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- (71) Applicant: **QLOGIC CORPORATION** [US/US]; 26600
Laguna Hills Drive, Aliso Viejo, CA 92656 (US).

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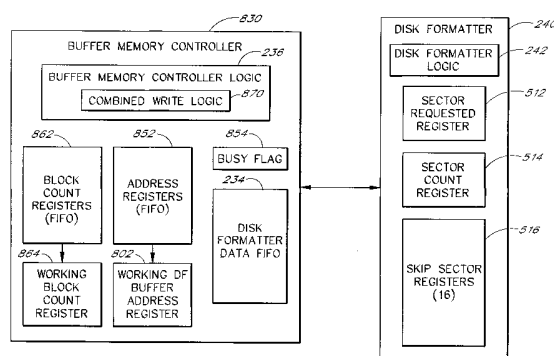
- (72) Inventors: **KRANTZ, Arie, L.**; 27432 Valderas, Mission Viejo, CA 92691 (US). **NGUYEN, Kha**; 1135 North Outrigger Way, Anaheim, CA 92801 (US). **ELKINS, Gregory, T.**; 2665 North Bentley Street, Orange, CA 92867 (US).
- (74) Agent: **ALTMAN, Daniel, E.**; Knobbe, Martens, Olson & Bear, LLP, 620 Newport Center Drive, 16th Floor, Newport Beach, CA 92660 (US).

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(54) Title: DISK CONTROLLER CONFIGURED TO PERFORM OUT OF ORDER EXECUTION OF WRITE OPERATIONS



(57) Abstract: A hard disk unit includes a disk, a controller microprocessor, a host bus interface, a buffer memory, a buffer memory controller, and a disk formatter. The bus interface receives write operations, and the buffer memory controller stores the corresponding write operation data in the buffer memory in the relative order in which the operations are received. The buffer memory controller subsequently transfers the data of a write operation from the buffer memory to the disk formatter, which formats the data and writes it to the disk. The buffer memory controller controls read and write access to the buffer memory. The buffer memory controller includes a set of address registers and a set of block count registers. The microprocessor loads the address registers with the addresses within the buffer memory of the data of two or more write operations. The microprocessor loads the block count registers with the size, in blocks, of the corresponding operations. The microprocessor then issues a single command to the buffer memory controller to transfer the data identified by the address registers and block count registers from the buffer memory to the disk formatter. The address registers and block count registers enable the buffer memory controller to transfer the data of several write operations in any order. Previous buffer controllers are typically capable of transferring the data of several write operations only in the same order in which the data is stored in the buffer memory.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06F3/06

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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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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 practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	PATENT ABSTRACTS OF JAPAN vol. 015, no. 439 (P-1273), 8 November 1991 (1991-11-08) & JP 03 183067 A (FUJITSU LTD), 9 August 1991 (1991-08-09)	12-17
A	abstract	1, 18, 22, 24, 28
A	US 5 890 210 A (ICHIKAWA YASUHIKO ET AL) 30 March 1999 (1999-03-30) column 4, line 50 -column 5, line 55; figures 1, 4, 5, 16, 19, 21	1, 12, 18, 22, 24, 28
A	EP 0 528 273 A (FUJITSU LTD) 24 February 1993 (1993-02-24) column 3, line 21 -column 4, line 5; figure 1	1, 12, 18, 22, 24, 28
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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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, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Moens, R

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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