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[Continued on nextpage]

(54) **Title:** SYSTEM AND METHOD OF PROTECTING METADATA FROM NAND FLASH FAILURES

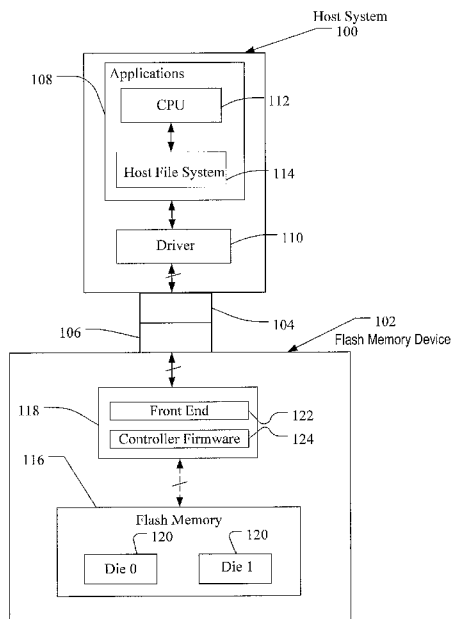


FIG. 1

(57) **Abstract:** Methods and systems for protecting metadata from NAND flash failures work with data striped across multiple flash memory chips. The flash memory multiple copies of metadata (and potentially ECC). The metadata stored in the multiple copies on the flash memory chips may be different from one another. For example, on a particular chip, a first copy of metadata is stored and a second copy of metadata is stored, with the second copy being a redundant copy of the metadata stored on a different chip. In this way, if one of the chips fails, a copy of the failed chips metadata is stored on another of the chips, and may be accessed.

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A. CLASSIFICATION OF SUBJECT MATTER  
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 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

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

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
 EPO-Internal , WPI Data, INSPEC, COMPENDEX, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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X	US 2009/168525 AI (OLBRICH AARON K [US] ET AL) 2 July 2009 (2009-07-02)	1, 10, 15, 24
Y	paragraphs [0080] , [0081] , [0089] , [0133] - [0140] , [0183] - [0229] , [0523] - [0533] figures 1-3 ,6, 12-14 -----	2-9 , 11-14, 16-23 , 25-27
Y	US 2004/024963 AI (TALAGALA NISHA [US] ET AL) 5 February 2004 (2004-02-05)  paragraphs [0005] - [0008] , [0020] - [0028] , [0030] - [0042] figures la, 2, 4, 5 -----	2-9 , 11-14, 16-23 , 25-27

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	"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
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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search <b>22 February 2013</b>	Date of mailing of the international search report <b>04/03/2013</b>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  <b>Johansson , Ulf</b>
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Information on patent family members

International application No <b>PCT/US2012/042771</b>
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