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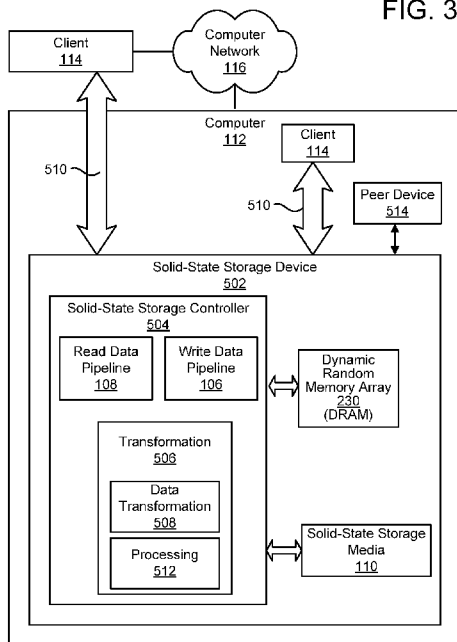
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(54) **Title:** APPARATUS, SYSTEM, AND METHOD FOR DATA TRANSFORMATIONS WITHIN A DATA STORAGE DEVICE

FIG. 3



(57) **Abstract:** An apparatus, system, and method are disclosed for executing data transformations for a data storage device 502. A storage controller module 504 executes a storage operation for a set of data within a data storage device 504. A transformation module 506 determines to apply a data transformation 508 to the set of data in response to a transformation indicator. A processing module 512 applies the data transformation 508 to the set of data internally on the data storage device 502 prior to completing the storage operation.

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**A. CLASSIFICATION OF SUBJECT MATTER****G06F 13/14(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)

G06F 13/14; G06F 12/00; G11B 20/00; G06F 9/38; H04L 12/12; H04L 12/16

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) &amp; Keywords:memory,request,storage,size,data,transform

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2000-0026300 A (KOREA ADVANCED INST. OF SCI. AND TECH.) 15 May 2000 See abstract, pages 3-4, Fig. 2, and claim 1.	1-21
Y	KR 10-2001-0034476 A (SONY ELECTRONICS, INC.) 25 April 2001 See abstract, pages 4-5, Fig. 3, and claims 1 & 14-15.	1-21
A	KR 10-2005-0024278 A (SANDISK CORPORATION) 10 March 2005 See abstract, pages 7-8, Fig. 7, and claim 1.	1-21
A	KR 10-2006-0107728 A (LG ELECTRONICS INC.) 16 October 2006 See abstract, pages 4-5, Fig. 4, and claim 1.	1-21

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

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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
KR 10-2000-0026300 A	15.05.2000	None	
KR 10-2001-0034476 A	25.04.2001	EP 1055236 A1 EP 1055236 B1 JP 2003-524848 A US 6292844 B1 WO 99-41744 A1	29.11.2000 21.04.2004 19.08.2003 18.09.2001 19.08.1999
KR 10-2005-0024278 A	10.03.2005	JP 2005-527055 A JP 2009-259253 A US 6751129 B1 WO 03-100787 A1	08.09.2005 05.11.2009 15.06.2004 04.12.2003
KR 10-2006-0107728 A	16.10.2006	None	