



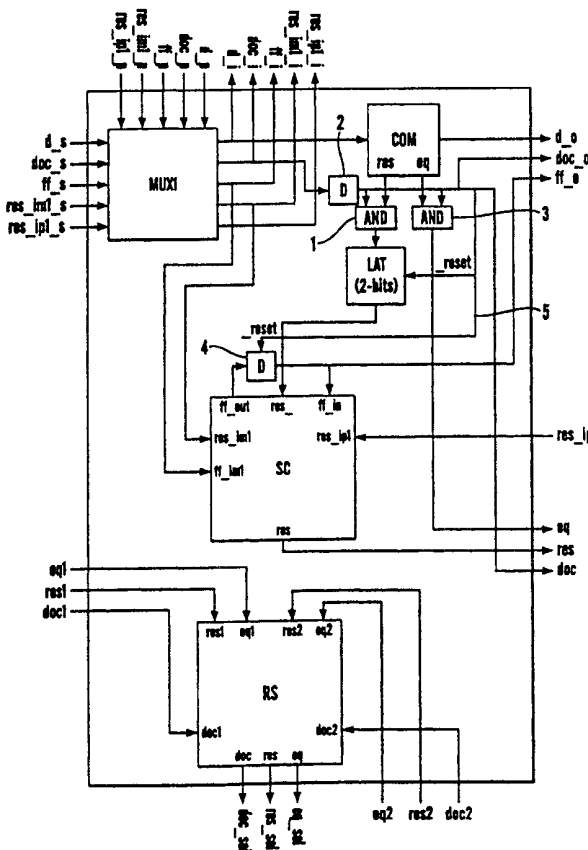
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| <p>(51) International Patent Classification ⁷ : G06F 17/30</p> | <p>A3</p> | <p>(11) International Publication Number: WO 00/29981 (43) International Publication Date: 25 May 2000 (25.05.00)</p> |
| <p>(21) International Application Number: PCT/NO99/00344 (22) International Filing Date: 12 November 1999 (12.11.99) (30) Priority Data: 19985315 13 November 1998 (13.11.98) NO (71) Applicant (for all designated States except US): FAST SEARCH & TRANSFER ASA [NO/NO]; P.O. Box 1677 Vika, N-0120 Oslo (NO). (72) Inventors; and (75) Inventors/Applicants (for US only): SVINGEN, Børge [NO/NO]; Borkdalen 6, N-7550 Hommelvik (NO). HA-LAAS, Arne [NO/NO]; Overlege Bratts vei 60, N-7026 Trondheim (NO). BIRKELAND, Olaf, René [NO/NO]; Prof. Dahls gate 21B, N-0353 Oslo (NO). (74) Agent: LEISTAD, Geirr, I.; Opticom ASA, P.O. Box 1872 Vika, N-0124 Oslo (NO).</p> | <p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report. In English translation (filed in Norwegian).</p> <p>(88) Date of publication of the international search report: 10 August 2000 (10.08.00)</p> | |

(54) Title: A PROCESSING CIRCUIT AND A SEARCH PROCESSOR CIRCUIT

(57) Abstract

A processing circuit P_1 for recognition and comparison of complex patterns in high-speed data streams can form a node in a network of circuits of this kind and comprises an interface for inputting of parameters for the circuit, at least one kernel processor P_0 in the form of a comparator unit (COM) for comparing two data words, a logic unit (E) connected with the comparator unit and comprising a multiplexer (MUX1), a first D flip-flop (2), a latency unit (LAT) for delaying a positive binary value with a given number of time units, a second D flip-flop (4), a sequence control unit (SC) which monitors and controls a comparison operation in the comparator unit (COM), and a result selector (RS) which combines two result values from other processing circuits or other result selectors. A search processor circuit (PMC) for performing search and comparison operations on complex patterns comprises a multiprocessor unit P_n with processing circuits P_1 in a tree structure and forms a binary or superbinary tree with $n+1$ levels S and degree $k = 2^m$, m being a positive integer ≥ 1 . An underlying level S_{n-q} generally comprises 2^{mq} circuits P_{n-q} provided nested in the $2^{m(q-1)}$ circuits P_{n-q+1} on the level S_{n-q+1} . A 0th level S_0 defined for $q = n$ in the unit P_n comprises $2^{m(n-1)}$ to 2^{mn} kernel processors P_0 which form comparator units (COM) in the circuits P_1 . All circuits P_1, P_2, \dots, P_n have identical interfaces (I) and a logic unit (E) with a result selector (RS) for collecting the results of a search operation or a comparison operation. Use in search engines for search and retrieval of data stored in data bases.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/NO 99/00344

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: G06F 17/30

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)

IPC7: G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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| X | WO 9409443 A1 (HALAAS, ARNE), 28 April 1994 (28.04.94), page 5, line 32 - page 19, line 36; page 22, line 27 - line 34, figures 1-20 -- | 1-10,17-22 |
| A | US 4860201 A (SALVATORE J. STOLFO ET AL), 22 August 1989 (22.08.89), column 4, line 56 - column 5, line 16 -- | 17-22 |
| A | US 5329405 A (BRIAN TA-CHENG HOU ET AL), 12 July 1994 (12.07.94), column 2, line 31 - column 3, line 20 -- | 11-16 |

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| C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
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Information on patent family members

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