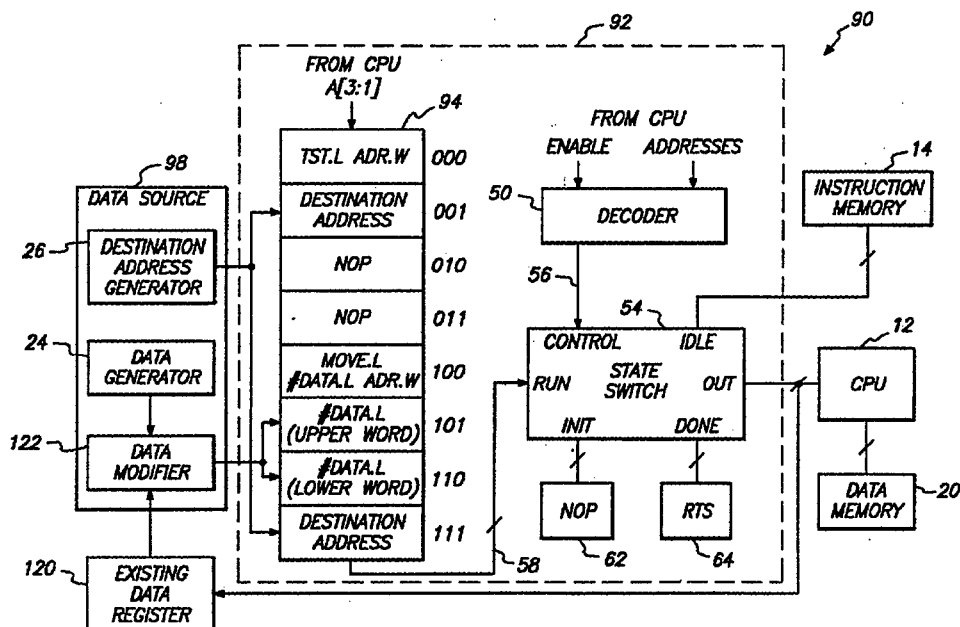




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<p>(21) International Application Number: PCT/US94/09604 (22) International Filing Date: 26 August 1994 (26.08.94) (30) Priority Data: 08/112,113 26 August 1993 (26.08.93) US (71) Applicant: ELECTRONIC ARTS, INC. [US/US]; 1450 Fashion Island Boulevard, San Mateo, CA 94404 (US). (72) Inventors: FOWLER, Terry; 387 Foxborough, Mountain View, CA 94041 (US). McGRATH, Kevin; 299 Lansing Way, Hayward, CA 94541 (US). GOODE, Terry, Lee; 1390 Sage Hen, Sunnyvale, CA 94087 (US). SCHNECKLOTH, Mark; 5018 Parkfield, San Jose, CA 95129 (US). (74) Agents: TRUONG, Phong, K. et al.; Fenwick & West, Suite 500, Two Palo Alto Square, Palo Alto, CA 94306 (US).</p>		<p>(81) Designated States: AU, CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. (88) Date of publication of the international search report: 23 March 1995 (23.03.95)</p>

(54) Title: DATA TRANSFER ACCELERATING APPARATUS AND METHOD



(57) Abstract

In a computing system, data is transferred from a data source (18) to a memory (20) by generating and sending an optimized instruction sequence to a central processing unit (CPU 12). The CPU (12) executes the instruction sequence to carry out the data transfer in an optimal manner. An apparatus for carrying out the above method comprises a determiner (50), an instruction generator (52), and a coupling circuit (54). The determiner (50), in response to a determination that data transfer is desired, generates a run control signal. The instruction generator (52) generates an optimized instruction sequence using data and address information received from the data source (18), and provides this instruction sequence on its output. The coupling circuit (54), in response to the run control signal, relays the optimized instruction sequence from the instruction generator (52) to the CPU (12) to allow the CPU (12) to execute the instruction set to transfer data from the data source (18) to the memory (20).

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER IPC(6) : G06F 9/00, G06F 15/00, G06F 15/40 US CL : 395/375 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) U.S. : 395/375 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) APS text search Dialog search		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	US, A, 5,226,165 (Martin) 06 JULY 1993, Figures 1, 3, and 4, Col. 1 lines 31 - 40	1-19
X	US, A, 4,914,584 (Gibson) 03 APRIL 1990, Figures 1 and 2, Col. 2 lines 38 - 40, Col. 4 lines 38 - 61, Col. 3 lines 31 - 36.	1-19
Y	US, A, 4,700,292 (Campanini) 13 OCTOBER 1987, Figure 4, Col. 2 lines 26 - 56, Col. 7 lines 5 - 41.	1-19
A	US, A, 4,713,750 (Damouny et al.) 15 DECEMBER 1987, SEE ABSTRACT	1-19
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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.
A,P	US, A, 5,307,471 (Ishikawa) 26 APRIL 1994, SEE ABSTRACT.	1-19
A	US, A, 5,127,088 (Takaki) 30 JUNE 1992, SEE ABSTRACT.	1-19
A	US, A, 4,829,427 (Green) 09 MAY 1989, SEE ABSTRACT.	1-19
A	US, A, 4,440,772 (Broyles et al.) 23 AUGUST 1983, SEE ABSTRACT.	1-19