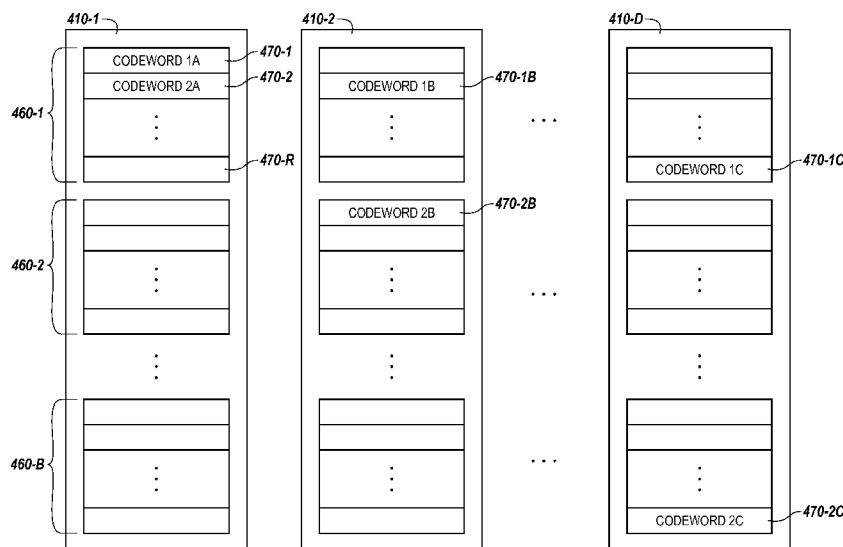


Fig. 4

(57) Abstract: Data protection across multiple memory blocks can include writing a first portion of a codeword in a first location of a first memory block and writing a second portion of the codeword in a second location of a second memory block. The second location can be different than the first location with respect to the second and the first memory blocks.



— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:
28 February 2013

A. CLASSIFICATION OF SUBJECT MATTER**G06F 12/16(2006.01)i, G11C 7/24(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)

G06F 12/16; G06F 12/02; H03M 13/05; G06F 11/08; G06F 12/00; G11C 29/00

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: error rate, block, page, memory, partition, ECC, error correct

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	US 2011-0209028 A1 (POST, DANIEL J. et al.) 25 August 2011 See paragraphs [0007]-[0008], [0013], [0028]-[0037], [0058]-[0059]; claims 1-2, 7-9, 16, 24; figures 1-5.	1-30
X	US 2011-0126080 A1 (WAN, JUN et al.) 26 May 2011 See paragraphs [0032], [0040], [0046]-[0047], [0087], [0091]-[0093], [0108]-[0112]; claims 1-2; figure 3.	1,2,9,19,20,25-29
A		3-8,10-18,21-24,30
A	US 2008-0313493 A1 (ROOHPARVAR, FRANKIE F. et al.) 18 December 2008 See paragraphs [0049]-[0068]; figures 1-8.	1-30
A	US 2008-0109704 A1 (CHRISTENSON, JEFFREY) 08 May 2008 See paragraphs [0020]-[0022]; claims 7-8.	1-30



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

18 DECEMBER 2012 (18.12.2012)

Date of mailing of the international search report

20 DECEMBER 2012 (20.12.2012)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
189 Cheongsu-ro, Seo-gu, Daejeon Metropolitan
City, 302-701, Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

JANG Ho Keun

Telephone No. 82-42-481-8187



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/US2012/039846

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2011-0209028 A1	25.08.2011	None	
US 2011-0126080 A1	26.05.2011	WO 2011-062917 A1	26.05.2011
US 2008-0313493 A1	18.12.2008	CN 101681284 A	24.03.2010
		KR 10-1032576 B1	06.05.2011
		KR 10-2010-0012874 A	08.02.2010
		TW 200907993 A	16.02.2009
		US 2011-289387 A1	24.11.2011
		US 8006166 B2	23.08.2011
		US 8103940 B2	24.01.2012
		WO 2008-154134 A1	18.12.2008
US 2008-0109704 A1	08.05.2008	US 7856588 B2	21.12.2010
		WO 2008-051385 A2	02.05.2008
		WO 2008-051385 A3	17.07.2008