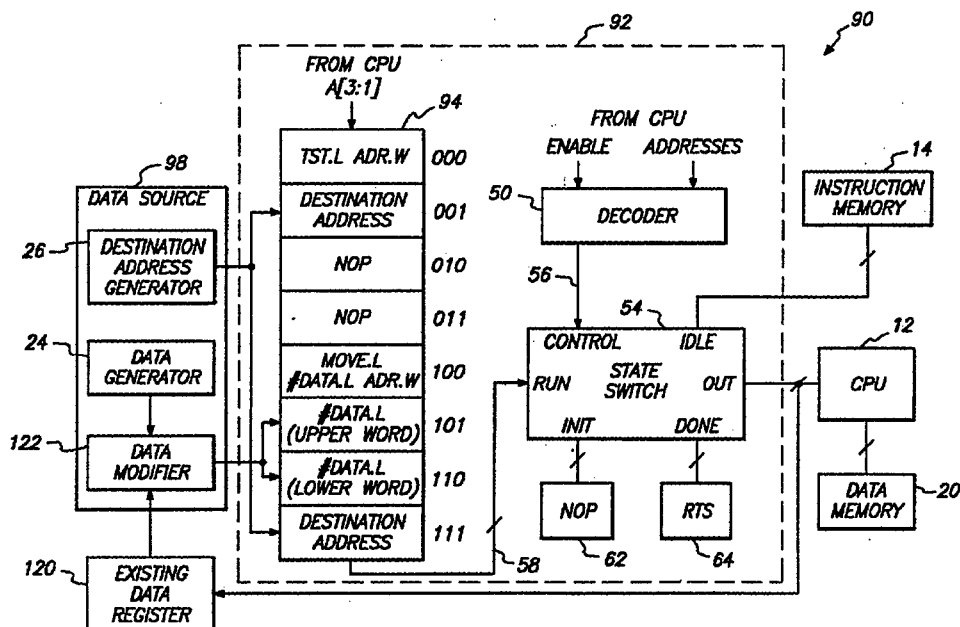




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification <sup>6</sup> : G06F 9/00, 15/00, 15/40</p>	<p>A3</p>	<p>(11) International Publication Number: <b>WO 95/06280</b> (43) International Publication Date: 2 March 1995 (02.03.95)</p>
<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 &amp; 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).  <b>Published</b> <i>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.</i> (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).

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	GB	United Kingdom	MR	Mauritania
AU	Australia	GE	Georgia	MW	Malawi
BB	Barbados	GN	Guinea	NE	Niger
BE	Belgium	GR	Greece	NL	Netherlands
BF	Burkina Faso	HU	Hungary	NO	Norway
BG	Bulgaria	IE	Ireland	NZ	New Zealand
BJ	Benin	IT	Italy	PL	Poland
BR	Brazil	JP	Japan	PT	Portugal
BY	Belarus	KE	Kenya	RO	Romania
CA	Canada	KG	Kyrgystan	RU	Russian Federation
CF	Central African Republic	KP	Democratic People's Republic of Korea	SD	Sudan
CG	Congo	KR	Republic of Korea	SE	Sweden
CH	Switzerland	KZ	Kazakhstan	SI	Slovenia
CI	Côte d'Ivoire	LI	Liechtenstein	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LU	Luxembourg	TD	Chad
CS	Czechoslovakia	LV	Latvia	TG	Togo
CZ	Czech Republic	MC	Monaco	TJ	Tajikistan
DE	Germany	MD	Republic of Moldova	TT	Trinidad and Tobago
DK	Denmark	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	US	United States of America
FI	Finland	MN	Mongolia	UZ	Uzbekistan
FR	France			VN	Viet Nam
GA	Gabon				

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US94/09604

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> 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>B. FIELDS SEARCHED</b> 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		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
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
A	US, A, 4,439,828 (Martin) 27 MARCH 1984, SEE ABSTRACT.	1-19
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* *A* *E* *L* *O* *P*	Special categories of cited documents: document defining the general state of the art which is not considered to be part of particular relevance earlier document published on or after the international filing date document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) document referring to an oral disclosure, use, exhibition or other means 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	Date of mailing of the international search report	
31 OCTOBER 1994	13 FEB 1995	
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. NOT APPLICABLE	Authorized officer <i>B. Parshotam</i> PARSHOTAM LALL Telephone No. (703) 305-9613	

**INTERNATIONAL SEARCH REPORT**International application No.  
PCT/US94/09604

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