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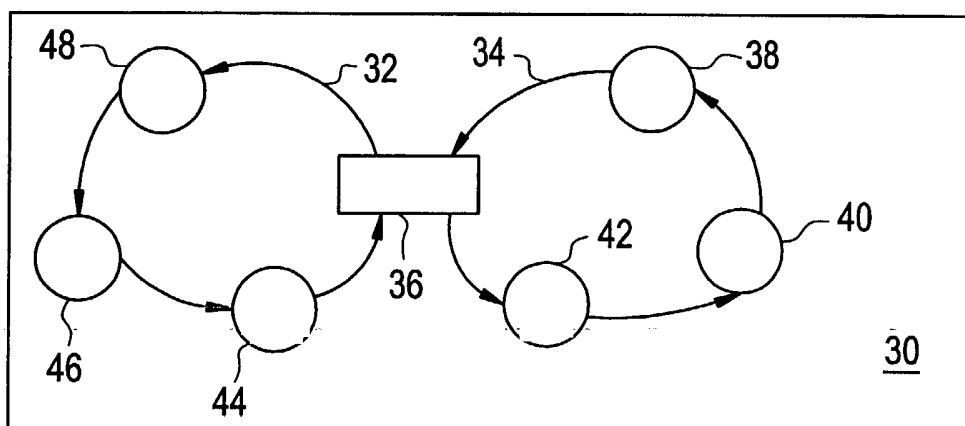
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(54) Title: COMMUNICATIONS SYSTEM USING RINGS ARCHITECTURE



(57) Abstract: Systems and methods are provided for implementing: a rings architecture (32, 34) for communications and data handling systems (30); an enumeration process for automatically configuring the ring topology (32, 34); automatic routing of messages through bridges (36); extending a ring topology to external devices (42); write-ahead functionality to promote efficiency; wait-till-reset operation resumption; in-vivo scan through rings (32, 34) topology; staggered clocking arrangement; and stray message detection and eradication.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/20867

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04L 12/56

US CL : 370/389

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. : 370/389, 392,399,401,445,471; 709/219,220,224,251

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,485,578 A (SWEAZEY) 16 January 1996 See Figs. 1,2,5,9,10 and 16A-17C and Cols. 1-4.	1-355
Y	US 4,760,571 A (SCHWARZ) 26 July 1988, See Figs 1-2.	1-73,101-110,116-147, 154-195
Y	US 5,341,369 A (LANGER) 23 August 1994, See COL. 2, lines 60-65.	1-73,101-110,116-147, 154-195
Y	US 4,933,938 A (SHEEHY) 12 JUNE 1990, See Figs. 1 and 2.	74-100, 324-355
Y	US 5,594,728 A (HERSHEY et al) 14 January 1997, See Figs. 4-7.	57-100, 314-355

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:		"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
"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier document published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

Date of the actual completion of the international search

15 JANUARY 2003

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/20867

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US02/20867

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,672,607 A (NAKAYASHI ET AL) 09 June 1987, See Figs. 1-3, and 9.	74-205, 324-355
Y	US 5,229,993 A (FOUDRIAT et al) 20 July 1993, See Figs.2-7.	74-205, 324-355
Y	US 6,049,824 A (SIMONIN) 11 April 2000, See Fig. 1.	22-56
Y,P	US 6,311,212 B1 (CHONG et al) 30 October 2001, See Figs. 1-3.	1-21, 101-110,1111 16-147, 154-195, 216-241,328-355
Y,P	US 6,339,788 B1 (GEYER et al) 15 January 2002, See Figs 2 and 4A.	1-355