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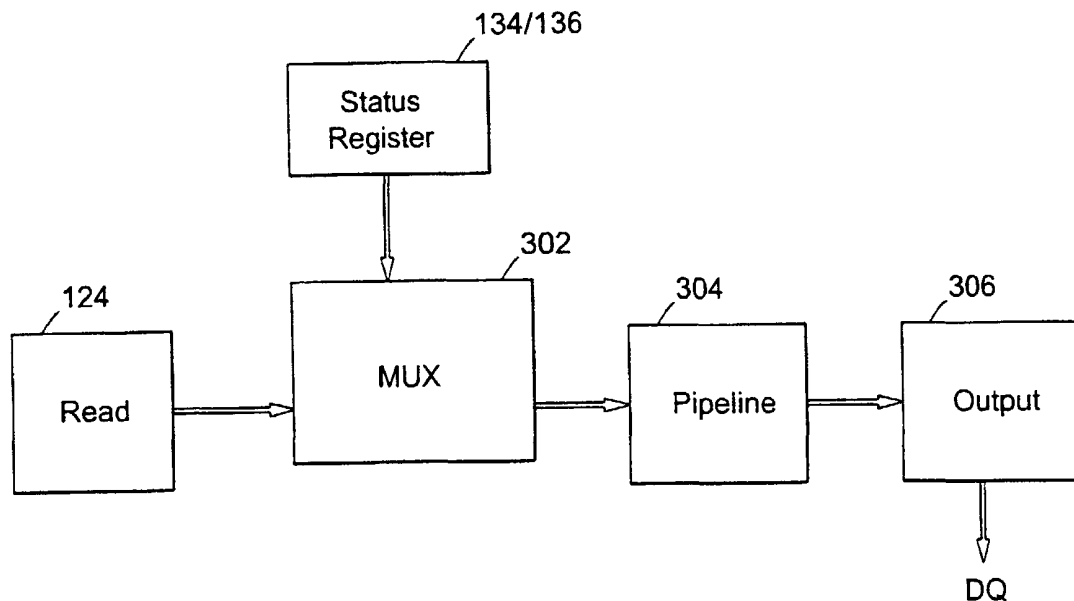
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: FLASH WITH CONSISTENT LATENCY FOR READ OPERATIONS



(57) Abstract: A synchronous flash memory includes an array of non-volatile memory cells. The memory device has a package configuration that is compatible with an SDRAM. The memory device includes a pipelined buffer with selectable propagation paths to route data from the input connection to the output connection. Each propagation path requires predetermined number of clock cycles. The non-volatile synchronous memory includes circuitry to route both memory data and register data through the pipelined output buffer to maintain consistent latency for both types of data.

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A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G11C7/10

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 G11C

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, IBM-TDB

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 978 311 A (GANS DEAN ET AL) 2 November 1999 (1999-11-02) column 5, line 63 -column 6, line 6; figure 7 ---	1-4, 8-12, 16-27
A	US 6 044 023 A (PROEBSTING ROBERT J) 28 March 2000 (2000-03-28) column 2, line 64 -column 4, line 2; figures 1-5 ---	9, 15, 21, 25, 27
A	EP 0 978 842 A (SAMSUNG ELECTRONICS CO LTD) 9 February 2000 (2000-02-09) column 3, line 45 -column 5, line 12; figure 3 --- -/--	5-7, 13-15

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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- *&* document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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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 5 917 761 A (BIGGS TERRY L ET AL) 29 June 1999 (1999-06-29) column 2, line 44 -column 3, line 50; figure 2</p> <p style="text-align: center;">-----</p>	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 01/10040

Patent document cited in search report	A	Publication date	Patent family member(s)	Publication date
US 5978311	A	02-11-1999	US 6163500 A US 6272064 B1	19-12-2000 07-08-2001
US 6044023	A	28-03-2000	US 5713005 A CN 1141449 A DE 69614728 D1 EP 1089285 A1 EP 0726576 A2 JP 8249179 A	27-01-1998 29-01-1997 04-10-2001 04-04-2001 14-08-1996 27-09-1996
EP 0978842	A	09-02-2000	CN 1244018 A EP 0978842 A1 US 6134180 A	09-02-2000 09-02-2000 17-10-2000
US 5917761	A	29-06-1999	NONE	