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(71) Applicant: 3COM CORPORATION [US/US]; 5400 Bayfront Plaza, P.O. Box 58145, Santa Clara, CA 95052-8145 (US).

(72) Inventor: PETERSEN, Brian; 731 Vera Cruz Avenue, Los Altos, CA 94022 (US).

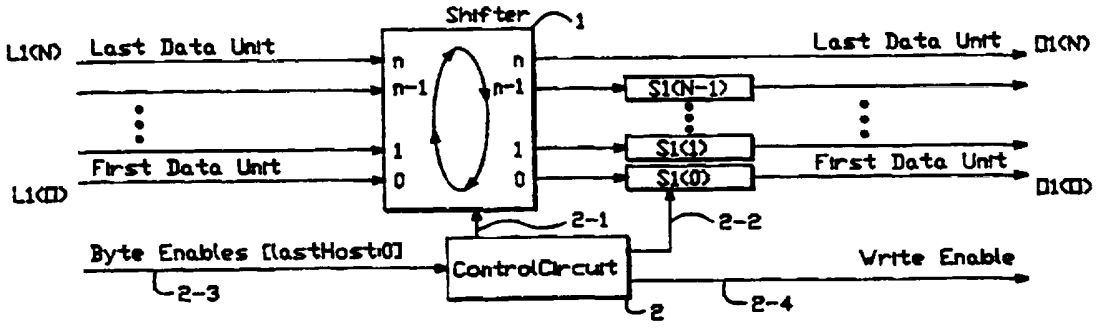
(74) Agents: HAYNES, Mark, A. et al.; Haynes & Davis, Suite 310, 2180 Sand Hill Road, Menlo Park, CA 94025-6935 (US).

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(54) Title: READ AND WRITE DATA ALIGNER AND DEVICE UTILIZING SAME



(57) Abstract

A data aligner (24) transfers data from an input having N + 1 byte lanes (L1(0-n)) to an output having N + 1 byte lanes (O1(0-n)). The data aligner (24) includes a write data aligner and a read data aligner. The write data aligner includes a write shifter (1) coupled to the N input byte lanes (L1(0-n)) and a stage having N selector/registers S1(i). The N selector/registers each have queuing register R(i) and bypass multiplexer M(i). The N selector/registers are coupled to the N output byte lanes (O1(0-n)). The write shifter (1) and N selector/registers S1(i) are coupled to a control circuit (2). The read data aligner includes a stage having N selector/registers S2(i) and a read shifter (3). The S2(i) selector/registers are coupled to N + 1 byte input lanes (L2(0-n)) with the S2(i) outputs coupled to the N read shifter inputs. The read shifter outputs are then coupled to the N + 1 output byte lanes (O2(0-n)). Finally, a control circuit (4) is coupled to the selector/registers S2(i) and read shifter (3).

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US94/09723

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 13/00
US CL :395/425, 325, 275, 250
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. : 395/425, 325, 275, 250

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US, A, 5168561 (VO) 01 DECEMBER 1992, SEE ENTIRE REFERENCE	1 - 17 --- 18 - 36
Y	US, A, 4672570 (BENKEN) 09 JUNE 1987, SEE FIG. 1-3 AND COL.1-9.	35-36
Y	US, A, 4131940 (MOYER) 26 DECEMBER 1978, SEE ENTIRE REFERENCE.	1-36
A	US, A, 4654781 (SCHWARTZ ET AL.) 31 MARCH 1987, SEE ENTIRE REFERENCE.	1-36
A	US, A, 4992931 (HIRASAWA) 12 FEBRUARY 1991 SEE ENTIRE REFERENCE.	1-36
A	US, A, 4663732 (ROBINSON) 05 MAY 1987, SEE ENTIRE	1

[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

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06 DECEMBER 1994	13 FEB 1995
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INTERNATIONAL SEARCH REPORT

International application No.
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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.
P,Y	US, A, 5274763 (BANKS) 28 DECEMBER 1993, SEE ENTIRE REFERENCE.	1-63