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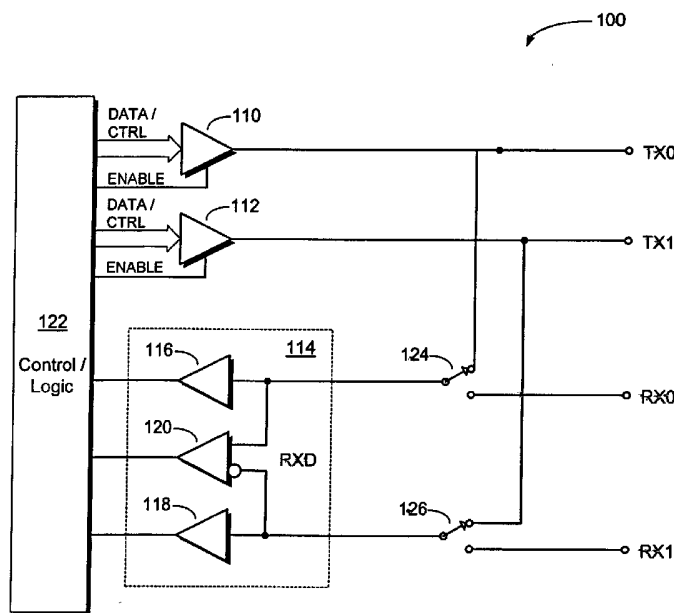
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(54) Title: FLEXIBLE INTERFACE FOR UNIVERSAL BUS TEST INSTRUMENT



(57) Abstract: An interface for a bus test instrument is readily adaptable for testing a wide range of bus types. The interface includes a pair of transmit lines and a pair of receive lines. A transmitting circuit is adaptable for transmitting either single-ended or differential signals over the transmit lines, and at least one receiving circuit is adaptable for receiving either single-ended or differential signals from either the receive lines or the transmit lines. The flexible interface allows the testing of single-ended and differential busses, as well as busses that support both unidirectional and bidirectional communication.

WO 2004/013758 A3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06F13/40		
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 G01R		
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, WPI Data, PAJ		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 243 776 B1 (LATTIMORE GEORGE MCNEIL ET AL) 5 June 2001 (2001-06-05) abstract; figures 3,4 column 1, line 20 - line 33 column 4, line 36 - column 5, line 29	4,7, 15-18,20
A	-----	1-3,19
X	US 5 929 655 A (WANG POUCHENG ET AL) 27 July 1999 (1999-07-27) abstract; figure 3 column 7, line 65 - column 8, line 50	4,7, 15-18,20
A	-----	1-3,19
<input type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> 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 <p style="text-align: center;">16 January 2004</p>		Date of mailing of the international search report <p style="text-align: center;">22/04/2004</p>
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 <p style="text-align: center;">Albert, J</p>

INTERNATIONAL SEARCH REPORT

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6243776	B1	05-06-2001	NONE

US 5929655	A	27-07-1999	NONE

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 03/22288

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

This International Search 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:

see additional sheet

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.:
1-4, 7, 15-20

Remark on Protest

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

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4,7,15-20

A flexible interface, wherein the first single-ended receiver is connectable to one of the first receive node and the output of the first single-ended transmitter via a first switch, and the second second single-ended receiver is connectable to one of the second receive node and the output of the second single-ended transmitter via a second switch.

2. claims: 5,9

Each of the first and second single-ended transmitters comprises a swing generator having an input for receiving input data and an output for establishing an output signal proportional to a desired output signal of the respective transmitter.

3. claim: 6

Each of the first and second single-ended transmitters comprises a slew rate adjusting circuit.

4. claim: 8

Each of the first and second single-ended transmitters has a selectable output impedance.

5. claims: 10,11

Each of the first and second single-ended receiver circuits comprises a window comparator.

6. claims: 12,13,14

Each at least one receiver circuit comprises a selectable termination impedance.
