

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
21 June 2001 (21.06.2001)

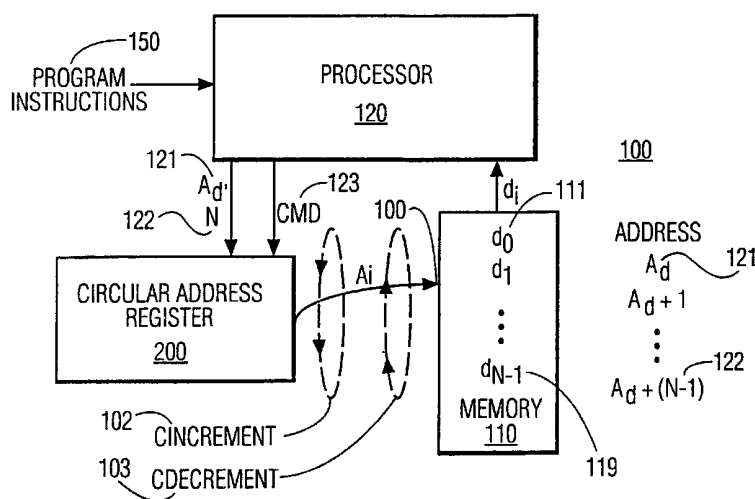
PCT

(10) International Publication Number
WO 01/44921 A3

- (51) International Patent Classification⁷: G06F 9/355
- (74) Agent: DE JONG, Durk, J.; Internationaal Octrooibureau B.V., Prof Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (21) International Application Number: PCT/EP00/12394
- (81) Designated States (*national*): JP, KR.
- (22) International Filing Date: 5 December 2000 (05.12.2000)
- (84) Designated States (*regional*): European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).
- (25) Filing Language: English
- (30) Priority Data: 09/466,404 17 December 1999 (17.12.1999) US
- Published: — with international search report
- (26) Publication Language: English
- (71) Applicant: KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (88) Date of publication of the international search report: 8 November 2001
- (72) Inventors: OSTLER, Farrell, L.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). DAGHER, Antoine, F.; Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CIRCULAR ADDRESS REGISTER



(57) **Abstract:** A device and corresponding programming instructions are provided that facilitate a circular addressing process. The device is configured to provide an address output that is constrained to lie within specified bounds. When a "circular increment" or "circular decrement" instruction is executed that would cause the address to exceed a bound, the address is reset to the other bound. In a preferred embodiment, the programming instruction also sets condition flags that indicate when the address is at each bound. By providing these "bounds" flags in conjunction with the circular addressing operation, multiple-word data items can be processed efficiently. A base-address of N contiguous words in a memory is loaded into the circular register, and a circular addressing instruction is used to access each word of the N contiguous words in sequence; a bounds flag is set when the last word of the multi-word data item is accessed. This bounds flag may thus be used to signal the end of processing of N words of a multi-word data item, and can be used to trigger a load of a next multi-word data item, or to trigger a next operation on the current data-item, and so on. Other condition flags are also provided to facilitate the processing of multi-word data-items.



WO 01/44921 A3

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/12394

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G06F9/355

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)

IPC 7 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 practical, search terms used)

EPO-Internal, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 809 156 A (TABER JOHN E) 28 February 1989 (1989-02-28)	1-4,8,9
Y	the whole document ----	5,6,14
X	US 4 908 748 A (PATHAK BIMAL ET AL) 13 March 1990 (1990-03-13)	10-13
Y	column 11, line 30 -column 13, line 39 ----	5,6,14
X	US 5 659 700 A (CHEN HWANG-CHUNG ET AL) 19 August 1997 (1997-08-19)	10-13
	the whole document ----- -/--	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* 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)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* 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

1 June 2001

Date of mailing of the international search report

08/06/2001

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

Klocke, L

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 00/12394

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>GEURTS W ET AL: "AN INTELLIGENT MEMORY CONTROLLER FOR DYNAMIC DATA STRUCTURES" PROCEEDINGS COMPEURO '89 : VLSI AND COMPUTER PERIPHERALS, vol. 1, 8 - 12 May 1989, pages 35-37, XP000044095 HAMBURG, DE the whole document</p> <p style="text-align: center;">----</p>	2,3
A	<p>US 5 355 462 A (ROUSSEAU EMMANUEL ET AL) 11 October 1994 (1994-10-11) the whole document</p> <p style="text-align: center;">----</p>	1,7
A	<p>EP 0 493 834 A (NIPPON ELECTRIC CO) 8 July 1992 (1992-07-08) the whole document</p> <p style="text-align: center;">-----</p>	1,5,6, 10-13

INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 00/12394

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4809156 A	28-02-1989	NONE	
US 4908748 A	13-03-1990	US 5032986 A	16-07-1991
US 5659700 A	19-08-1997	US 5918252 A	29-06-1999
US 5355462 A	11-10-1994	FR 2666916 A	20-03-1992
		CA 2051559 A	20-03-1992
		EP 0476592 A	25-03-1992
		JP 3032340 B	17-04-2000
		JP 4283834 A	08-10-1992
EP 0493834 A	08-07-1992	JP 2692384 B	17-12-1997
		JP 4230545 A	19-08-1992
		DE 69130448 D	10-12-1998
		DE 69130448 T	15-07-1999
		US 5471600 A	28-11-1995