

UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No.	223756US2
	First Inventor or Application Identifier	Leon BRUCKMAN, et al.
	Title	HIDDEN FAILURE DETECTION
Assignee Name:		CORRIGENT SYSTEMS LTD.
Assignee Address:		126 Yigal Allon Street, Tel Aviv 67443, Israel

05/30/02
10/15/05
U.S. PTO

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents	ADDRESS TO: Assistant Commissioner for Patents Box Patent Application Washington, DC 20231
1. ☒ Fee Transmittal Form (e.g. PTO/SB/17) (Submit an original and a duplicate for fee processing) 2. ☒ Specification Total Sheets 23 3. ☒ Formal Drawing(s) (35 U.S.C. 113) Total Sheets 2 4. ☒ Oath or Declaration Total Pages 3 a. ☒ Newly executed (original) b. ☐ Copy from a prior application (37 C.F.R. §1.63(d)) (for continuation/divisional with box 17 completed) i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §1.63(d)(2) and 1.33(b). 5. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix) 6. ☐ Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) a. ☐ Computer Readable Form (CRF) b. Specification or Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PARTS 7. ☒ Assignment Papers (cover sheet & document(s)) 8. ☒ Application Data Sheet. See 37 CFR 1.76 9. ☐ 37 C.F.R. §3.73(b) Statement (when there is an assignee) ☐ Power of Attorney 10. ☐ English Translation Document (if applicable) 11. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations 12. ☐ Preliminary Amendment 13. ☒ White Advance Serial No. Postcard 14. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed) 15. ☒ Applicant claims small entity status. See 37 CFR 1.27 16. ☐ Other:

17. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application no.:

Prior application information: Examiner: Group Art Unit:

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

18. Amend the specification by inserting before the first line the sentence:

☐ This application is a ☐ Continuation ☐ Division ☐ Continuation-in-part (CIP) of application Serial No. Filed on

☐ Which was published in English

☐ Which was not published in English

☐ This application claims priority of provisional application Serial No. Filed

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FILING DATE: Herewith

FOR: **HIDDEN FAILURE DETECTION**

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

FOR	NUMBER FILED	NUMBER EXTRA	RATE	CALCULATIONS
TOTAL CLAIMS	26 - 20 =	6	× \$18 =	\$108.00
INDEPENDENT CLAIMS	4 - 3 =	1	× \$84 =	\$84.00
☐ MULTIPLE DEPENDENT CLAIMS (If applicable)			+ \$280 =	\$0.00
☐ LATE FILING OF DECLARATION			+ \$130 =	\$0.00
BASIC FEE				\$740.00
TOTAL OF ABOVE CALCULATIONS				\$932.00
☒ REDUCTION BY 50% FOR FILING BY SMALL ENTITY				(\$466.00)
☐ FILING IN NON-ENGLISH LANGUAGE			+ \$130 =	\$0.00
☒ RECORDATION OF ASSIGNMENT			+ \$40 =	\$40.00
TOTAL				\$506.00

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SERIAL NO: New Application

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Respectfully Submitted,

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APPLICATION DATA SHEET

APPLICATION INFORMATION

Application Type::	REGULAR
Subject Matter::	UTILITY
CD-ROM or CD-R?::	NONE
Title::	HIDDEN FAILURE DETECTION
Attorney Docket Number::	223756US2
Total Drawing Sheets::	2
Small Entity?::	YES

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HIDDEN FAILURE DETECTION

FIELD OF THE INVENTION

The present invention relates generally to diagnostic testing of electronic equipment, and specifically to non-intrusive self-testing of communication systems.

BACKGROUND OF THE INVENTION

Electronic equipment may fail not only during operation, but also when it is idle between operational periods. Failures of idle components are referred to as "hidden failures," because they do not affect service at the moment they occur and thus may go undetected. From the operator's point of view, hidden failures are a particularly troublesome problem, since they may remain undetected until the idle component is activated. In other words, the failure becomes apparent just when the component is actually needed. It is therefore desirable to detect hidden failures while components are idle, so that the failed components can be replaced before they are needed, without interrupting service. Ideally, the idle components should be tested non-intrusively, i.e., without interrupting normal operation of active components.

Backplane-based configurations are commonly used in communication and computing equipment. In network access systems, for example, a backplane may be used to connect a main module, having a trunk link to a core network, to a number of subsidiary modules, such as line cards, with ports serving network users. The main module typically includes a switch for multiplexing among the subsidiary

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modules. Traces on the backplane connect the subsidiary modules to the ports of the switch. Typically, the main module and subsidiary modules contain embedded processors which are used, *inter alia*, for self-test and other diagnostic functions.

Various methods are known in the art for self-testing of backplane-based communication equipment. For example, PCT Publication WO 01/93499, whose disclosure is incorporated herein by reference, describes an ATM switch/multiplexer system with non-intrusive self-test capability. A bus couples an ATM layer device (the switch) to a number of physical layer devices. A dedicated self-test circuit also couples to the bus. This circuit is adapted to loop back cells from the ATM layer device in a self-test function through a dedicated virtual circuit.

As another example, U.S. Patent 5,841,788, whose disclosure is incorporated herein by reference, describes methods for backplane interconnect testing. Test vectors are applied to individual circuit boards in a system while the remaining circuit boards are disabled. Backplane faults are identified by comparing observed receiver signals to the signals expected in response to the test vectors.

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SUMMARY OF THE INVENTION

It is an object of some aspects of the present invention to provide improved methods and systems for non-intrusive testing of electronic systems, particularly multi-board, backplane-based systems.

In preferred embodiments of the present invention, an electronic system comprises a master module and multiple subsidiary modules, each of which is connected to the master module by one or more connection lines. Typically, though not necessarily, the master and subsidiary modules plug into a backplane, and the lines comprise printed circuit traces on the backplane. The master module comprises a switch, which is typically used for linking the subsidiary modules via the connection lines to a network trunk. At any given time, a number of the connection lines are likely to be idle.

In order to test the idle lines and the circuitry associated with them, the master module selects one of the idle lines to serve as an aid line. It instructs the subsidiary module to which the aid line is connected to loop back all traffic that reaches it via the aid trace. This loopback function does not require that the subsidiary module decode or process the traffic - only that it send it back bit by bit to over the aid line to the master module. The master module then selects another one of the idle lines to be tested, and configures the switch so that it connects the line selected for testing to the aid line. The master module instructs the subsidiary module to which the tested line is connected to transmit test traffic over the tested line. If all the components and connections are working properly, the test traffic is conveyed by the switch to

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the aid line, and then looped back over the same route to the module that sent the traffic. If the traffic returns intact to the sending module, it is a sign that the traces and components are in order. If the traffic is corrupted or fails to return to the sending module, a fault is reported. The master module preferably continues in this manner to test all the lines in the system that are idle at any given time.

The present invention thus enables an electronic system to test its idle lines and components and detect hidden failures without intruding on normal traffic carried by the system's active lines. The testing method makes use of existing components in the system and requires substantially no dedicated testing hardware. It is applicable to all types of subsidiary modules, even in systems that mix different modules using different data formats and communication protocols. Although preferred embodiments are described herein with particular reference to communication systems, the principles of the present invention may likewise be applied in other types of modular systems, particularly backplane-based systems.

There is therefore provided, in accordance with a preferred embodiment of the present invention, a method for self-testing of an electronic system that includes a main module and at least first and second subsidiary modules, each such module connected to the main module by one or more lines for carrying data, at least some of which lines may be idle, the main module including a switch having ports connected to the lines, the method including:

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selecting a first idle line among the idle lines connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid line;

instructing the first subsidiary module to loop back traffic reaching the first subsidiary module via the aid line;

selecting for testing a second idle line among the idle lines connecting the second subsidiary module to a second port of the switch on the main module;

configuring the switch to link the first and second ports;

transmitting test traffic over the second idle line from the second subsidiary module to the main module; and

reporting that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time.

Preferably, instructing the first subsidiary module includes configuring the first subsidiary module to loop back the traffic to the main module substantially without processing the data included in the test traffic. The first and second subsidiary modules may be configured to transmit and receive the data in different, respective first and second formats, such that the test traffic transmitted from the second subsidiary module and looped back by the first subsidiary module is in the second format.

Preferably, the method further includes selecting one or more further idle lines for testing among the idle lines in the system, wherein the further idle lines connect to further ports of the switch on the main module, and repeating the steps of configuring the switch, transmitting the test traffic and reporting that

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the failure has occurred with respect to the further idle lines until all the idle lines have been tested.

Typically, the main module and subsidiary modules include cards, which are plugged into a backplane, and the lines include traces on the backplane. In a preferred embodiment, the switch is configured to connect the lines to a network communication trunk, and the traffic includes communication traffic. Preferably, transmitting the test traffic includes testing the second idle line while continuing to use the lines that are not idle for carrying the data to the network communication trunk.

There is also provided, in accordance with a preferred embodiment of the present invention, a method for self-testing of an electronic system that includes a main module and multiple subsidiary modules, each such module being connected to the main module by one or more lines for carrying data, the method including:

- selecting first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats;

- instructing the first subsidiary module to loop back traffic reaching the first subsidiary module from the main module;

- configuring the main module to connect the first and second subsidiary modules, so that the traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the second subsidiary module; and

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testing the system by causing the second subsidiary module to transmit test traffic in the second format to the main module, and assessing whether the test traffic is returned intact from the first module.

Typically, the traffic includes communication traffic, and the first and second formats are determined respectively by different first and second communication protocols. In a preferred embodiment, one of the first and second protocols is a time domain multiplexing (TDM) protocol, while the other of the first and second protocols is a packet data protocol.

There is additionally provided, in accordance with a preferred embodiment of the present invention, modular electronic apparatus, including:

- a backplane, which includes traces for carrying data between modules that are plugged into the backplane;

- a main module, adapted to be plugged into the backplane, the main module including a switch having ports for connection to the traces of the backplane;

- at least first and second subsidiary modules, adapted to be plugged into the backplane so as to be connected to the main module by the traces, at least some of which traces may be idle; and

- a system control processor, which is adapted to select a first idle trace among the idle traces connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid trace, to instruct the first subsidiary module to loop back traffic reaching the first subsidiary module via the aid trace, to select for testing a second idle trace among the idle traces connecting the second subsidiary module to a second port of the switch on the main module, and to

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configure the switch to link the first and second ports, the system control processor being further adapted to cause test traffic to be transmitted over the second idle trace from the second subsidiary module to the main module, and to report that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time.

There is further provided, in accordance with a preferred embodiment of the present invention, modular electronic apparatus, including:

a backplane, which includes traces for carrying data between modules that are plugged into the backplane;

a main module, adapted to be plugged into the backplane;

a plurality of subsidiary modules, adapted to be plugged into the backplane so as to be connected to the main module by the traces; and

a system control processor, which is adapted to select first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats, and which is further adapted to test the modules by causing the first subsidiary module to loop back traffic reaching the first subsidiary module from the main module, by configuring the main module to connect the first and second subsidiary modules, so that the traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the second subsidiary module, and by causing the second subsidiary module to transmit test traffic in the second

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format to the main module, and assessing whether the test traffic is returned intact from the first module.

The present invention will be more fully understood from the following detailed description of the preferred embodiments thereof, taken together with the drawings in which:

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram that schematically illustrates a communication system with non-intrusive hidden failure detection capability, in accordance with a preferred embodiment of the present invention; and

Fig. 2 is a flow chart that schematically illustrates a method for hidden failure detection, in accordance with a preferred embodiment of the present invention.

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DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Fig. 1 is a block diagram that schematically illustrates a communication system 20, in accordance with a preferred embodiment of the present invention. System 20 comprises a main module 22 and a number of subsidiary modules 24, labeled module A, B, ..., K. The main and subsidiary modules plug into a backplane 26, which includes traces 34 that connect the modules, as described below. Main module 22 comprises a switch 28 and multiple ports 30, labeled P1, P2, ..., Pn, for connecting to ports 32 of subsidiary modules 24 via the backplane traces. Ports 30 and 32 typically comprise high-speed physical interface components. Typically, the ports comprise serializer/deserializer (SERDES) interfaces, as are known in the art, although other types of backplane interfaces may also be used.

In this embodiment, switch 28 aggregates upstream traffic from ports 30 to an uplink trunk connecting to a high-speed network. The switch likewise distributes downstream traffic from the network to ports 30 using an appropriate internal protocol. Switch 28 can also be configured to direct data from any one of main module ports 30 to any other main module port, thus forming a virtual connection between subsidiary module ports 32 that are connected to these main module ports. This cross-connection function is commonly available in off-shelf physical layer switches, such as the VCS835 Crosspoint Switch, which is produced by Vitesse Semiconductor Corporation (Camarillo, California).

System 20 thus provides multiplexed network access for users who are connected to subsidiary modules 24. Different types of subsidiary modules can be connected in

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parallel via backplane 26 to the same main module 22, each module operating in accordance with its own communication protocol and data format. For example, module A may operate in accordance with a time domain multiplexing (TDM) protocol for voice and video services, while module B is an Ethernet board for packet data services, and so forth. The physical layer interfaces between the subsidiary modules and the main module are uniform, and the different services are thus transmitted through ports 30 and 32 and are aggregated by switch 28 irrespective of the differences in service type. Typically, an operator of system 20 installs subsidiary modules 24 with some spare capacity, to allow provisioning of additional services when requested by users. Therefore, some of traces 34 on backplane 26 may be idle at any given time. In Fig. 1, active traces 36 are shown by solid lines, and idle traces 38 are dashed.

While one of traces 38 is idle, a failure may occur in either main module port 30 or subsidiary module port 32 that is connected to the trace, or in the trace itself. Such failures may result, for example, from changes in temperature or humidity, from electrostatic discharge or from ionizing radiation. In order to detect these hidden failures while the corresponding traces are idle, one of the idle traces is selected to serve as an aid trace 40, and this trace is used in carrying out a non-intrusive test procedure, as described below. The test procedure is supervised by an embedded system control processor 42 in main module 22, in communication with subsidiary processors 44 on subsidiary modules 24 via a separate control channel (not shown) on backplane 26. Processors 42 and 44 may comprise, for example,

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MPC8265 and MPC8250 integrated communications processors, produced by Motorola Semiconductor Products (Austin, Texas), and are preferably used to perform general system management functions in addition to the test procedure described here. The control channel linking the processors is typically an Ethernet channel, over which the processors communicate using a suitable management protocol, such as the well-known Simple Network Management Protocol (SNMP).

Fig. 2 is a flow chart that schematically illustrates a method for testing idle traces in system 20 in order to detect hidden defects, in accordance with a preferred embodiment of the present invention. The method may be invoked by the operator of system 20 or, additionally or alternatively, it may be invoked automatically on a predetermined schedule or when certain operating conditions occur. When processor 42 is ready to begin the test sequence, it selects one of the idle traces to serve as aid trace 40, at an aid selection step 50. In the present example, the trace connecting port Pn on main module 22 with port P4 on subsidiary module K is chosen, but this choice is arbitrary, and substantially any other idle trace could be used instead. Processor 42 then instructs processor 44 of module K to set port P4 to loop back all traffic that it receives on trace 40, at a loopback step 52. This function is performed by the backplane interface component, which simply buffers and returns the stream of data bits that it receives. As long as the loopback setting is in effect, module K makes no attempt to process the data that it receives on port P4. Therefore, it makes no difference whether or not the

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data are in a format that module K is able to recognize and process.

Having configured aid trace 40, processor 42 selects one of idle traces 38 to test, at a test selection step 54. Assume for now that the processor selects the trace connecting port P2 on main module 22 with port P2 on subsidiary module A. Processor 42 configures switch 28 to connect ports P2 and Pn on main module 22, at a switch configuration step 56, thereby creating a virtual connection between port P2 on subsidiary module A and port P4 on subsidiary module K. Processor 42 then instructs processor 44 of module A to transmit test traffic through port P2, at a test transmission step 58. The test traffic typically comprises test data in the data communication format used by module A, which depends on the communication protocol for which module A is configured.

As long as all traces and components are working properly, the test traffic transmitted through port P2 will be conveyed by switch 28 to port Pn of main module 22, and then via aid trace 40 to port P4 of subsidiary module K. This port will loop the test traffic back through the switch to port P2 of the main module, and from there via trace 38 to port P2 of subsidiary module A. Processor 44 on module A waits for the test traffic to be returned to port P2 for a predetermined timeout period, at a traffic return step 60. If the traffic does not return on time, processor 44 concludes that a failure has occurred, and notifies processor 42 accordingly, at a failure reporting step 62. A similar notification is sent if the traffic returns, but processor 44 on module A determines that the test data have been corrupted. When

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any such failure occurs, processor 42 typically sends an alarm to the operator of system 20 and may also perform additional tests to try to localize the failure.

After testing of the first idle trace 38 is completed (successfully or not), processor 42 selects the next idle trace to test, at a next trace selection step 64. For example, the trace connecting port P3 on subsidiary module B to port P5 on the main module may be chosen next. The testing process continues at step 56, cycling through the steps of Fig. 2 in this manner until all the idle traces have been tested. Processor 42 maintains a database of management information regarding subsidiary modules 24, including a list of which traces are active, and which are idle. When a trace changes state, or when a module is inserted in or removed from backplane 26, processor 42 updates the database accordingly and uses the updated database in carrying out the next cycle of testing.

Although the embodiments described above illustrate specifically the application of the present invention to communication systems, the principles of the present invention may likewise be applied in other types of modular electronic systems, particularly backplane-based systems. It will thus be appreciated that the preferred embodiments described above are cited by way of example, and that the present invention is not limited to what has been particularly shown and described hereinabove. Rather, the scope of the present invention includes both combinations and subcombinations of the various features described hereinabove, as well as variations and modifications thereof which would occur to persons

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skilled in the art upon reading the foregoing description
and which are not disclosed in the prior art.

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CLAIMS

1. In an electronic system that includes a main module and at least first and second subsidiary modules, each such module connected to the main module by one or more lines for carrying data, at least some of which lines may be idle, the main module including a switch having ports connected to the lines, a method for self-testing, comprising:

selecting a first idle line among the idle lines connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid line;

instructing the first subsidiary module to loop back traffic reaching the first subsidiary module via the aid line;

selecting for testing a second idle line among the idle lines connecting the second subsidiary module to a second port of the switch on the main module;

configuring the switch to link the first and second ports;

transmitting test traffic over the second idle line from the second subsidiary module to the main module; and

reporting that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time.

2. A method according to claim 1, wherein instructing the first subsidiary module comprises configuring the first subsidiary module to loop back the traffic to the main module substantially without processing the data comprised in the test traffic.

3. A method according to claim 2, wherein the first and second subsidiary modules are configured to transmit and

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receive the data in different, respective first and second formats, and wherein the test traffic transmitted from the second subsidiary module and looped back by the first subsidiary module is in the second format.

4. A method according to claim 1, and comprising:

selecting one or more further idle lines for testing among the idle lines in the system, wherein the further idle lines connect to further ports of the switch on the main module; and

repeating the steps of configuring the switch, transmitting the test traffic and reporting that the failure has occurred with respect to the further idle lines until all the idle lines have been tested.

5. A method according to claim 1, wherein the main module and subsidiary modules comprise cards, which are plugged into a backplane, and wherein the lines comprise traces on the backplane.

6. A method according to claim 1, wherein the switch is configured to connect the lines to a network communication trunk, and wherein the traffic comprises communication traffic.

7. A method according to claim 6, wherein transmitting the test traffic comprises testing the second idle line while continuing to use the lines that are not idle for carrying the data to the network communication trunk.

8. In an electronic system that includes a main module and multiple subsidiary modules, each such module being connected to the main module by one or more lines for carrying data, a method for self-testing, comprising:

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selecting first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats;

instructing the first subsidiary module to loop back traffic reaching the first subsidiary module from the main module;

configuring the main module to connect the first and second subsidiary modules, so that the traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the second subsidiary module; and

testing the system by causing the second subsidiary module to transmit test traffic in the second format to the main module, and assessing whether the test traffic is returned intact from the first module.

9. A method according to claim 8, wherein instructing the first subsidiary module comprises configuring the first subsidiary module to loop back the traffic to the main module substantially without processing the data comprised in the test traffic.

10. A method according to claim 8, wherein the main module and subsidiary modules comprise cards, which are plugged into a backplane, and wherein the lines comprise traces on the backplane.

11. A method according to claim 8, wherein the main module comprises a switch, which is coupled to connect the lines to a network communication trunk, and wherein configuring the main module comprises configuring the

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switch to connect at least one of the lines of the first subsidiary module to at least one of the lines of the second subsidiary module.

12. A method according to claim 11, wherein testing the system comprises testing one or more of the lines of the second subsidiary module while continuing to use at least some of the lines that are not under test for carrying the data from the subsidiary modules to the network communication trunk.

13. A method according to claim 8, wherein the traffic comprises communication traffic, and wherein the first and second formats are determined respectively by different first and second communication protocols.

14. A method according to claim 13, wherein one of the first and second protocols is a time domain multiplexing (TDM) protocol, while the other of the first and second protocols is a packet data protocol.

15. Modular electronic apparatus, comprising:

- a backplane, which comprises traces for carrying data between modules that are plugged into the backplane;

- a main module, adapted to be plugged into the backplane, the main module comprising a switch having ports for connection to the traces of the backplane;

- at least first and second subsidiary modules, adapted to be plugged into the backplane so as to be connected to the main module by the traces, at least some of which traces may be idle; and

- a system control processor, which is adapted to select a first idle trace among the idle traces connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid trace,

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to instruct the first subsidiary module to loop back traffic reaching the first subsidiary module via the aid trace, to select for testing a second idle trace among the idle traces connecting the second subsidiary module to a second port of the switch on the main module, and to configure the switch to link the first and second ports, the system control processor being further adapted to cause test traffic to be transmitted over the second idle trace from the second subsidiary module to the main module, and to report that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time.

16. Apparatus according to claim 15, wherein the first subsidiary module is configured, under control of the system control processor, to loop back the traffic on the aid trace to the main module substantially without processing the data comprised in the test traffic.

17. Apparatus according to claim 16, wherein the first and second subsidiary modules are configured to transmit and receive the data in different, respective first and second formats, and wherein the test traffic transmitted from the second subsidiary module and looped back by the first subsidiary module is in the second format.

18. Apparatus according to claim 15, wherein the system control processor is adapted to select one or more further idle traces for testing among the idle traces in the system, wherein the further idle traces connect to further ports of the switch on the main module, and to repeatedly configure the switch, cause the test traffic to be transmitted and report the failure when it occurs

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with respect to the further idle traces until all the idle lines have been tested.

19. Apparatus according to claim 15, wherein the switch is configured to connect the traces to a network communication trunk, and wherein the traffic comprises communication traffic.

20. Apparatus according to claim 19, wherein the test traffic is transmitted over the second idle trace while continuing to use the trace that are not idle for carrying the data to the network communication trunk.

21. Modular electronic apparatus, comprising:

- a backplane, which comprises traces for carrying data between modules that are plugged into the backplane;

- a main module, adapted to be plugged into the backplane;

- a plurality of subsidiary modules, adapted to be plugged into the backplane so as to be connected to the main module by the traces; and

- a system control processor, which is adapted to select first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats, and which is further adapted to test the modules by causing the first subsidiary module to loop back traffic reaching the first subsidiary module from the main module, by configuring the main module to connect the first and second subsidiary modules, so that the traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the

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second subsidiary module, and by causing the second subsidiary module to transmit test traffic in the second format to the main module, and assessing whether the test traffic is returned intact from the first module.

22. Apparatus according to claim 21, wherein the first subsidiary module is configured to loop back the traffic to the main module substantially without processing the data comprised in the test traffic.

23. Apparatus according to claim 21, wherein the main module comprises a switch, which is coupled to connect the traces to a network communication trunk, and wherein the system control processor is adapted to configure switch to connect at least one of the lines of the first subsidiary module to at least one of the lines of the second subsidiary module during the test.

24. Apparatus according to claim 23, wherein the system control processor is adapted to test one or more of the traces connected to the second subsidiary module while at least some of the traces that are not under test continue to be used for carrying the data from the subsidiary modules to the network communication trunk.

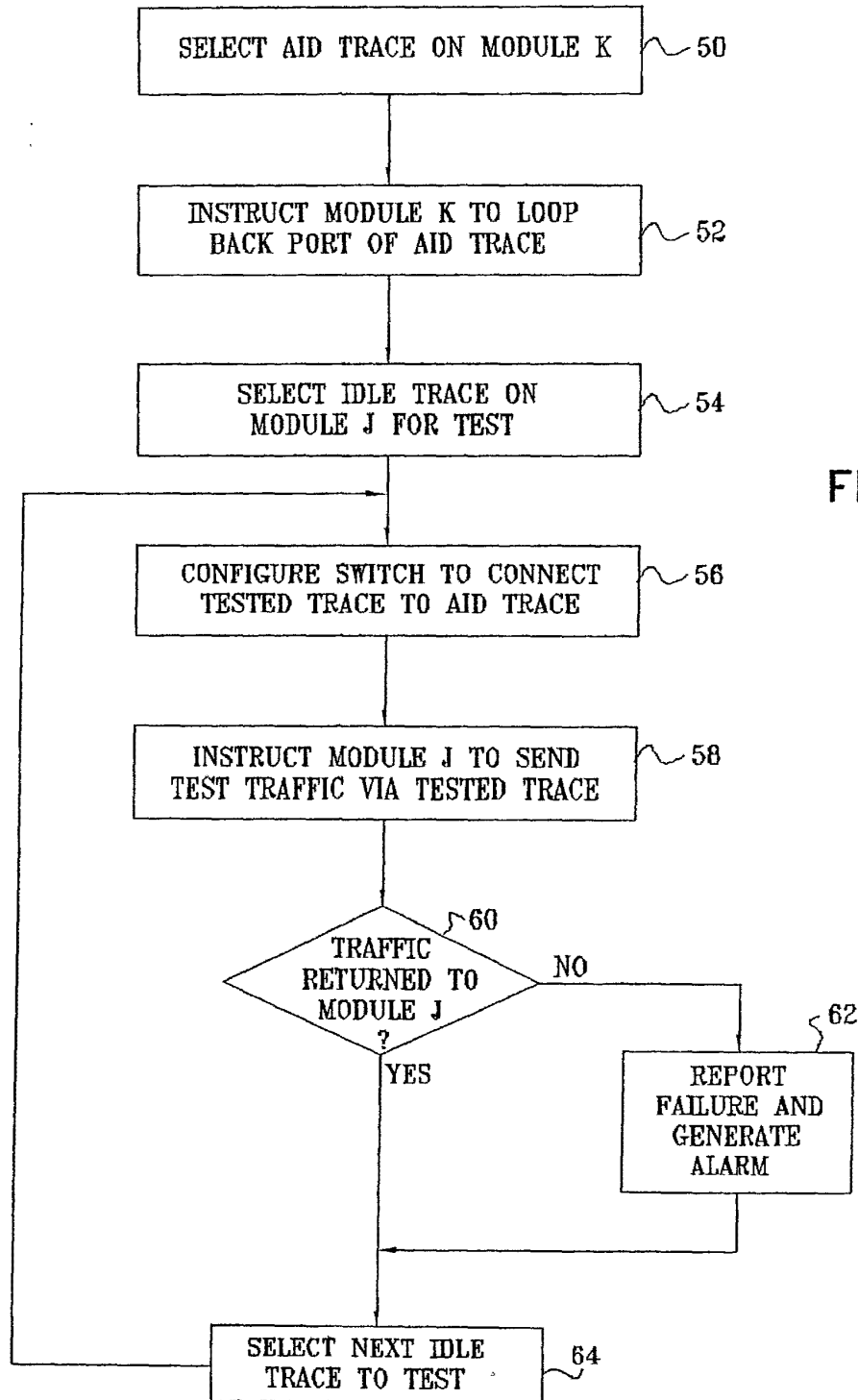
25. Apparatus according to claim 21, wherein the traffic comprises communication traffic, and wherein the first and second formats are determined respectively by different first and second communication protocols.

26. Apparatus according to claim 25, wherein one of the first and second protocols is a time domain multiplexing (TDM) protocol, while the other of the first and second protocols is a packet data protocol.

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ABSTRACT

A method for self-testing of an electronic system that includes a main module and subsidiary modules, which are connected to the main module by data lines, at least some of which may be idle. One of the idle lines is selected to serve as an aid line, and the subsidiary module to which the aid line is connected is instructed to loop back traffic reaching the subsidiary module via the aid line. Another idle line is selected for testing, and a switch in the main module is configured to link the aid line and the line under test. The subsidiary module to which the line under test is connected transmits test traffic over the idle line to the main module. If the test traffic does not return to the subsidiary module within a predetermined period of time, a failure is reported.



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2015

Declaration, Power Of Attorney and Petition

Page 1 of 3

WE (I) the undersigned inventor(s), hereby declare(s) that:

My residence, post office address and citizenship are as stated below next to my name,

We (I) believe that we are (I am) the original, first, and joint (sole) inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled

HIDDEN FAILURE DETECTION

the specification of which

- ☒ is attached hereto.
- ☐ was filed on _____ as
Application Serial No. _____
and amended on _____.
- ☐ was filed as PCT international application
Number _____
on _____,
and was amended under PCT Article 19
on _____ (if applicable).

We (I) hereby state that we (I) have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

We (I) acknowledge the duty to disclose information known to be material to the patentability of this application as defined in Section 1.56 of Title 37 Code of Federal Regulations.

We (I) hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed. Prior Foreign Application(s)

Application No.	Country	Day/Month/Year	Priority Claimed	
_____	_____	_____	☐ Yes	☐ No
_____	_____	_____	☐ Yes	☐ No
_____	_____	_____	☐ Yes	☐ No
_____	_____	_____	☐ Yes	☐ No

We (I) hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

_____ (Application Number)	_____ (Filing Date)
_____ (Application Number)	_____ (Filing Date)

We (I) hereby claim the benefit under 35 U.S.C. § 120 of any United States application(s), or under § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International in the manner provided by the first paragraph of 35 U.S.C. § 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

Application Serial No.	Filing Date	Status (pending, patented, abandoned)
_____	_____	_____
_____	_____	_____
_____	_____	_____

And we (I) hereby appoint the following registered practitioner(s):



as our (my) attorneys, with full powers of substitution and revocation, to prosecute this application and to transact all business in the Patent Office connected therewith; and we (I) hereby request that all correspondence regarding this application be sent to



We (I) declare that all statements made herein of our (my) own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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Signature of Inventor

Citizen of: Israel

Mailing Address: 3 Degel Reuven Street

Petah Tikva

Israel

Date

19/5/02

Shmuel ILAN
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Signature of Inventor

X 5/19/2002
Date

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NAME OF THIRD JOINT INVENTOR

Signature of Inventor

Date

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Citizen of: _____

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NAME OF FOURTH JOINT INVENTOR

Signature of Inventor

Date

Residence: _____

Citizen of: _____

Post Office Address: _____

NAME OF FIFTH JOINT INVENTOR

Signature of Inventor

Date

Residence: _____

Citizen of: _____

Post Office Address: _____

DOCKET NO.: 223756US2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Leon BRUCKMAN, et al.

SERIAL NO.: NEW APPLICATION

FILED: HEREWITH

FOR: HIDDEN FAILURE DETECTION

REQUEST FOR SMALL ENTITY STATUS

This application qualifies for small entity status.

Respectfully Submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Date: 5/30/02

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PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

05/31/2002 WABRHH1 00000002 10156851

01 FC:201	370.00	DP
02 FC:203	54.00	DP
03 FC:202	42.00	DP

PTO-1556
(5/87)

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2001

Application or Docket Number

22.37561/5.2

CLAIMS AS FILED - PART I

(Column 1) (Column 2)

TOTAL CLAIMS	26	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	26 - minus 20 =	* 6
INDEPENDENT CLAIMS	4 - minus 3 =	* 1
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

SMALL ENTITY TYPE ☐

OR OTHER THAN SMALL ENTITY

RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X\$ 9=	54.00	OR	X\$18=	
X42=	42.00	OR	X84=	
+140=		OR	+280=	
TOTAL	466.00	OR	TOTAL	

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**
	Independent	*	Minus	***
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

SMALL ENTITY OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
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(Column 1) (Column 2) (Column 3)

AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**
	Independent	*	Minus	***
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

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X42=		OR	X84=	
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TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

(Column 1) (Column 2) (Column 3)

AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**
	Independent	*	Minus	***
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

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X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
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* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

**MULTIPLE DEPENDENT CLAIM
FEE CALCULATION SHEET
(FOR USE WITH FORM 100-001)**

Serial 156851

EXPIRATION DATE
5-30-02

CLAIMS

	AS FILED		AFTER 1st PROSECUTION		AFTER 2nd PROSECUTION	
	NO.	OFF.	NO.	OFF.	NO.	OFF.
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Docket No. 223756US2/shb



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11-29-02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Leon BRUCKMAN, et al.

SERIAL NO: 10/156,851

GAU: 2133

FILED: May 30, 2002

EXAMINER:

FOR: HIDDEN FAILURE DETECTION

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

RECEIVED

NOV 14 2002

SIR:

Applicant(s) wish to disclose the following information.

Technology Center 2100

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

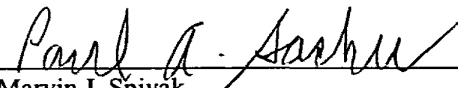
- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.


Marvin J. Spivak

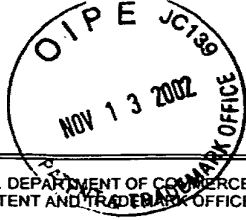
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Form PTO 1449
(Modified)U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY DOCKET NO.
223756US2SERIAL NO.
10/156,851

LIST OF REFERENCES CITED BY APPLICANT

APPLICANT
Leon BRUCKMAN, et al.FILING DATE
May 30, 2002GROUP
2133

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	5,841,788	11/24/98	W. KE			
	AB	5,627,842	05/06/97	J. H. BROWN, et al.			
	AC	5,132,635	07/21/92	B. KENNEDY			
	AD	5,327,435	07/05/94	N. A. WARCHOL			
	AE	5,420,985	05/30/95	J. CANTRELL, et al.			
	AF	5,574,730	11/12/96	J. H. END, III, et al.			
	AG	6,122,756	09/19/2000	W. F. BAXTER, et al.			
	AH						
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NOV 14 2002

Technology Center 2100

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO	WO 01/93499	12/06/2001	WIPO		
	AP					
	AQ					
	AR					
	AS					
	AT					
	AU					
	AV					

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	
	AX	
	AY	
	AZ	

☐ Additional References sheet(s) attached

Examiner

Date Considered

*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
6 December 2001 (06.12.2001)

PCT

(10) International Publication Number
WO 01/93499 A2

- (51) International Patent Classification⁷: **H04L 12/00**
- (21) International Application Number: **PCT/IB01/00950**
- (22) International Filing Date: **30 May 2001 (30.05.2001)**
- (25) Filing Language: **English**
- (26) Publication Language: **English**
- (30) Priority Data:
09/584,577 **31 May 2000 (31.05.2000)** **US**
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- (72) Inventor: **FAINGUELERNT, Jacob**; 3 HaNegev Street, 44508 Kfar Saba (IL).
- (74) Agent: **REINHOLD COHN AND PARTNERS**; P.O. Box 4060, 61040 Tel Aviv, 1040 Tel Aviv(BR) (IL).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, 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, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, 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, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— *without international search report and to be republished upon receipt of that report*
- 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: **NON INTRUSIVE SELF TEST CAPABILITY IN THE UTOPIA LEVEL TWO BUS**

(57) Abstract: Systems and methods are provided for non intrusive self test capability in the UTOPIA level 2 bus within the ATM switch/multiplexer architecture. These systems and methods make use of the characteristics of ATM transport and the UTOPIA level 2 bus interface. The system includes an ATM switch/multiplexer architecture having an ATM layer device and a number of physical layer devices. A bus couples the ATM layer device to the number of physical layer devices. A self test circuit is coupled to the bus which is adapted to send received ATM cells back to the common layer circuit pack in order to perform a self test function without requiring additional wires or bandwidth.

WO 01/93499 A2

Non Intrusive Self Test Capability in the Utopia Level Two Bus

Technical Field of the Invention

5 The present invention relates generally to the field of telecommunications and, in particular, to systems and methods for non intrusive self test capability in the UTOPIA level Two bus.

Background

10 Asynchronous Transfer Mode (ATM) is the transfer mode of choice for broadband integrated services digital networks (B-ISDN). B-ISDNs are envisioned to be the communication framework for integrating multiple services as video, audio and data. Originally each one of the services is delivered over a dedicated network and its infrastructure. The use of ATM enables these services to be
15 integrated in a single unified network deployed over the existing infrastructures. The ATM technology is based on transferring the various kinds of data in small packets of a fixed size, called cells. The small, constant cell size allows ATM equipment to transmit video, audio, and computer data over the same network, and assure that no single type of data hogs the line. ATM switches and multiplexers are
20 necessary for routing the cells to their appropriate destination.

 Figure 1 shows the general architecture of an ATM switch/multiplexer 100. This kind of equipment is composed of two basic types of functional blocks; the ATM common module 101 and the physical ports 103-1, 103-2, . . . , 103-N. The ATM common module 101 routes cells between the various physical ports, and
25 performs signaling functions. The physical ports 103-1, 103-2, . . . , 103-N convert signals from the physical layer into ATM cells and vice-versa. Ports 103-1, 103-2, . . . , 103-N perform functions of the ATM physical layer (PHY), and the ATM common module 101 performs functions of the ATM layer and the ATM signaling adaptation layer (SAAL).

30 As shown in Figure 2, a standard bus 202, defined by the ATM Forum as the Universal Test & Physical Operations Interface for ATM (UTOPIA), provides the

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interface between the physical layer and the ATM layer. The UTOPIA level 2 version enables a "multi-physical" configuration where a single ATM layer device 201 (UTOPIA master) can be connected through this bus 202 to multiple physical layer devices 203-1, 203-2, . . . , 203-N (UTOPIA slaves).

5 Prior art Figure 3 illustrates an ATM system 300 in which the ATM and SAAL functionality is implemented in a common pack 301 that is connected to multiple interface packs 303-1, 303-2, . . . , 303-N, each one having the physical layer functionality. The data from the common pack to the interface packs and vice-versa, is transported through the system backplane. Because of its physical
10 limitations, the UTOPIA level 2 bus cannot be implemented in a backplane. In this case the UTOPIA bus in the common pack 302, and the UTOPIA buses in the interface packs, shown generally as 305, are interconnected through special drivers (in both packs), e.g. Driver 1, Driver 2, . . . , Driver N..

 ATM systems are required to provide self-testing capability. The UTOPIA
15 level 2 bus supports an embedded parity check, which is not sufficient for and end to end internal system self-test. This test demands, instead, the implementation of internal loops. The straightforward implementation of a loopback consists on operating one of the physical ports in a loopback mode. This implementation is intrusive since during the test the port is halted. In other words, the port being tested
20 has to be taken out of service while the self test is performed.

 For the reasons stated above, and for other reasons stated below which will become apparent to those skilled in the art upon reading and understanding the present specification, there is a need in the art for improved systems and methods for providing non intrusive self test capability in the UTOPIA level 2 bus within the
25 ATM switch/multiplexer architecture. That is, it would be desirable to continue live communication over the network and test various components simultaneously.

Summary

 The above mentioned problems with self test capability in the UTOPIA level 2 bus within the ATM switch/multiplexer architecture and other problems are
30 addressed by the present invention and will be understood by reading and studying the following specification. Systems and methods are provided for non intrusive self test capability in the UTOPIA level 2 bus within the ATM switch/multiplexer

architecture. These systems and methods make use of the characteristics of ATM transport and the UTOPIA level 2 bus interface.

In one embodiment, an ATM switch/multiplexer system for non-intrusive self-test capability in a UTOPIA level 2 bus is provided. The system includes an ATM layer device. A number of physical layer devices are included. A bus couples the ATM layer device to the number of physical layer devices. And, a dedicated self test circuit couples to the bus. According to the teachings of the present invention, the dedicated self test circuit is adapted to loop back cells from the ATM layer device in a self test function. That is the self test circuit is adapted to send received ATM cells back to the ATM layer device, through a dedicated virtual circuit, in order to perform a self test function without requiring additional wires or bandwidth. In one embodiment, the ATM layer device includes a UTOPIA master and the physical layer devices are UTOPIA slaves. The number of physical layer devices include physical ports adapted for converting signals from a physical layer into ATM cells and converting ATM cells into signals for the physical layer. The dedicated self test circuit has a lower priority between the ATM device layer number of physical devices in order to perform a non intrusive self test function.

Brief Description of the Drawings

Figure 1 is a block diagram that illustrates a conventional ATM switch/multiplexer circuit.

Figure 2 is another representation of a conventional ATM switch/multiplexer circuit.

Figure 3 is another representation of a conventional ATM switch/multiplexer circuit.

Figure 4 is a block circuit diagram that illustrates an embodiment of an ATM switch/multiplexer system for non-intrusive self-test capability in a UTOPIA level 2 bus according to the teachings of the present invention.

Figure 5 is a block circuit diagram that illustrates another embodiment for an ATM switch/multiplexer system according to the teachings of the present invention.

Figure 6 is a block circuit diagram that illustrates another embodiment for an ATM switch/multiplexer system according to the teachings of the present invention.

Detailed Description

5 The following detailed description refers to the accompanying drawings which form a part of the specification. The drawings show, and the detailed description describes, by way of illustration specific illustrative embodiments in which the invention may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the invention. Other
10 embodiments may be used and logical, mechanical and electrical changes may be made without departing from the scope of the present invention. The following detailed description is, therefore, not to be taken in a limiting sense.

 Figure 4 is a block circuit diagram that illustrates an ATM switch/multiplexer system 400 for non-intrusive self-test capability in a UTOPIA
15 level 2 bus, according to the teachings of the present invention. As shown in Figure 4, the ATM switch/multiplexer system includes an ATM layer device 401. A number of physical layer devices 403-1, 403-2, . . . , 403-N are included. A bus 402 couples the ATM layer device 401 to the number of physical layer devices 403-1, 403-2, . . . , 403-N. In one embodiment, the bus 402 includes a UTOPIA level 2 bus
20 402. A dedicated self test circuit 405 is coupled to the bus 402. The dedicated self test circuit 405 includes external logic either in the form of a programmable device or discrete components which is coupled to the bus 402. Self test circuit 405 communicates with the ATM layer device 401 over a dedicated virtual connection. In one embodiment, the ATM layer device 401 includes a UTOPIA master and the
25 number of physical layer devices 403-1, 403-2, . . . , 403-N are UTOPIA slaves. In one embodiment, the UTOPIA master is adapted to perform ATM and ATM signaling adaptation layer (SAAL) functions. In one embodiment, the ATM layer device 401 and the number of physical layer devices 403-1, 403-2, . . . , 403-N are located in a single circuit pack.

30 The number of physical layer devices 403-1, 403-2, . . . , 403-N include physical ports adapted for converting signals from a physical layer into ATM cells and converting ATM cells into signals for the physical layer. The ATM layer device

401 includes a common module or pack adapted for routing ATM cells between the number of physical layer devices.

In operation, system 400 provides a non-intrusive self-test functionality. The dedicated virtual connection 405 is adapted to send received ATM cells back to the ATM layer device 401 in order to perform a self test function. If the ATM cells returned to the ATM layer device 401 do not match those which were sent out or the cells are not received, the ATM layer device 401 recognizes that there is a problem with system 400. In the present invention, the self test circuit 405 actually imitates a given physical layer device address 403-1, 403-2, . . . , 403-N. The diagnostics of the self test function are performed in the ATM layer device 401. And, the dedicated self test circuit 405 through its dedicated virtual connection has a lower priority between the common pack and the number of physical devices in order to perform a non intrusive self test function without requiring additional wires or bandwidth.

Figure 5 is a block circuit diagram that illustrates another embodiment for an ATM switch/multiplexer system 500, according to the teachings of the present invention. The ATM switch/multiplexer system 500, similarly provides for non-intrusive self-test capability in a utopia level 2 bus. As shown in Figure 5, the system 500 includes an ATM layer device 501, or common layer circuit pack 501, and a number of interface layer circuit packs 503-1, 503-2, . . . , 503-N. The common layer circuit pack 501 includes an internal bus 502. In one embodiment, the internal bus 502 includes a UTOPIA level 2 bus. The number of interface layer circuit packs 503-1, 503-2, . . . , 503-N include a number of ports, shown as Port #1, Port #2, . . . , Port #N. Each port has includes an internal bus, shown generally as 505, coupling between a driver, 511-1, 511-2, . . . , 511-N, and a physical layer device, e.g. 507-1, 507-2, . . . , 507-N. In one embodiment the bus includes a UTOPIA level 2 bus 505.

As shown in Figure 5, each of the number of ports, Port #1, Port #2, . . . , Port #N, includes a dedicated self test circuit 509-1, 509-2, . . . , 509-N. A number of drivers 511-1, 511-2, . . . , 511-N interconnect, or couple, the buses 505 in the number of ports, Port #1, Port #2, . . . , Port #N, to the bus 502 in the ATM layer device 501, or common layer circuit pack 501. Each dedicated self test circuit 509-1, 509-2, . . . , 509-N communicates with common layer circuit pack 501 over a

dedicated virtual connection. The common layer circuit pack is adapted to perform the functions of the ATM layer and the SAAL. In one embodiment, each dedicated self test circuit 509-1, 509-2, . . . , 509-N includes a programmable device.

According to the teachings of the present invention, the number of physical
5 ports, Port #1, Port #2, . . . , Port #N, including the number of physical layer devices, are adapted for converting signals from the physical layer devices, e.g. 507-1, 507-2, . . . , 507-N, into ATM cells and converting ATM cells into signals for the physical layer devices 507-1, 507-2, . . . , 507-N.

According to the teachings of the present invention, each dedicated self test
10 circuit 509-1, 509-2, . . . , 509-N coupled to the bus 505 in the number of interface layer circuit packs 503-1, 503-2, . . . , 503-N is generic and independent from a functionality for the number of drivers 511-1, 511-2, . . . , 511-N. As described above in connection with Figure 4, each dedicated virtual connection 509-1, 509-2, . . . , 509-N is adapted to send received ATM cells back to the common layer circuit
15 pack 501 in order to perform a self test function without requiring additional wires or bandwidth. Thus, in operation, system 500 provides a non-intrusive self-test functionality. Each dedicated self-test circuit 509-1, 509-2, . . . , 509-N through its dedicated virtual connection has a lower priority between the common layer circuit pack 501 and the physical devices 507-1, 507-2, . . . , 507-N in the number of ports
20 Port #1, Port #2, . . . , Port #N in order to perform a non intrusive self test function.

Figure 6 is a block circuit diagram that illustrates another embodiment for an ATM switch/multiplexer system 600, according to the teachings of the present invention. The ATM switch/multiplexer system embodiment 600 shown in Figure 6, similarly provides for non-intrusive self-test capability in a utopia level 2 bus. In
25 the embodiment of Figure 6, each of the number of ports Port #1, Port #2, . . . , Port #N includes programmable device such as an Application Specific Integrated Circuit (ASIC) or a field programmable gate array (FPGA). According to the teachings for this embodiment, the physical layer devices 607-1, 607-2, . . . , 607-N are included as part of the ASIC or the FPGA. Further, according to the embodiment shown in
30 Figure 6, each dedicated self test circuit 609-1, 609-2, . . . , 609-N is a functional block of the ASIC or FPGA. As was described in detail in connection with Figure 5, each dedicated self test circuit 609-1, 609-2, . . . , 609-N is coupled to the internal

bus 605 within the ASIC or FPGA to perform the self test function in conjunction with ATM layer device 601.

Conclusion

5 Although specific embodiments have been illustrated and described herein, it will be appreciated by those of ordinary skill in the art that any arrangement which is calculated to achieve the same purpose may be substituted for the specific embodiment shown. This application is intended to cover any adaptations or variations of the present invention.

10 Systems and methods have been illustrated for providing non intrusive self test capability in the UTOPIA level 2 bus within an ATM switch/multiplexer architecture. These systems and methods make use of the characteristics of ATM transport and the UTOPIA level 2 bus interface.

What is claimed is:

1. An ATM circuit, the circuit comprising:
an ATM layer device;
a number of physical layer devices;
a UTOPIA level 2 bus coupling the ATM layer device to the number of physical layer devices; and
a dedicated self-test circuit coupled to the UTOPIA level 2 bus, the dedicated self test circuit being adapted to loop back cells from the ATM layer device in a self test mode.
2. The circuit of claim 1, wherein ATM layer device includes a UTOPIA master and the number of physical layer devices are UTOPIA slaves.
3. The circuit of claim 1, wherein the number of physical layer devices include physical ports adapted for converting signals from a physical layer into ATM cells and converting ATM cells into signals for the physical layer.
4. The circuit of claim 1, wherein ATM layer device includes a common module or pack adapted for routing ATM cells between the number of physical layer devices.
5. The circuit of claim 1, wherein the dedicated self test circuit communicates with the ATM layer device over a dedicated virtual connection that has a lower priority than virtual connections between the ATM layer device and the number of physical devices in order to perform a non intrusive self test function.
6. An ATM circuit, comprising:
an ATM layer device;
a number of physical layer devices;
a UTOPIA level 2 bus coupling the ATM layer device to the number of physical layer devices; and

a self test circuit coupled to the UTOPIA level 2 bus, wherein the self test circuit is adapted to send received ATM cells back to the ATM layer device in order to perform a self test function without requiring additional wires or bandwidth.

7. The circuit of claim 6, wherein ATM layer device includes a UTOPIA master and the number of physical layer devices are UTOPIA slaves, and wherein the ATM and physical layer devices are included a single circuit pack.

8. The circuit of claim 6, wherein the self test circuit includes a programmable device.

9. The circuit of claim 6, wherein the number of physical layer devices include physical ports adapted for converting signals from a physical layer into ATM cells and converting ATM cells into signals for the physical layer.

10. The circuit of claim 6, wherein ATM layer device includes a common module or pack adapted for routing ATM cells between the number of physical layer devices.

11. The circuit of claim 6, wherein the dedicated self test circuit communicates with the ATM layer device over a dedicated virtual connection that has a lower priority than virtual connections between the ATM layer device and the number of physical devices in order to perform a non intrusive self test function.

12. An ATM circuit, comprising:
a common layer circuit pack having a UTOPIA level 2 bus;
a number of interface layer circuit packs including a number of ports, each port having a UTOPIA level 2 bus and including a self-test circuit coupled to the UTOPIA level 2 bus of the interface layer circuit pack; and
a number of drivers interconnecting the UTOPIA level 2 bus in the common circuit pack and the UTOPIA level 2 bus in the interface layer circuit pack.

13. The circuit of claim 12, wherein the common layer circuit pack is adapted to perform the functions of an ATM layer and an SAAL layer.

14. The circuit of claim 12, wherein each self test circuit coupled to the UTOPIA level 2 bus in the number of interface layer circuit packs is generic.

15. The circuit of claim 12, wherein each of the number of ports includes a physical layer device.

16. The circuit of claim 12, wherein each of the number of ports is adapted for converting signals from a physical layer into ATM cells and converting ATM cells into signals for the physical layer.

17. The circuit of claim 12, wherein each self test circuit is adapted to send received ATM cells back to the common layer circuit pack in order to perform a self test function without requiring additional wires or bandwidth.

18. The circuit of claim 16, wherein the dedicated self test circuit communicates with the ATM layer device over a dedicated virtual connection that has a lower priority than virtual connections between the ATM layer device and the number of physical devices in order to perform a non intrusive self test function.

19. The circuit of claim 12, wherein each of the number of ports includes one of an ASIC or a FPGA.

20. The circuit of claim 18, wherein each self test circuit is a functional block of one of the ASIC or the FPGA.

21. A method for performing a non intrusive self test in an ATM circuit, the method comprising:

coupling an ATM layer device to a number of physical layer devices using a UTOPIA level 2 bus; and

coupling a dedicated self test circuit to the UTOPIA level 2 bus.

22. The method of claim 21, wherein coupling an ATM layer device to a number of physical layer devices using a UTOPIA level 2 bus includes wherein coupling the ATM layer device to a number of physical layer devices in a single circuit pack.

23. The method of claim 21, wherein coupling a self test circuit to the UTOPIA level 2 bus includes coupling one of a programmable device and discrete components to the number of physical layer devices.

24. The method of claim 21, wherein coupling an ATM layer device to a number of physical layer devices using a UTOPIA level 2 bus includes coupling a number of physical layer devices which include one of an ASIC or an FPGA as a physical port.

25. The method of claim 24, wherein coupling a dedicated self test circuit to the bus includes coupling the dedicated self test circuit as a functional block of the one of the ASIC or the FPGA.

26. A method for self-testing an ATM circuit, the method comprising:
generating cells at an ATM layer device;
transmitting the cells to a UTOPIA level 2 bus; and
when the ATM circuit functions properly, re-transmitting the cells back to the ATM layer device from a self test circuit associated with the UTOPIA level 2 bus.

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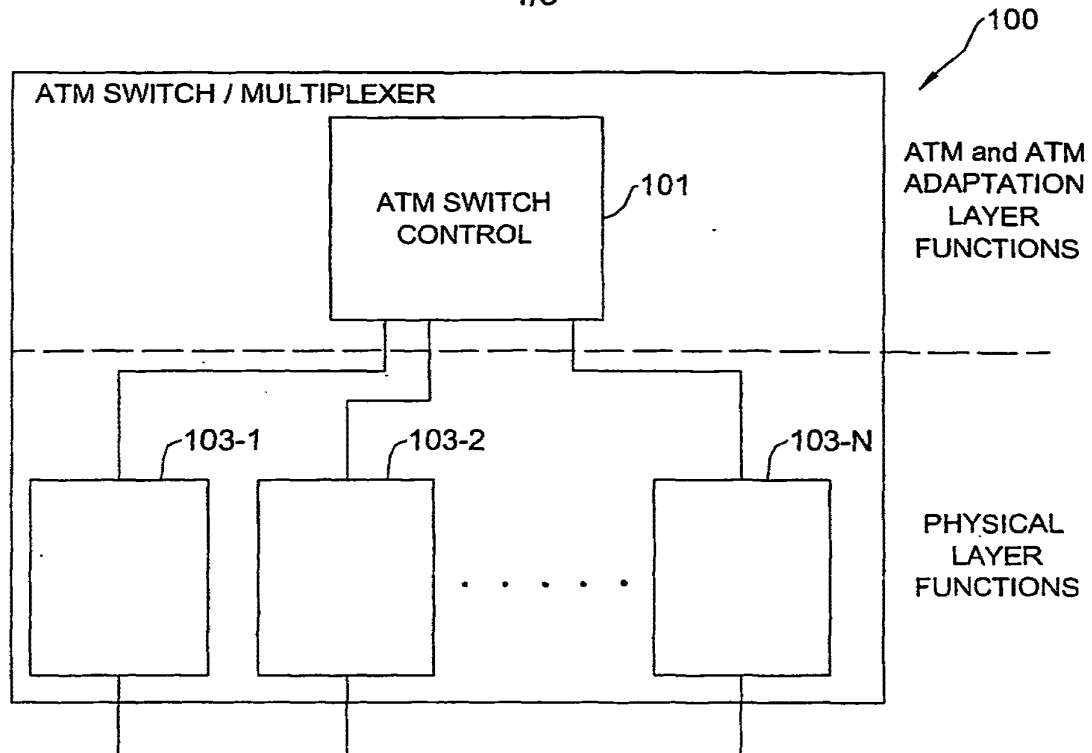


FIG. 1

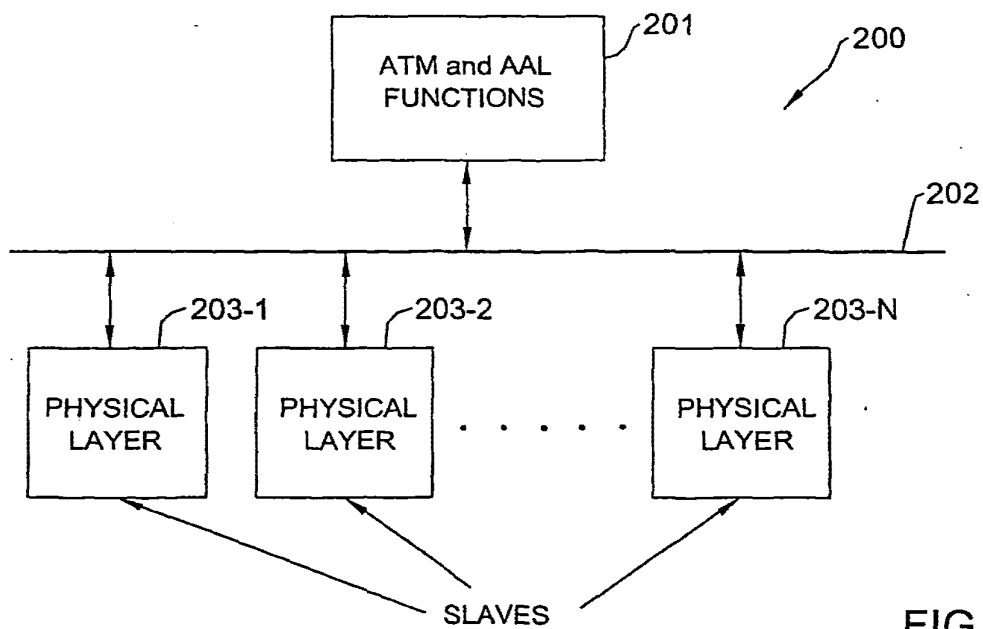


FIG. 2

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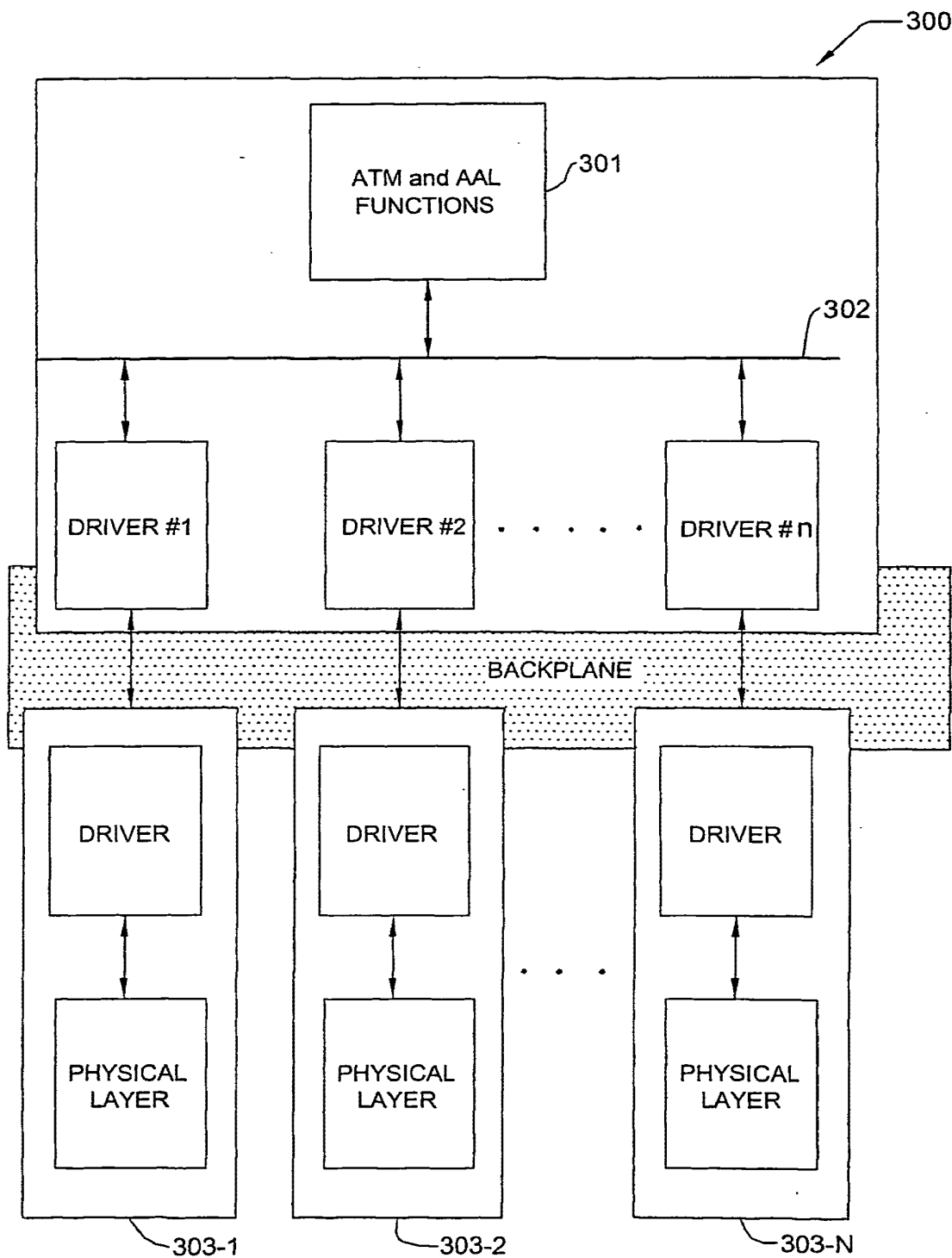


FIG. 3

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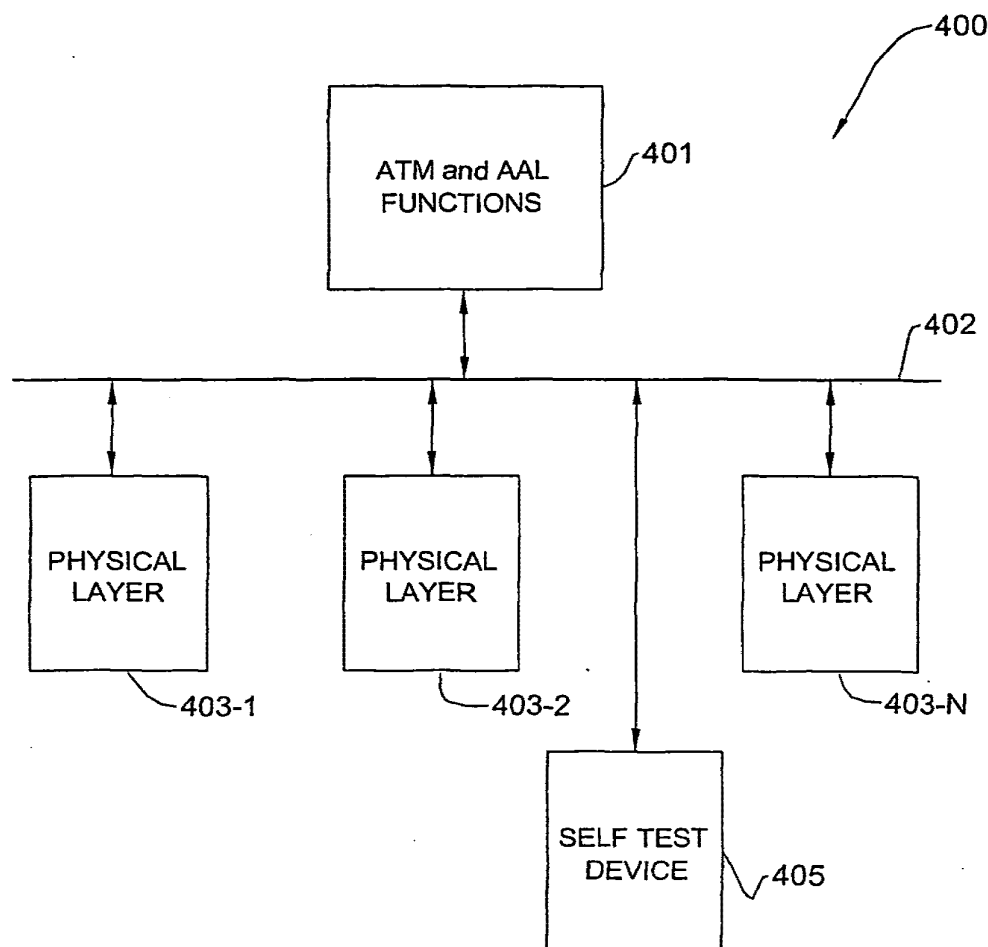


FIG. 4

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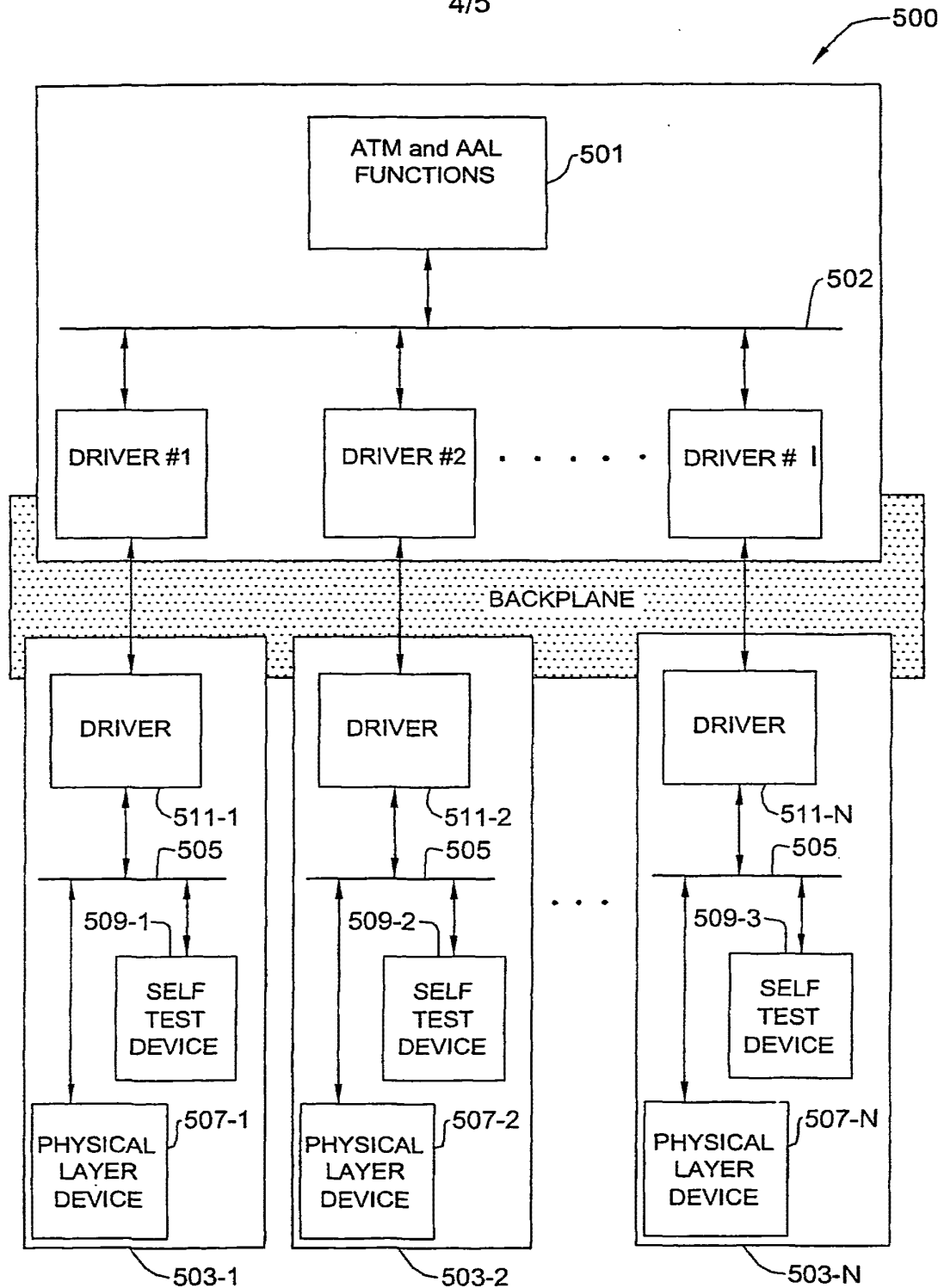


FIG. 5

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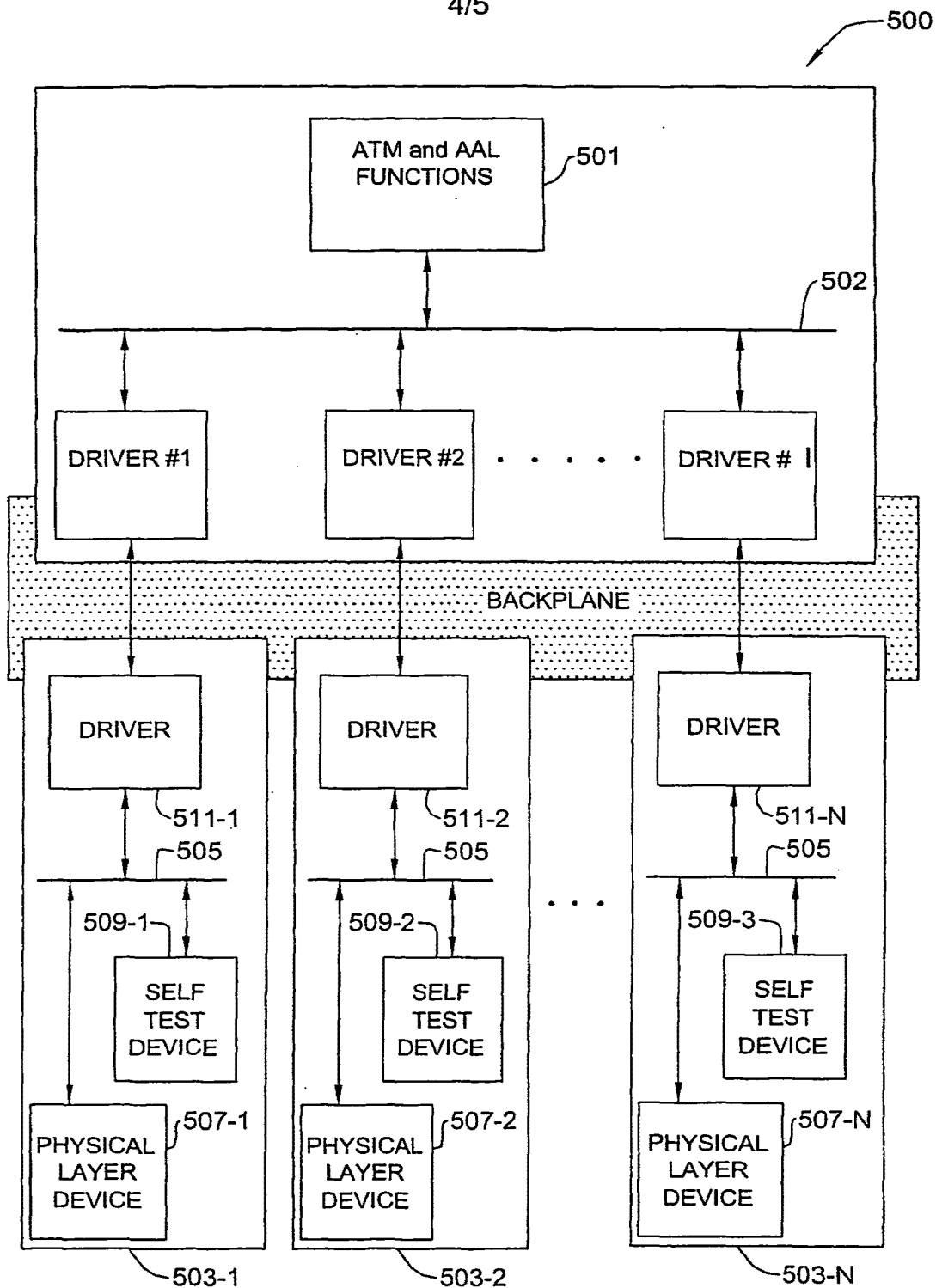


FIG. 5

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5/5

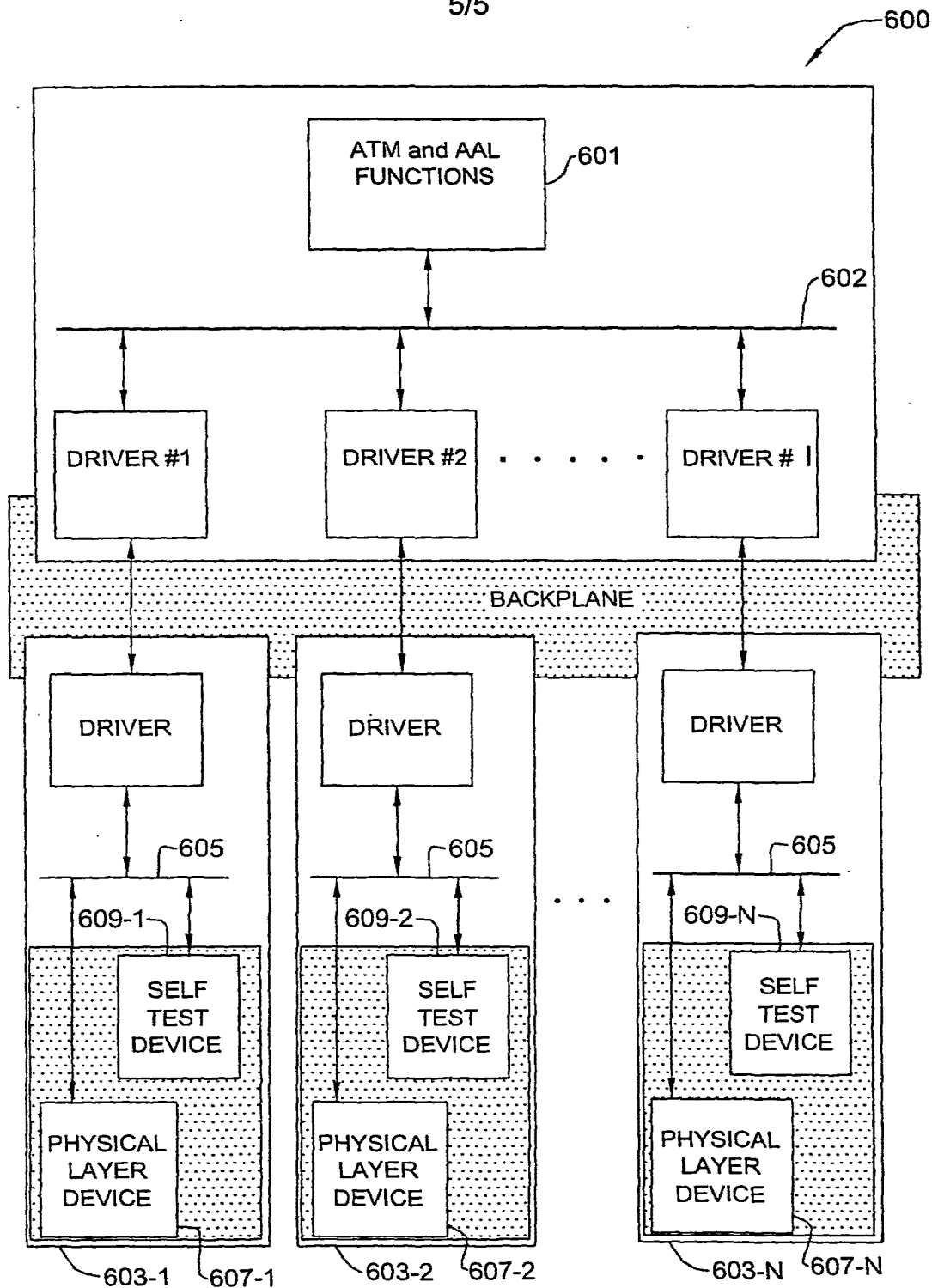


FIG. 6

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INTERNATIONAL SEARCH REPORT

Interr Application No
PCT/IB 01/00950

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/56 H04Q11/04

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 H04Q

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, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 802 073 A (PLATT ALFRED) 1 September 1998 (1998-09-01)	21,24,25
A	figure 1A column 3, line 15 -column 7, line 11	1,6,12, 22,23,26
A	EP 0 772 369 A (SUN MICROSYSTEMS INC) 7 May 1997 (1997-05-07) figure 3 page 10, line 56 -page 11, line 12	1,6,12, 21,26
A	WO 99 37117 A (ERICSSON TELEFON AB L M) 22 July 1999 (1999-07-22) figure 1 column 4, line 20 -column 5, line 7	1,6,12, 21,26

☐ Further documents are listed in the continuation of box C.

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Date of the actual completion of the international search

30 August 2001

Date of mailing of the international search report

06/09/2001

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Scalia, A

INTERNATIONAL SEARCH REPORT

Information on patent family members

Intern Application No
PCT/IB 01/00950

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5802073	A	01-09-1998	NONE	
EP 0772369	A	07-05-1997	US 5982772 A CA 2189618 A	09-11-1999 07-05-1997
WO 9937117	A	22-07-1999	US 6256308 B AU 2444299 A CN 1257635 T EP 0968623 A JP 2000513546 T	03-07-2001 02-08-1999 21-06-2000 05-01-2000 10-10-2000

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-	1	"20030226072"	USPAT; US-PGPUB	2004/10/29 10:58
-	7	US-5841788-\$.DID. OR US-5627842-\$.DID. OR US-5132635-\$.DID. OR US-5327435-\$.DID. OR US-5420985-\$.DID. OR US-5574730-\$.DID. OR US-6122756-\$.DID.	USPAT	2004/10/29 11:00
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-	44	714/715-716.ccls. and loop ADJ back	USPAT	2004/10/29 13:18
-	34	714/715-716.ccls. and loop ADJ back and communication	USPAT	2004/10/29 13:19
-	58	714/712-716.ccls. and loop ADJ back and communication	USPAT	2004/10/30 10:35
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/156,851	05/30/2002	Leon Bruckman	223756US2	7672

22850 7590 11/03/2004

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

KERVEROS, JAMES C

ART UNIT PAPER NUMBER

2133

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/156,851

Applicant(s)

BRUCKMAN ET AL.

Examiner

JAMES C KERVEROS

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☒ Claim(s) 15-26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 May 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/13/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the present Application filed 5/30/2002.

Claims 1-26 are pending and are hereby presented for examination.

Claim Objections

2. Claims 15-26 are objected to because of the following informalities:

Claims 15, 18, 21, 23 and 24 in passim recite: "adapted to ..." It has been held that the recitation that an element is "adapted to" perform a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison*, 69 USPQ 138.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 1 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: A functional step is missing after

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preamble describing the apparatus and before the step of "a method for self-testing", thus failing to properly link the apparatus and the method.

5. Regarding claims 1 and 15, the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-4, 6-9 and 11-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Serikawa et al. (US 6028845).

Regarding independent Claims 1, 8, Serikawa discloses a communication-line-quality measuring system (Figures 1,2, prior-art) for measuring the line quality between an office such as a switching office and terminal equipment on a subscriber side, including a main module (switching system 10) and at least first and second subsidiary modules, such as terminal equipment (12) and (12a) which are connected to the switching system 10, through a (time division multiple access) equipment TDMA (11) and (11a), each such module connected to the main module by one or more lines

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Figure 2, PR1 (20-23) for carrying data, the main module including a switch (10) having ports connected to the lines, a method comprising:

Selecting a first idle line (transmit down-link line, Figure 10) provided between TDMA equipment (11) and terminal equipment (12) connecting a first subsidiary module (12) through TDMA equipment (11) to a first port of the switch (10) on the main module. It is noted the switching system 10 and the telephone 13 in FIG. 10 are the same as those of FIG. 2. The switching system 10 is connected to the TDMA equipment 11, and the telephone 13 is connected to the terminal equipment 12.

Instructing the first subsidiary module (12) to loop back traffic through (receive up-link line using loop-back means (50), where the traffic reaches the first module (12) via the (transmit down-link line).

Selecting a second idle line (receive up-link line, Figure 10) corresponding to a subsidiary module (TDMA, 11a, Figure 1) connected to a second port of the switch on the main module (10), configuring the switch (10) to link the first and second ports corresponding to (11) and (11a) TDMA.

Transmitting test traffic over the second idle line (receive up-link line, Figure 1) from the second subsidiary module 12 through (11a) TDMA, using loop-back means (50) to the main module (10).

Reporting that a failure has occurred, using comparing part (73, Figure 11) and pattern generation part 71, which provides a random pattern signal (for example, pseudo-random noise signal) to a specified B channel by an instruction of the CPU 26, and transmits the B channel including the random pattern signal to the terminal

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equipment 12. Reporting the failure, if the test traffic does not return to the second subsidiary module within a predetermined period of time.

"The comparing part 73 generates by itself a reference signal which is the same as the random pattern signal generated in the pattern generation part 71. The comparing part 73 compares the random pattern signal provided on the B channel, which is returned back from the terminal equipment 12 with the reference signal, and measures line quality of both the up-link line and downlink line. As a result of the comparison, when a value of the BER is larger than the predetermined value, it is determined that the transmission line is in a poor condition".

Regarding Claims 2, 9, Serikawa discloses instructing the first subsidiary module (12) using CPU 26 to loop back the traffic, using loop-back means (50), through the (receive up-link line, Figure 10) to the main module 10 without processing the data in the test traffic.

Regarding Claims 3, 13, 14, Serikawa discloses, wherein the first (12) and second (12a) subsidiary modules are configured to transmit and receive the data (through the down and up-link lines, respectively, Figure 10) in different respective first and second formats, and wherein the test traffic transmitted from the second subsidiary module 12a and looped back by the first subsidiary module 12 is in the second format.

Regarding Claim 4, Serikawa discloses selecting one or more further idle lines, such as first and second idle lines (receive up-link lines, Figure 10) situated between TDMA equipment (11, 11a) and first (12) and second (12a) subsidiary modules,

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respectively. The idle lines connect to ports of the switch on the main module (10) through TDMA equipment (11, 11a).

Repeating the steps of configuring the switch (10), by transmitting the test traffic and reporting that the failure has occurred using comparator 73, as disclosed: "The comparing part 73 generates by itself a reference signal which is the same as the random pattern signal generated in the pattern generation part 71. The comparing part 73 compares the random pattern signal provided on the B channel, which is returned back from the terminal equipment 12 with the reference signal, and measures line quality of both the up-link line and downlink line. As a result of the comparison, when a value of the BER is larger than the predetermined value, it is determined that the transmission line is in a poor condition".

Regarding Claims 6, 11, 12, Serikawa discloses switching system 10 configured to connect the lines (up and down link lines) to network communication trunk, Figure 2, showing TDMA equipment 11, which includes interface parts (PRI parts) 20 to 23, which are connected between the switching system 10 and the NW part 24, are provided by trunk cards in an integrated services digital network (ISDN), and have an interface function between the switching system 10 and the NW part 24.

Regarding Claim 7, Serikawa discloses transmitting the test traffic comprises testing the second idle line corresponding to 12a using a pattern generation part 71, which provides a random pattern signal to a specified B channel by an instruction of the CPU 26, and transmits the B channel including the random pattern signal to the terminal equipment 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5, 10, 15-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Serikawa et al. (US 6028845) in view of Bright et al. (US 5541862).

Regarding independent Claims 15, 21, Serikawa substantially discloses the pertinent features as applied to claims 1 and 8. Serikawa, further, discloses a system control processor a CPU 26, (Figures 2 and 11), for exercising the method steps of claims 1 and 8. The CPU 26 through instruction to the pattern generation part 71 provides a random pattern signal to a specified B channel and transmits the B channel including the random pattern signal to the terminal equipment 12. Further, the CPU 26 instructs the CPU 49 through the M channel to loop back the random pattern signal on the B channel, Figure 11.

Regarding independent Claims 15, 21 and dependent claims 5, 10, Serikawa does not explicitly disclose the claimed limitations for a modular electronic apparatus, comprising a back plane, which comprises traces for carrying data between modules that are plugged into the back plane, a main module to be plugged into the back plane,

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a plurality of subsidiary modules to be plugged into the back plane so as to be connected to the main module by the traces.

However, Bright et al. (US 5541862) in an analogous art, discloses a connectorized motherboard bus or backplane 14, a main module DSP module 12 that is plugged into the connectorized back-plane 14 and other modules such as VXI interfaces (20, 22, and 24) plugged into the back plane 14 so as to be connected to the main module 12 by the traces, Figure 1.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a motherboard bus or back plane, as taught by Bright, in the apparatus of Serikawa, for the purpose of plugging modules, since a motherboard bus or back plane is an essential feature which is routinely used in the area of communications for efficiently and reliably exchanging information between a Digital Signal Processor and a Host computer. Furthermore, a person skilled in the art would have been motivated to use an electronically changeable interface such as a back plane coupled between a general-purpose digital signal processor and a unit under test, such that the interface can be reconfigured, using plug in modules as needed, for testing a plurality of different types of units without the need to physically change the interface.

Regarding Claims 16, 22, Serikawa discloses instructing the first subsidiary module (12) using CPU 26 to loop back the traffic, using loop-back means (50), through the (receive up-link line, Figure 10) to the main module 10 without processing the data in the test traffic.

Regarding Claims 17, 25, 26, Serikawa discloses wherein the first (12) and second (12a) subsidiary modules are configured to transmit and receive (through the down and up-link lines, respectively, Figure 10) the data in different respective first and second formats, and wherein the test traffic transmitted from the second subsidiary module 12a and looped back by the first subsidiary module 12 is in the second format.

Regarding Claim 18, Serikawa discloses selecting one or more further idle lines, such as first and second idle lines (receive up-link lines, Figure 10) situated between TDMA equipment (11, 11a) and first (12) and second (12a) subsidiary modules, respectively. The idle lines connect to ports of the switch on the main module (10) through TDMA equipment (11, 11a).

Repeating the steps of configuring the switch (10), by transmitting the test traffic and reporting that the failure has occurred using comparator 73, as disclosed: "The comparing part 73 generates by itself a reference signal which is the same as the random pattern signal generated in the pattern generation part 71. The comparing part 73 compares the random pattern signal provided on the B channel, which is returned back from the terminal equipment 12 with the reference signal, and measures line quality of both the up-link line and downlink line. As a result of the comparison, when a value of the BER is larger than the predetermined value, it is determined that the transmission line is in a poor condition".

Regarding Claims 19, 23, 24, Serikawa discloses switching system 10 configured to connect the lines (up and down link lines) to network communication trunk, Figure 2, showing TDMA equipment 11, which includes interface parts (PRI parts) 20 to 23,

Art Unit: 2133

which are connected between the switching system 10 and the NW part 24, are provided by trunk cards in an integrated services digital network (ISDN), and have an interface function between the switching system 10 and the NW part 24.

Regarding Claim 20, transmitting the test traffic comprises testing the second idle line corresponding to 12a using a pattern generation part 71, which provides a random pattern signal to a specified B channel by an instruction of the CPU 26, and transmits the B channel including the random pattern signal to the terminal equipment 12.

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Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES C KERVEROS whose telephone number is (571) 272-3824. The examiner can normally be reached on 9:00 AM TO 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

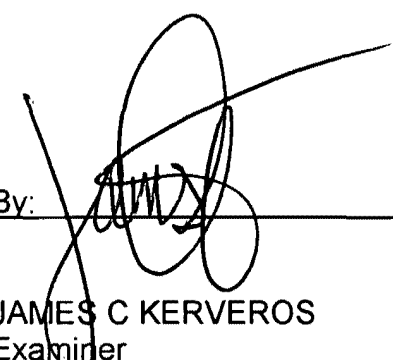
U.S. PATENT OFFICE

Examiner's Fax: (571) 273-3824

Email: james.kerveros@uspto.gov

Date: 30 October 2004

Office Action: Non-Final Rejection

By: 

JAMES C KERVEROS

Examiner

Art Unit 2133



GUY J. LAMARRE

PRIMARY EXAMINER

Notice of References Cited	Application/Control No. 10/156,851	Applicant(s)/Patent Under Reexamination BRUCKMAN ET AL.	
	Examiner JAMES C KERVEROS	Art Unit 2133	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,028,845	02-2000	Serikawa et al.	370/249
	B	US-5,541,862	07-1996	Bright et al.	702/122
	C	US-			
	D	US-			
	E	US-			
	F	US-			
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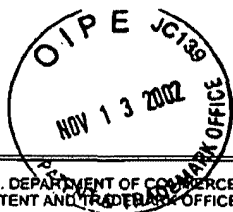
FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 223756US2		SERIAL NO. 10/156,851	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Leon BRUCKMAN, et al.			
				FILING DATE May 30, 2002		GROUP 2133	
U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	5,841,788	11/24/98	W. KE			
	AB	5,627,842	05/06/97	J. H. BROWN, et al.			
	AC	5,132,635	07/21/92	B. KENNEDY			
	AD	5,327,435	07/05/94	N. A. WARCHOL			
	AE	5,420,985	05/30/95	J. CANTRELL, et al.			
	AF	5,574,730	11/12/96	J. H. END, III, et al.			
	AG	6,122,756	09/19/2000	W. F. BAXTER, et al.			
	AH						
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		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
	AO	WO 01/93499	12/06/2001	WIPO			
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OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
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	AZ					☐ Additional References sheet(s) attached	
Examiner					Date Considered 10/30/04		
*Examiner: Initial if reference is considered whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							

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BIBDATASHEET

CONFIRMATION NO. 7672

Bib Data Sheet

SERIAL NUMBER 10/156,851	FILING DATE 05/30/2002 RULE	CLASS 714	GROUP ART UNIT 2133	ATTORNEY DOCKET NO. 223756US2
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APPLICANTS
 Leon Bruckman, Petah Tikva, ISRAEL;
 Shmuel Ilan, Ramat-Gan, ISRAEL;

** CONTINUING DATA ***** *None* *10/30/04*

** FOREIGN APPLICATIONS ***** *None*

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
 ** 06/28/2002

Foreign Priority claimed 35 USC 119 (a-d) conditions met	☐ yes ☒ no	STATE OR COUNTRY ISRAEL	SHEETS DRAWING 2	TOTAL CLAIMS 26	INDEPENDENT CLAIMS 4
Verified and Acknowledged	☐ yes ☒ no		Met after		
Examiner's Signature <i>[Signature]</i>		Initials <i>[Initials]</i>			

ADDRESS
 22850
 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
 1940 DUKE STREET
 ALEXANDRIA, VA
 22314

TITLE
 Hidden failure detection

FILING FEE RECEIVED 466	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____
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Index of Claims



Application No.

10/156,851

Examiner

JAMES C KERVEROS

Applicant(s)

BRUCKMAN ET AL.

Art Unit

2133

✓	Rejected
=	Allowed

—	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claim		Date											
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Search Notes

Application No.

10/156,851

Examiner

JAMES C KERVEROS

Applicant(s)

BRUCKMAN ET AL.

Art Unit

2133

SEARCHED

Class	Subclass	Date	Examiner
714	712, 715, 716, 717	10/30/2004	JCK
370	249	10/30/2004	JCK

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
EAST BRS TEXT SEARCH	10/30/2004	JCK

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Intellectual Property Law

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THANK YOU

Date of Transmittal: January 7, 2005
Our Reference No.: 45271
Your Reference No USSN 10/156,851
Sent By: Sanford T. Colb
Total number of pages (including this cover sheet) 2
Telefax no: 001- 703-872-9306
Name: Examiner James Kerveros
Company: U.S.P.T.O.
City: _____
State or Country: USA

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Applicant Initiated Interview Request Form

Application No.: 12/156,857 First Named Applicant: Leon Brackman
Examiner: James Laverne Art Unit: 2133 Status of Application: pending

Tentative Participants:

(1) Samford T. C. 16 (2) _____
(3) _____ (4) _____

Proposed Date of Interview: Jan 11, 2005 Proposed Time: 1:00 (PM)

Type of Interview Requested:

(1) ☐ Telephonic (2) ☒ Personal (3) ☐ Video Conference

Exhibit To Be Shown or Demonstrated: ☐ YES ☒ NO

If yes, provide brief description: _____

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) <u>rej (82)</u>	<u>cl 1, 8</u>	_____	☐	☐	☐
(2) <u>rej (102)</u>	<u>cl 1, 2</u>	<u>Serikawa</u>	☐	☐	☐
(3) _____	_____	_____	☐	☐	☐
(4) _____	_____	_____	☐	☐	☐

☐ Continuation Sheet Attached

Brief Description of Arguments to be Presented:

Serikawa does not provide for traversing test traffic between two different instances of terminal equipment a while claimed (conventional) router a method that uses a switch and two subsidiary modules which send and receive traffic via a switch

An interview was conducted on the above-identified application on _____.

NOTE:

This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).

This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

(Applicant/Applicant's Representative Signature)

(Examiner/SPE Signature)

This collection of information is required by 37 CFR 1.133. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 21 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/156,851	05/30/2002	Leon Bruckman	223756US2	7672

22850 7590 01/21/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

KERVEROS, JAMES C

ART UNIT	PAPER NUMBER
----------	--------------

2133

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Interview Summary	Application No.	Applicant(s)	
	10/156,851	BRUCKMAN ET AL.	
	Examiner	Art Unit	
	JAMES C KERVEROS	2133	

All participants (applicant, applicant's representative, PTO personnel):

(1) JAMES C KERVEROS. (3) _____.

(2) Sanford T. Colb. (4) _____.

Date of Interview: 11 January 2005.

Type: a) ☐ Telephonic b) ☐ Video Conference
c) ☒ Personal [copy given to: 1) ☐ applicant 2) ☒ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.
If Yes, brief description: N/A.

Claim(s) discussed: All independent claims.

Identification of prior art discussed: Serikawa et al. (US 6028845).

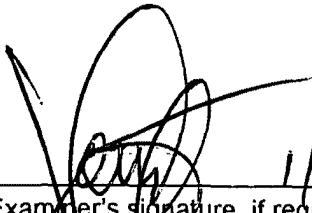
Agreement with respect to the claims f) ☐ was reached. g) ☐ was not reached. h) ☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: The proposed Amendment overcomes the prior art of record, pending a search update. Also, the amendment overcomes claims 1-20 rejected under 35 U.S.C. 112, second paragraph.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

 1/17/2005
 Examiner's signature, if required



DOCKET NO. 223756US

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :
BRUCKMAN et al. : GROUP: 2133
SERIAL NO: 10/156,851 : EXAMINER: KERVEROS, JAMES C
FILED: MAY 30, 2002 :
FOR: HIDDEN FAILURE DETECTION :

AMENDMENT

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

In response to the Office Action dated November 3, 2004, for the above-identified patent application, please consider the remarks below and amend the application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 11 of this paper.

AMENDMENTS TO THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): In an electronic system that includes a main module and at least first and second subsidiary modules, each ~~such module~~ of said at least first and second subsidiary modules connected to the main module by one or more lines for carrying data, at least some of which lines ~~may be~~ are sometimes idle, the main module including a switch having ports connected to the lines, a method for self-testing the system, comprising:

selecting a first idle line among ~~the~~ idle lines connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid line;

instructing the first subsidiary module to loop back traffic reaching the first subsidiary module via the aid line;

selecting for testing a second idle line among the idle lines connecting the second subsidiary module to a second port of the switch on the main module;

configuring the switch to link the first and second ports;

transmitting test traffic over the second idle line from the second subsidiary module to the main module, wherein the test traffic is conveyed via the switch to the aid line connecting to the first subsidiary module; and

reporting that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time.

Claim 2 (Currently Amended): A method according to claim 1, wherein instructing the first subsidiary module comprises configuring the first subsidiary module to loop back the

traffic to the main module substantially without processing ~~the~~ data comprised in the test traffic.

Claim 3 (Currently Amended): A method according to claim 2, wherein the first and second subsidiary modules are configured to transmit and receive ~~the~~ data in different, respective first and second formats, and wherein the test traffic transmitted from the second subsidiary module and looped back by the first subsidiary module is in the second format.

Claim 4 (Currently Amended): A method according to claim 1, ~~and~~ further comprising:

selecting one or more further idle lines for testing among the idle lines in the system, wherein the further idle lines connect to further ports of the switch on the main module; and
repeating the ~~steps~~ of configuring the switch, transmitting the test traffic, and reporting that the failure has occurred with respect to the further idle lines until all the idle lines have been tested.

Claim 5 (Currently Amended): A method according to claim 1, wherein the main module and said at least first and second subsidiary modules comprise cards, which are plugged into a backplane, and wherein the lines comprise traces on the backplane.

Claim 6 (Original): A method according to claim 1, wherein the switch is configured to connect the lines to a network communication trunk, and wherein the traffic comprises communication traffic.

Claim 7 (Original): A method according to claim 6, wherein transmitting the test traffic comprises testing the second idle line while continuing to use the lines that are not idle for carrying the data to the network communication trunk.

Claim 8 (Currently Amended): In an electronic system that includes a main module and multiple subsidiary modules, each of said multiple subsidiary modules ~~such module~~ being connected to the main module by one or more lines for carrying data, a method for self-testing the system, comprising:

selecting first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats;

instructing the first subsidiary module to loop back traffic reaching the first subsidiary module from the main module;

configuring the main module to connect the first and second subsidiary modules, so that the traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the second subsidiary module; and

testing the system by causing the second subsidiary module to transmit test traffic in

the second format to the main module, and assessing whether the test traffic is returned intact from the first module.

Claim 9 (Currently Amended): A method according to claim 8, wherein instructing the first subsidiary module comprises configuring the first subsidiary module to loop back the traffic to the main module substantially without processing the data comprised in the test traffic.

Claim 10 (Original): A method according to claim 8, wherein the main module and subsidiary modules comprise cards, which are plugged into a backplane, and wherein the lines comprise traces on the backplane.

Claim 11 (Original): A method according to claim 8, wherein the main module comprises a switch, which is coupled to connect the lines to a network communication trunk, and wherein configuring the main module comprises configuring the switch to connect at least one of the lines of the first subsidiary module to at least one of the lines of the second subsidiary module.

Claim 12 (Original): A method according to claim 11, wherein testing the system comprises testing one or more of the lines of the second subsidiary module while continuing

to use at least some of the lines that are not under test for carrying the data from the subsidiary modules to the network communication trunk.

Claim 13 (Original): A method according to claim 8, wherein the traffic comprises communication traffic, and wherein the first and second formats are determined respectively by different first and second communication protocols.

Claim 14 (Original): A method according to claim 13, wherein one of the first and second protocols is a time domain multiplexing (TDM) protocol, while the other of the first and second protocols is a packet data protocol.

Claim 15 (Currently Amended): Modular electronic apparatus, comprising:

- a backplane, which comprises traces for carrying data between modules that are plugged into the backplane;
- a main module, ~~adapted to be~~ plugged into the backplane, the main module comprising a switch having ports for connection to the traces of the backplane;
- at least first and second subsidiary modules, ~~adapted to be~~ plugged into the backplane so as to be connected to the main module by the traces, at least some of which traces ~~may be~~ are sometimes idle; and
- a system control processor, which is ~~adapted~~ operative to select a first idle trace among ~~the~~ idle traces connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid trace, to instruct the first subsidiary module to loop back

traffic reaching the first subsidiary module via the aid trace, to select for testing a second idle trace among the idle traces connecting the second subsidiary module to a second port of the switch on the main module, and to configure the switch to link the first and second ports, the system control processor being further ~~adapted~~ operative to cause test traffic to be transmitted over the second idle trace from the second subsidiary module to the main module, wherein the test traffic is conveyed via the switch to the aid trace connecting to the first subsidiary module, and to report that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time.

Claim 16 (Currently Amended): Apparatus according to claim 15, wherein the first subsidiary module is configured, under control of the system control processor, to loop back the traffic on the aid trace to the main module substantially without processing the data comprised in the test traffic.

Claim 17 (Currently Amended): Apparatus according to claim 16, wherein the first and second subsidiary modules are configured to transmit and receive the data in different, respective first and second formats, and wherein the test traffic transmitted from the second subsidiary module and looped back by the first subsidiary module is in the second format.

Claim 18 (Currently amended): Apparatus according to claim 15, wherein the system control processor is ~~adapted~~ operative to select one or more further idle traces for testing among the idle traces in the system, wherein the further idle traces connect to further ports of

the switch on the main module, and to repeatedly configure the switch, cause the test traffic to be transmitted, and report the failure when it occurs with respect to the further idle traces until all the idle lines have been tested.

Claim 19 (Original): Apparatus according to claim 15, wherein the switch is configured to connect the traces to a network communication trunk, and wherein the traffic comprises communication traffic.

Claim 20 (Original): Apparatus according to claim 19, wherein the test traffic is transmitted over the second idle trace while continuing to use the trace that are not idle for carrying the data to the network communication trunk.

Claim 21 (Currently Amended): Modular electronic apparatus, comprising:

- a backplane, which comprises traces for carrying data between modules that are plugged into the backplane;
- a main module, ~~adapted to be~~ plugged into the backplane;
- a plurality of subsidiary modules, ~~adapted to be~~ plugged into the backplane so as to be connected to the main module by the traces; and
- a system control processor, which is ~~adapted~~ operative to select first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats, and which is further ~~adapted~~ operative to test

the modules by causing the first subsidiary module to loop back traffic reaching the first subsidiary module from the main module, by configuring the main module to connect the first and second subsidiary modules, so that ~~the~~ a traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the second subsidiary module, and by causing the second subsidiary module to transmit test traffic in the second format to the main module, and assessing whether the test traffic is returned intact from the first module.

Claim 22 (Original): Apparatus according to claim 21, wherein the first subsidiary module is configured to loop back the traffic to the main module substantially without processing the data comprised in the test traffic.

Claim 23 (Currently Amended): Apparatus according to claim 21, wherein the main module comprises a switch, which is coupled to connect the traces to a network communication trunk, and wherein the system control processor is ~~adapted~~ operative to configure switch to connect at least one of the lines of the first subsidiary module to at least one of the lines of the second subsidiary module during the test.

Claim 24 (Currently Amended): Apparatus according to claim 23, wherein the system control processor is ~~adapted~~ operative to test one or more of the traces connected to the second subsidiary module while at least some of the traces that are not under test continue

to be used for carrying the data from the subsidiary modules to the network communication trunk.

Claim 25 (Original): Apparatus according to claim 21, wherein the traffic comprises communication traffic, and wherein the first and second formats are determined respectively by different first and second communication protocols.

Claim 26 (Original): Apparatus according to claim 25, wherein one of the first and second protocols is a time domain multiplexing (TDM) protocol, while the other of the first and second protocols is a packet data protocol.

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-26 are presently active in this case. The present Amendment amends Claims 1-5, 8-9, 15-18, 21 and 23-24.

The outstanding Office Action objected to Claims 15-26 because of informalities. Claims 1-20 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claims 1-4, 6-9 and 11-14 were rejected under 35 U.S.C. § 102(b) over Serikawa et al. (U.S. Patent 6,028,845, herein referred as “Serikawa”). Claims 5, 10 and 15-26 were rejected under 35 U.S.C. § 103(a) over Serikawa in view of Bright et al. (U.S. Patent 5,541,862, herein “Bright”).

Initially, Applicant respectfully requests that the reference WO 01/93499 cited in the Information Disclosure Statement filed November 13, 2002 be acknowledged as having been considered in the next Office Action. Copies of the reference WO 01/93499 and of the PTO-1449 form citing the reference filed on November 13, 2002 are submitted herewith.

Applicant also wishes to thank the Examiner Kerveros for the courtesy of an interview granted to Applicant’s representative, Sanford T. Colb (Reg. No. 26,856), held in the U.S.P.T.O. on January 11, 2005. At the interview, Mr. Colb presented a proposed amendment to Claim 1 and argued the patentability of Claim 8 as filed. It was agreed that the proposed amendment overcomes the cited references, and that the examination of the application is subject to further search. It was also agreed that amending the preamble of Claims 1 and 8 to recite “a method for self-testing the system” and amending Claim 1 to state that “at least some of [the] lines are sometimes idle” would overcome the rejection of these

claims under 35 U.S.C. 112, second paragraph. In accordance with the interview, the present response amends Claims 1 and 8 in the present response, and amends Claim 15 similar to the amendment of Claim 1.

In response to the objection to Claims 15-26 for informalities, Claims 15, 18, 21, 23 and 24 are amended to remove the term “adapted to.” Furthermore, Claims 1-5, 8-9, 15-17 and 21 are amended to correct minor formalities on antecedent basis. In light of the formal nature of these changes to the claims, the changes do not raise a question of new matter.

In response to the rejection of Claims 1-20 under 35 U.S.C. § 112, second paragraph, the preamble of Claims 1 and 8 are amended to recite “a method for self-testing the system,” as agreed in the interview with the Examiner. Furthermore, the Claims 1 and 15 are amended to replace “may be” with “are sometimes,” also as agreed in the interview. In view of the amendment to Claims 1, 8 and 15, it is believed that all pending claims are definite and no further rejection on that basis is anticipated. If, however, the Examiner disagrees, the Examiner is invited to telephone the undersigned who will be happy to work with the Examiner in a joint effort to derive mutually acceptable language.

In response to the rejection of Claims 1-4, 6-9 and 11-14 under 35 U.S.C. § 102(b), Claim 1 is amended to recite “wherein the test traffic is conveyed via the switch to the aid line connecting to the first subsidiary module.” This feature finds non-limiting support in the disclosure as originally filed, for example at page 13, lines 18-25. The changes to Claim 1 clarify that claim over Serikawa. Therefore, the rejection is believed to be overcome and Applicant respectfully traverses the rejection of Claims 1-4, 6-9 and 11-14 and requests reconsideration of this rejection, as next discussed.

Briefly recapitulating, Claim 1 recites a method for self-testing that uses a switch in a

main module and two different subsidiary modules, which are connected to the main module and exchange test traffic via the switch.¹ A non-limiting example of the claimed test configuration is shown in Fig. 1 of the present application. The test traffic traverses a second idle line (trace 38 in this example) from a second subsidiary module (MODULE A), via the switch to a first idle line (trace 40) connecting to a first subsidiary module (MODULE K). The first subsidiary module, if it is operating properly, loops the traffic back through the switch to the second subsidiary module.² As recited in the specification at page 1, lines 17-23, the method permits the system to test its various idle lines and components flexibly, without intruding on normal traffic.

The applied reference Serikawa describes a communication-line-quality measuring system for use in a network configuration that includes transmission and terminal equipment. The network configuration is shown in Serikawa's Fig. 1, while the quality measuring system is shown in Fig. 10. As shown in this figure, TDMA equipment 11 sends signals over a down-link line to terminal equipment 12, which then loops the signals back over an up-link line to the terminal equipment.³ Comparing device 73 in the TDMA equipment checks the returned signals against the original transmitted signal. The entire measurement process takes place between one TDMA equipment and one terminal equipment, without the test traffic passing through Serikawa's switching system 10. Serikawa is silent about transmitting test traffic between two different instances of terminal equipment (such as equipment 12 and 12a)⁴ or between two different instances of TDMA equipment (such as 11 and 11a).

Therefore, Serikawa ***does not teach or suggest*** transmitting test traffic for loopback

¹ See for example Applicant's specification in Fig. 1.

² See Applicant's specification from page 12-13.

³ See Serikawa, for example at column 12, lines 1-16 and in Fig. 10.

⁴ See Serikawa, for example in Fig. 1

via a switch, as claimed. Diverting the test traffic to the switch in Serikawa's system would simply not make sense. Therefore, amended Claim 1 is believed to overcome the rejection based on the Serikawa reference. Since Claims 2-4, 6 and 7 depend upon Claim 1, which is believed to be patentably distinct over the prior art, the rejection of dependent Claims 2-5, 6 and 7 is believed to be overcome.

Furthermore, Claim 8 recites a method for self-testing using first and second subsidiary modules *of different types*, which transmit and receive data in *different respective formats*. The outstanding Office Action appears to have not considered this limitation in rejecting Claim 8 on the same grounds as Claim 1. In Serikawa's system both TDMA equipment 11 and terminal equipment 12 include frame assembling and disassembling means.⁵ The TDMA equipment and terminal equipment must therefore transmit and receive data in the same format, or else the frame assembling and disassembling mechanism will not work. Furthermore, Claim 8 also recites transmitting test traffic between the first and second subsidiary modules via a main module. The outstanding Office Action appears to have not considered this limitation recited in Claim 8, as well.

The combination of features recited in Claim 8 underscores the flexibility afforded by the invention recited therein to choose any pair of subsidiary modules to connect and test through the main module, regardless of whether the subsidiary modules are of the same or different types. Serikawa *neither teaches nor suggests* these features. Therefore, Serikawa fails to teach or suggest every feature recited in the noted claims, so that Claims 1-4, 6-9 and 11-14 are believed to be patentably distinct over the prior art. Accordingly, Applicant

⁵ See Serikawa, for example in Fig. 10

respectfully traverses, and requests reconsideration of, the rejection based on the Serikawa patent.⁶

In response to the rejection of Claims 5, 10 and 15-26 under 35 U.S.C. § 103(a), Claim 15 is amended in accordance with the changes to Claim 1 to recite "wherein the test traffic is conveyed via the switch to the aid trace connecting to the first subsidiary module." This feature finds non-limiting support in the disclosure as originally filed, for example at page 13, lines 18-25. The changes to Claim 15 clarify that claim over Serikawa in view of Bright. Accordingly, Applicant respectfully traverses the rejection of Claims 5, 10 and 15-26 and requests reconsideration of this rejection, as next discussed.

Claim 15 recites a modular electronic apparatus comprising a backplane, a main module, and at least first second subsidiary modules, all plugged into the backplane. A system control processor selects first and second idle traces on the backplane that connect the first and second subsidiary modules to first and second ports of a switch in the main module. The processor configures the switch to link the first and second ports and to cause test traffic to be transmitted from the second subsidiary module over the second idle trace to the main module.

As discussed above, the applied reference Serikawa *does not teach or suggest* a feature related to the claimed test traffic conveyed via the switch to the aid trace connecting to the first subsidiary module. Applicant respectfully submits that the applied reference Bright also *does not disclose* such a feature, as discussed next.

Bright describes an emulator and digital signal analyzer. To test the functional and

⁶ See MPEP 2131: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference," (Citations omitted) (emphasis added). See also MPEP 2143.03: "All words in a claim must be considered in judging the patentability of that claim against the prior art."

parametric characteristics of a unit without overloading a host computer, the host computer downloads a testing program to a plurality of digital signal processor modules. These modules perform functional environmental emulation data generation and analysis of the data received from the unit under test.⁷ As explained above in reference to Claim 1, Serikawa does not teach or suggest transmitting test traffic for loopback via a switch, as required in Claim 15. Bright also fails to teach or suggest such an approach. Accordingly, Claim 15 is believed to be patentably distinct over the applied references. Since Claims 16-20 depend upon Claim 15, the rejection of these claims is believed to be overcome.

Furthermore, Claim 21 recites a modular electronic apparatus comprising a backplane, a main module, and a plurality of subsidiary modules, all plugged into the backplane. A system control processor selects for testing first and second subsidiary models of different types, which transmit and receive data in different respective formats. As explained above in reference to Claim 8, Serikawa does not teach or suggest this limitation. Bright similarly fails to teach or suggest apparatus with this capability. Therefore, Claim 21 is believed to be patentable over the cited references. Since Claims 22-26 depend upon independent Claim 1, these claims are also believed to be patentably distinct over the applied references.

Since Claim 1, upon which Claim 5 depends, and since Claim 8, upon which Claim 10 depends, are believed to be patentably distinct over the prior art as discussed above, the rejections of Claims 5 and 10 are also believed to be overcome. Even if the combination of Bright and Serikawa is assumed to be proper, neither of these references teach nor suggest the features of independent Claims 1 and 8.

⁷ See Bright, for example in the Abstract.

Application No. 10/156,851
Reply to Office Action of November 3, 2004

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claims 1-26 is earnestly solicited.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



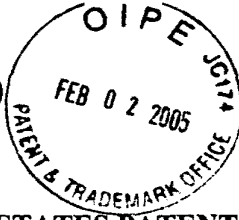
Gregory J. Maier
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22850

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Docket No. 223756US2/shb

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Leon BRUCKMAN, et al.

SERIAL NO: 10/156,851

GAU: 2133

FILED: May 30, 2002

EXAMINER:

FOR: HIDDEN FAILURE DETECTION

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

ASSISTANT COMMISSIONER FOR PATENTS
WASHINGTON, D.C. 20231

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

- ☐ Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

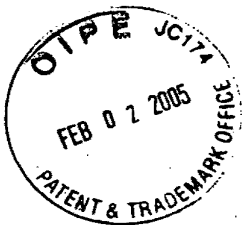
OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

22850

Marvin I. Spivak
Registration No. 24,913Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 03/02)

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 223756US2		FEB 02 2005 PATENT & TRADEMARK OFFICE		SERIAL NO. 10/156,851	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Leon BRUCKMAN, et al.					
				FILING DATE May 30, 2002				GROUP 2133	
U.S. PATENT DOCUMENTS									
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE		
	AA	5,841,788	11/24/98	W. KE					
	AB	5,627,842	05/06/97	J. H. BROWN, et al.					
	AC	5,132,635	07/21/92	B. KENNEDY					
	AD	5,327,435	07/05/94	N. A. WARCHOL					
	AE	5,420,985	05/30/95	J. CANTRELL, et al.					
	AF	5,574,730	11/12/96	J. H. END, III, et al.					
	AG	6,122,756	09/19/2000	W. F. BAXTER, et al.					
	AH								
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	AJ								
	AK								
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	AM								
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FOREIGN PATENT DOCUMENTS									
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO				
	AO	WO 01/93499	12/06/2001	WIPO					
	AP								
	AQ								
	AR								
	AS								
	AT								
	AU								
	AV								
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)									
	AW								
	AX								
	AY								
	AZ						☐ Additional References sheet(s) attached		
Examiner					Date Considered				
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.									

COPY



BEST AVAILABLE COPY

Eab

OSMM&N File No. 223756US2

Serial No. 10/156,851

In the matter of the Application of: Leon BRUCKMAN, et al.

For: HIDDEN FAILURE DETECTION

Dept.: PP

By: MJS/shb

Due Date: 11/26/02

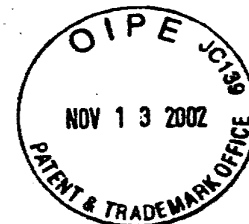
The following has been received in the U.S. Patent Office on the date stamped hereon:

■ Dep. Acct. Order Form

■ Information Disclosure Statement

■ Cited References (8)

■ PTO-1449



COPY

Docket No. 223756US2
IN RE APPLICATION OF: Leon BRUCKMAN, et al.
SERIAL NO: 10/156,851
FILED: May 30, 2002
FOR: HIDDEN FAILURE DETECTION



DFW
2/33

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:
Transmitted herewith is an amendment in the above-identified application.

- ☒ No additional fee is required
- ☐ Small entity status of this application under 37 C.F.R. §1.9 and §1.27 is claimed.
- ☒ Additional documents filed herewith: Copy of IDS papers filed 11/13/2002 -
Date-stamped filing receipt, IDS Transmittal, Form PTO-1449

The Fee has been calculated as shown below:

CLAIMS	CLAIMS REMAINING		HIGHEST NUMBER PREVIOUSLY PAID	NO. EXTRA CLAIMS	RATE	CALCULATIONS
TOTAL	26	MINUS	26	0	x \$50 =	\$0.00
INDEPENDENT	4	MINUS	4	0	x \$200 =	\$0.00
		☐ MULTIPLE DEPENDENT CLAIMS				+ \$360 = \$0.00
		TOTAL OF ABOVE CALCULATIONS				\$0.00
		☐ Reduction by 50% for filing by Small Entity				\$0.00
		☐ Recordation of Assignment				+ \$40 = \$0.00
		TOTAL				\$0.00

- ☐ A check in the amount of \$0.00 is attached.
- ☐ Credit card payment form is attached to cover the fees in the amount of \$0.00
- ☒ Please charge any additional Fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.
- ☒ If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time may be charged to Deposit Account No. 15-0030. A duplicate copy of this sheet is enclosed.

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier
Registration No. 25,599

Customer Number
22850

Surinder Sachar
Registration No. 34,423

Tel. (703) 413-3000
Fax. (703) 413-2220
(OSMMN 05/03)
I:\ATTY\NS\08570\223756US\223756US.PTO_013105.DOC

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2001

Application or Docket Number

10156851

223256152

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	26	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	26 - minus 20 =	* 6
INDEPENDENT CLAIMS	4 - minus 3 =	* 1
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

* If the difference in column 1 is less than zero, enter "0" in column 2

IFW dt
Amndt
2-2-05

CLAIMS AS AMENDED - PART II

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	* 26	Minus ** 26	= 0
Independent	* 4	Minus *** 4	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

SMALL ENTITY TYPE ☐ OR

OTHER THAN SMALL ENTITY

RATE	FEE		RATE	FEE
BASIC FEE	370.00	OR	BASIC FEE	740.00
X\$ 9=	54.00	OR	X\$18=	
X42=	42.00	OR	X84=	
+140=		OR	+280=	
TOTAL	466.00	OR	TOTAL	

SMALL ENTITY OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	*	Minus **	=
Independent	*	Minus ***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	2	"20030226072"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2004/10/29 10:44
S2	1	"20030226072"	US-PGPUB; USPAT	OR	OFF	2004/10/29 10:58
S3	7	US-5841788-\$.DID. OR US-5627842-\$.DID. OR US-5132635-\$.DID. OR US-5327435-\$.DID. OR US-5420985-\$.DID. OR US-5574730-\$.DID. OR US-6122756-\$.DID.	USPAT	OR	OFF	2004/10/29 11:00
S4	1	(BRUCKMAN ADJ LEON ILAN ADJ SHMUEL).in.	USPAT	OR	OFF	2004/10/29 11:02
S5	18	(BRUCKMAN ADJ LEON ILAN ADJ SHMUEL).in.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2004/10/29 11:04
S11	3	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and loop ADJ back with test\$3	USPAT	OR	OFF	2004/10/29 11:11
S10	3	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane and loop ADJ back with test\$3	USPAT	OR	OFF	2004/10/29 11:11
S13	30	CORRIGENT ADJ SYSTEMS.as.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2004/10/29 11:20
S12	19	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane with test\$3	USPAT	OR	OFF	2004/10/29 11:20
S15	14	CORRIGENT ADJ SYSTEMS.as.	USPAT; EPO; JPO; DERWENT	OR	OFF	2004/10/29 11:21
S14	14	CORRIGENT ADJ SYSTEMS.as.	USPAT; EPO; JPO; DERWENT	OR	OFF	2004/10/29 11:21
S9	3	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane and loop ADJ back	USPAT	OR	OFF	2004/10/29 11:22
S18	181	"5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756"	USPAT; EPO; JPO; DERWENT	OR	OFF	2004/10/29 11:32

S20	48	backplane and loop ADJ back and self adj test	USPAT	OR	OFF	2004/10/29 11:41
S21	11	backplane and loop ADJ back and self adj test with BUS	USPAT	OR	ON	2004/10/29 11:43
S23	38	loop ADJ back with self adj test	USPAT	OR	ON	2004/10/29 11:44
S22	1	loop ADJ back with self adj test with BUS	USPAT	OR	ON	2004/10/29 11:44
S17	81	714/712-717.ccls. and loop ADJ back	USPAT	OR	OFF	2004/10/29 11:47
S25	51	714/712-717.ccls. and loop ADJ back and line with test\$3	USPAT	OR	OFF	2004/10/29 11:48
S27	25	loop ADJ back with test\$3 with fail\$3	USPAT	OR	OFF	2004/10/29 11:51
S26	18	714/712-717.ccls. and loop ADJ back and line with test\$3 same fail\$3	USPAT	OR	OFF	2004/10/29 11:51
S19	3	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane and loop ADJ back	USPAT	OR	OFF	2004/10/29 11:52
S30	15	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane and fail\$3	USPAT	OR	OFF	2004/10/29 11:53
S29	28	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane	USPAT	OR	OFF	2004/10/29 11:53
S28	3	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane and loop ADJ back	USPAT	OR	OFF	2004/10/29 11:53
S31	3	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and loop ADJ back	USPAT	OR	OFF	2004/10/29 11:58
S32	15	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane and test\$3 and fail\$3	USPAT	OR	OFF	2004/10/29 11:59
S33	1	324/66.ccls. and back ADJ plane	USPAT	OR	OFF	2004/10/29 12:16
S8	3	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane and loopback	USPAT	OR	OFF	2004/10/29 12:16
S34	5	324/66.ccls. and backplane	USPAT	OR	OFF	2004/10/29 12:17
S16	9	714/712-717.ccls. and backplane and loop ADJ back	USPAT	OR	OFF	2004/10/29 12:55

S35	44	714/715-716.ccls. and loop ADJ back	USPAT	OR	OFF	2004/10/29 13:18
S36	34	714/715-716.ccls. and loop ADJ back and communication	USPAT	OR	OFF	2004/10/29 13:19
S37	58	714/712-716.ccls. and loop ADJ back and communication	USPAT	OR	OFF	2004/10/30 10:35
S7	28	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane	USPAT	OR	OFF	2004/10/30 12:24
S40	1	("6028845").PN.	USPAT	OR	OFF	2005/01/11 12:56
S39	4	"6028845"	USPAT	OR	OFF	2005/01/11 12:56
S38	10	("5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756") and backplane with modul\$3 with plug\$5	USPAT	OR	OFF	2005/01/11 12:56
S41	1963	714/724-727.ccls.	USPAT	OR	OFF	2005/04/05 12:22
S6	173	"5841788" "5627842" "5132635" "5327435" "5420985" "5574730" "6122756"	USPAT	OR	OFF	2005/04/05 12:22
S42	17	S41 and loop ADJ back and self with test	USPAT	OR	OFF	2005/04/05 12:23
S24	20	714/712-717.ccls. and loop ADJ back and self with test	USPAT	OR	OFF	2005/04/05 12:23



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

22850 7590 06/10/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT,
P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER

KERVEROS, JAMES C

ART UNIT

PAPER NUMBER

2133

DATE MAILED: 06/10/2005

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/156,851	05/30/2002	Leon Bruckman	223756US2	7672

TITLE OF INVENTION: HIDDEN FAILURE DETECTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$700	\$300	\$1000	09/12/2005

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. **PROSECUTION ON THE MERITS IS CLOSED.** THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. **THIS STATUTORY PERIOD CANNOT BE EXTENDED.** SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail****Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
(703) 746-4000**or **Fax**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

22850 7590 06/10/2005

**OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT,
P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (703) 746-4000, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/156,851	05/30/2002	Leon Bruckman	223756US2	7672

TITLE OF INVENTION: HIDDEN FAILURE DETECTION

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$700	\$300	\$1000	09/12/2005

EXAMINER	ART UNIT	CLASS-SUBCLASS
KERVEROS, JAMES C	2133	714-716000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s):

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above. NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.



UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/156,851	05/30/2002	Leon Bruckman	223756US2	7672
22850	7590	06/10/2005		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER KERVEROS, JAMES C	
			ART UNIT 2133	PAPER NUMBER

DATE MAILED: 06/10/2005

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 470 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 470 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571) 272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

Notice of Allowability

Application No.

10/156,851

Examiner

JAMES C KERVEROS

Applicant(s)

BRUCKMAN ET AL.

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed 2/2/2005.
2. ☒ The allowed claim(s) is/are 1-26.
3. ☒ The drawings filed on 30 May 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 2/2/05
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

ALBERT DECADY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

DETAILED ACTION

This is a Notice of Allowance in response to Amendment filed 2/2/2005.

Allowable Subject Matter

Claims 1-26 are allowed.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

The prior arts of record taken alone or in combination fail to teach, anticipate, suggest or render obvious the claimed invention of a method for self testing an electronic system and a modular electronic apparatus recited in the independent claims. Furthermore, the claimed invention is patentably distinct over the prior arts of record in view of the proposed amendment, which is now incorporated in the claims, as agreed by the Examiner pending a search update, during a personal interview with Applicant's representative, Sanford T. Colb, held in the USPTO on January 11, 2005. It was agreed that the proposed amendment overcomes the cited references, and that the examination of the application is subject to further search.

Claim 1, recites inter alia, method steps of transmitting test traffic over the second idle line from the second subsidiary module to the main module, wherein the test traffic is conveyed via the switch to the aid line connecting to the first subsidiary module.

Claim 8, recites inter alia, method steps of selecting first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats, and wherein, configuring the main module to connect the first and second subsidiary modules, so that the traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the second subsidiary module.

Claim 15, recites inter alia, a system control processor, which is operative to select testing a second idle trace among the idle traces connecting the second subsidiary module to a second port of the switch on the main module, and to configure the switch to link the first and second ports, wherein the system control processor being further operative to cause test traffic to be transmitted over the second idle trace from the second subsidiary module to the main module.

Claim 21, recites inter alia, a system control processor, which is operative to select first and second subsidiary modules of different types for testing among the multiple subsidiary modules, the first and second subsidiary modules being configured to transmit and receive the data in different, respective first and second formats, and wherein, configuring the main module to connect the first and second subsidiary

Art Unit: 2133

modules, so that the traffic transmitted by the second subsidiary module is conveyed to the first subsidiary module via the main module and is then looped back via the main module to the second subsidiary module.

Consequently, independent claims 1, 8, 15 and 21 are allowed over the prior arts of record. Claims 2-7, 9-14, 16-20, 22-26 are directly or indirectly depended upon the independent claims and therefore are also allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

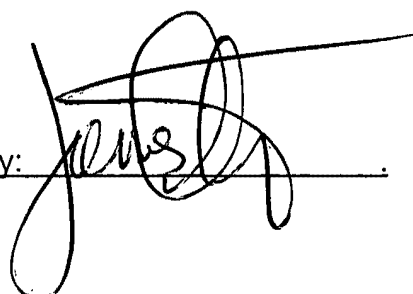
Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES C KERVEROS whose telephone number is (571) 272-3824. The examiner can normally be reached on 9:00 AM TO 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Email: james.kerveros@uspto.gov

Date: 5 April 2005
Office Action: Allowance

By: 

JAMES C KERVEROS
Examiner
Art Unit 2133

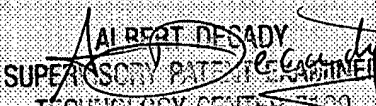
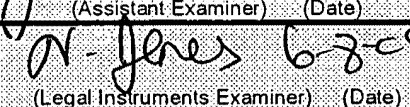

ALBERT DECADY
SUPERVISOR
TECHNOLOGY CENTER 2100

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 223756US2		FEB 02 2005 PATENT & TRADEMARK OFFICE		SERIAL NO. 10/156,851	
LIST OF REFERENCES CITED BY APPLICANT				APPLICANT Leon BRUCKMAN, et al.					
				FILING DATE May 30, 2002				GROUP 2133	
U.S. PATENT DOCUMENTS									
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE		
[Signature]	AA	5,841,788	11/24/98	W. KE					
	AB	5,627,842	05/06/97	J. H. BROWN, et al.					
	AC	5,132,635	07/21/92	B. KENNEDY					
	AD	5,327,435	07/05/94	N. A. WARCHOL					
	AE	5,420,985	05/30/95	J. CANTRELL, et al.					
	AF	5,574,730	11/12/96	J. H. END, III, et al.					
	AG	6,122,756	09/19/2000	W. F. BAXTER, et al.					
	AH								
	AI								
	AJ								
AK									
AL									
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FOREIGN PATENT DOCUMENTS									
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO				
[Signature]	AO	WO 01/93499	12/06/2001	WIPO					
	AP								
	AQ								
	AR								
	AS								
	AT								
	AU								
	AV								
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)									
	AW								
	AX								
	AY								
	AZ								
Examiner					☐ Additional References sheet(s) attached Date Considered: 1/5/2005				
*Examiner: Initial if reference is considered whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.									

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Issue Classification 	Application No.	Applicant(s)	
	10/156,851	BRUCKMAN ET AL.	
	Examiner	Art Unit	
	JAMES C KERVEROS	2133	

ISSUE CLASSIFICATION									
ORIGINAL				CROSS REFERENCE(S)					
CLASS	SUBCLASS			CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
714	716								
INTERNATIONAL CLASSIFICATION									
G	0	1	R	031/28					
				/					
				/					
				/					
 JAMES C KERVEROS (Assistant Examiner) (Date) 4/5/05				 AL REST DESADY SUPERVISOR PATENT EXAMINER TECHNOLOGY CENTER 2133 (Primary Examiner) (Date)				Total Claims Allowed: 26	
 N. Jones (Legal Instruments Examiner) (Date) 6-8-05								O.G. Print Claim(s) 1	O.G. Print Fig. 1

☒ Claims renumbered in the same order as presented by applicant										☐ CPA		☐ T.D.		☐ R.1.47	
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BIBDATASHEET

CONFIRMATION NO. 7672

Bib Data Sheet

SERIAL NUMBER 10/156,851	FILING DATE 05/30/2002 RULE	CLASS 714	GROUP ART UNIT 2133	ATTORNEY DOCKET NO. 223756US2
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APPLICANTS

Leon Bruckman, Petah Tikva, ISRAEL;

Shmuel Ilan, Ramat-Gan, ISRAEL;

** CONTINUING DATA ***** *NONE* *4/5/05*

** FOREIGN APPLICATIONS ***** *NONE*

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
 ** 06/28/2002

Foreign Priority claimed 35 USC 119 (a-d) conditions met	☐ yes ☒ no <i>4/5/05</i>	STATE OR COUNTRY ISRAEL	SHEETS DRAWING 2	TOTAL CLAIMS 26	INDEPENDENT CLAIMS 4
Verified and Acknowledged	Examiner's Signature <i>[Signature]</i> Initials <i>[Initials]</i>				

ADDRESS
 22850
 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
 1940 DUKE STREET
 ALEXANDRIA, VA
 22314

TITLE
 Hidden failure detection

FILING FEE RECEIVED 466	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit
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Search Notes

Application No.

10/156,851

Applicant(s)

BRUCKMAN ET AL.

Examiner

JAMES C KERVEROS

Art Unit

2133

SEARCHED

Class	Subclass	Date	Examiner
714	724, 726, 727	4/5/2005	JCK

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner
714	726	4/5/2005	JCK

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
SEARCH UPDATE EAST BRS TEXT SEARCH	4/5/2005	JCK

Docket No. 223756US2

17 2133/1#

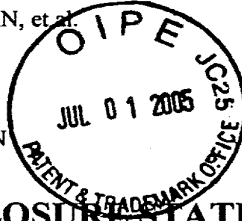
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Leon BRUCKMAN, et al.

SERIAL NO: 10/156,851

FILED: May 30, 2002

FOR: HIDDEN FAILURE DETECTION



GAU: 2133

EXAMINER: Kerveros, James C.

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as well as a copy of the Office Action dated April 4, 2005 for Applicants' co-pending patent application serial no. 09/941,723.
- ☒ A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- ☐ Attached is a list of applicant's pending application(s), published application(s) or issued patent(s) which may be related to the present application. In accordance with the waiver of 37 CFR 1.98 dated September 21, 2004, copies of the cited pending applications are not provided. Cited published and/or issued patents, if any, are listed on the attached PTO form 1449.
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CERTIFICATION

- ☒ Each item of information contained in this information disclosure statement was first cited in a communication from the U.S. Patent and Trademark Office in Applicants' co-pending U.S. patent application serial no. 09/941,723 not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

07/05/2005 SDENBOB1 00000126 10156851

01 FC:1806

180.00 OP

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier

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(OSMMN 05/03)

Surinder Sachar

Registration No. 34,423

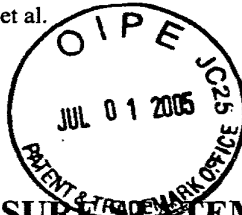
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Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.

Gregory J. Maier

Registration No. 25,599

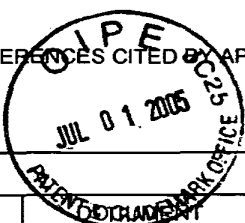
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Fax. (703) 413-2220
(OSMMN 05/03)

Surinder Sachar

Registration No. 34,423

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LIST OF REFERENCES CITED BY APPLICANT 				APPLICANT Leon BRUCKMAN, et al.			
				FILING DATE May 30, 2002		GROUP 2133	
				U.S. PATENT DOCUMENTS			
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	6,456,587	09/2002	Taniguchi, Atsuki			
	AB	6,366,556	04/2002	Ballintine et al.			
	AC	6,233,073	05/2001	Bowers et al.			
	AD						
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FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION YES NO		
	AO						
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	AU						
	AV						
OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)							
	AW						
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	AY						
	AZ					☐ Additional References sheet(s) attached	
Examiner					Date Considered		
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/156,851	05/30/2002	Leon Bruckman	223756US2	7672
22850	7590	08/24/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			KERVEROS, JAMES C	
			ART UNIT	PAPER NUMBER
			2133	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES DEPARTMENT OF COMMERCE

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER
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20050816

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

IDS, Information Disclosure Statement PTO 1449, filed July 1, 2005.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on July 1, 2005 was filed after the mailing date of the Notice of Allowance on June 10, 2005. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAMES C. KERVEROS whose telephone number is (571) 272-3824. The examiner can normally be reached on 9:00 AM TO 5:00 PM.

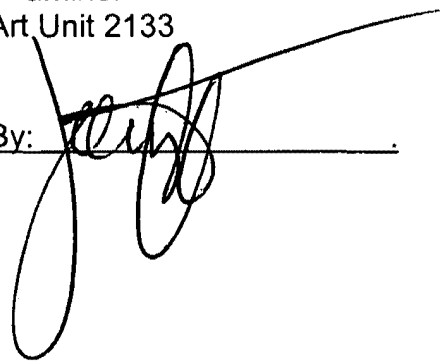
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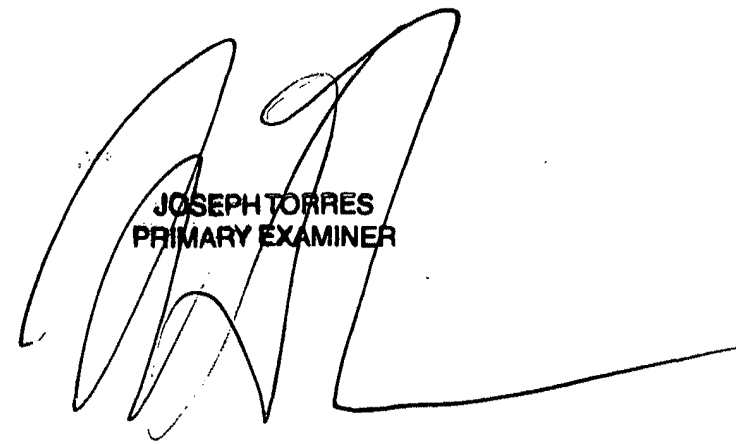
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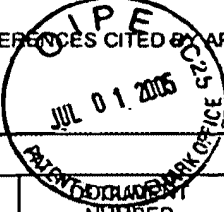
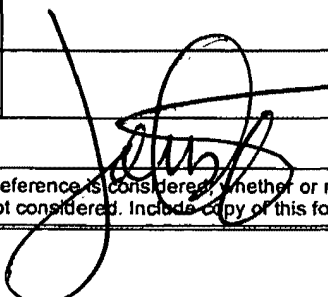
Randolph Building, 401 Dulany Street,
Alexandria, VA 22314
Tel: (571) 272-3824, Fax: (571) 273-3824
james.kerveros@uspto.gov

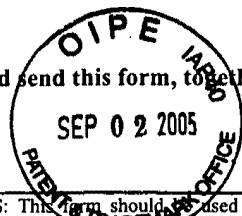
Date: 15 August 2005
Office Action: Misc. Letter Without Response
Period

JAMES C KERVEROS
Examiner
Art Unit 2133

By: 


JOSEPH TORRES
PRIMARY EXAMINER

Form PTO 1449 (Modified)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY DOCKET NO. 223756US2		SERIAL NO. 10/156,851	
LIST OF REFERENCES CITED BY APPLICANT 				APPLICANT Leon BRUCKMAN, et al.			
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				YES	NO		
AO							
AP							
AQ							
AR							
AS							
AT							
AU							
AV							
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AW							
AX							
AY							
AZ							☐ Additional Reference sheet(s) attached
Examiner						Date Considered	
						8/16/2005	
*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.							



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Alexandria, Virginia 22313-1450
(703) 746-4000**or **Fax**

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7590

06/10/2005

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22850**

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(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/156,851	05/30/2002	Leon Bruckman	223756US2	7672

TITLE OF INVENTION: HIDDEN FAILURE DETECTION

09/07/2005 MBEYENE2 00000022 10156851

01 FC:1504 300.00 OP

02 FC:2501 300.00 OP

APPLN. TYPE	SMALL ENTITY DISCOUNT	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$700	\$300	\$1000	09/12/2005

EXAMINER	ART UNIT	CLASS-SUBCLASS
KERVEROS, JAMES C	2133	714-716000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

OBLON, SPIVAK,

1. MCLELLAND, MAIER

2. & NEUSTADT, P.C.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

CORRIGENT SYSTEMS LTD.

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Tel Aviv, ISRAEL

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are enclosed:

☒ Issue Fee☒ Publication Fee (No small entity discount permitted)☐ Advance Order - # of Copies -0-

4b. Payment of Fee(s):

☐ A check in the amount of the fee(s) is enclosed.☒ Payment by credit card. Form PTO-2038 is attached.☒ The Director is hereby authorized to charge the required fee(s), or credit any overpayment, to Deposit Account Number 15-0030 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

The Director of the USPTO is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Joseph Scafetta, Jr.

Typed or printed name

Date

SEP 02 2005

Reg. No. 26,803

Registration No.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**COMBINED REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF
ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS AND STATEMENT
UNDER 37 CFR 3.73(B)**

To: Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

CORRIGENT SYSTEMS LTD., a corporation organized under the laws of Israel, states that it is:

1. The assignee of the entire, right, title and interest in each of the patents and patent applications identified on the attached Schedule A by virtue of either an assignment from the inventor(s) of each of the identified patents and patent applications to the current assignee as identified on the attached Schedule A, or a chain of title from the inventor(s) of the patent application/patents to the current assignee as identified on the attached Schedule A, said assignments recorded with the United States Patent and Trademark Office at the reel and frame identified on the attached Schedule A or for which a copy therefore is attached; and
2. As required by 37 CFR 3.73(b)(1)(i), for each of the patents and patent applications listed on the attached Schedule A the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

FURTHER, Corrigent Systems Ltd. states

3. That it hereby revokes all previous Powers of Attorney in the patents and patent applications identified on the attached Schedule A, and hereby appoints Practitioners associated with Customer Number 57449 as its attorneys and agents with respect to the patents and patent applications identified in the attached Schedule A, and to transact all business in the United States Patent and Trademark Office connected therewith; and
4. Requests that this Office please change the correspondence address for the patents and patent applications identified in the attached Schedule A to the address associated with Customer Number 57449.

The undersigned has reviewed all documents in the chain of title for the patents and patent applications identified in the attached Schedule A, and to the best of the undersigned's knowledge and belief, right, title and interest to the applications identified is in the assignee identified above. The undersigned is empowered to act on behalf of the assignee.

CORRIGENT SYSTEMS LTD.

Signature: *[Handwritten Signature]* Date: 29-Jan-2011
Printed Name: RAFI RAM
Title: PATENT ASSIGNEE

SCHEDULE A

<u>Matter No.</u>	<u>Patent name</u>	<u>Application Nr.</u>	<u>Recorded</u>
40552-6103	Multiple Data Links Aggregation With Nested Packet Interruption	09/756,553	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/15/2003 at 014274/0423
40552-6100	Dynamic Fragmentation in Low Rate Channels	09/756,554	Assignment from Inventors to Orckit Communications, Ltd. recorded 3/15/2001 at 011593/0881; Assignment from Orckit Communications Ltd. to Corrigent Systems Ltd. recorded 4/26/2002 at 012866/0880
40552-6102	Flows Allocation in IP Ring Topologies	09/756,946	Assignment from Inventors to Orckit Communications, Ltd. recorded 1/9/2001 at 011435/0015, Assignment from Orckit Communications Ltd. to Corrigent Systems Ltd. recorded 4/26/2002 at 012866/0880
40552-6101	Resource Reservation in a Ring Network	09/794,898	Assignment from Inventors to Orckit Communications, Ltd. recorded 2/26/2001 at 011580/0893; Assignment from Orckit Communications Ltd. to Corrigent Systems Ltd. recorded 4/26/2002 at 012866/0880
40552-6104	One Sided RPR	09/876,414	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/7/2001 at 011888/0028
40552-6107	Interconnect And Gateway Protection In Bidirectional Rings Networks	09/910,790	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/24/2001 at 012017/0934
40552-6108	Fast Protection in Ring Topologies	09/941,723	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/30/2001 at 012130/0608
40552-6109	Latency evaluation in a ring network	09/947,183	Assignment from Inventors to Corrigent Systems Ltd. recorded 11/29/2001 at 012336/0419
40552-6106	Selective protection for ring topologies	09/969,839	Assignment from Inventors to Corrigent Systems Ltd. recorded 10/3/2001 at 012229/0832
40552-6110	Sonet circuit emulation with VT compression	09/978,342	Assignment from Inventors to Corrigent Systems Ltd. recorded 10/17/2001 at 012270-0165
40552-6111	Configuration of network interfaces in a bidirectional ring network	09/978,642	Assignment from Inventors to Corrigent Systems Ltd. recorded 10/16/2001 at 012274/0607
40552-6117	Generic Framework for Embedded Software Development	10/005,030	Assignment from Inventors to Corrigent Systems Ltd. recorded 12/3/2001 at 012358/0508
40552-6118	Fast failure protection using redundant network edge ports	10/036,518	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/7/2002 at 012442/0914
40552-6114	Avoiding Overlapping Segments In ring based TLS	10/054,845	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/25/2002 at 012523/0691
40552-6115	Spanning Tree Protocol For Transparent LAN Services	10/057,332	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/25/2002 at 012535/0510
40552-6112	Protecting the Filtering Data Base in Virtual B ridges	10/061,721	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/1/2002 at 012568/0664
40552-6113	Protecting the filtering database in virtual bridges	10/061,721	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/1/2002 at 012568/0664

40552-6121	Performance monitoring of multiple channels in an automatic protection switched network	10/082,771	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/25/2002 at 012645/0029
40552-6120	Differentiated services with multiple lagging levels	10/128,454	Assignment from Inventors to Corrigent Systems Ltd. recorded 4/24/2002 at 012833/0049
40552-6116	Performance Monitoring of high speed communications network	10/128,459	Assignment from Inventors to Corrigent Systems Ltd. recorded 4/24/2002 at 012832/0932
40552-6122	Hidden Failure Detection	10/156,851	Assignment from Inventors to Corrigent Systems Ltd. recorded 5/30/2002 at 012954/0104
40552-6123	Equipment Protection Using a Partial Star Architecture	10/211,065	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/2/2002 at 013170/0387
40552-6119	Traffic Engineerings in Bi-directional Ring Networks	10/211,066	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/2/2002 at 013172/0613
40552-6125	VPLS using a multicast protocol	10/226,525	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/23/2002 at 013242/0050
40552-6126	Hierarchical VPLS protection	10/337,382	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/7/2003 at 013638/0975
40552-6124	MPLS signaling over RPR	10/369,953	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/20/2003 at 013807/0903
40552-6130	Ring network with variable rate	10/387,657	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/12/2003 at 013884/0505
40552-6128	Efficient Transport of TDM Services	10/396,008	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/24/2003 at 013915/0077
40552-6131	Bandwidth Allocations for Link Aggregation	10/436,516	Assignment from Inventors to Corrigent Systems Ltd. recorded 5/13/2003 at 014072/0524
40552-6132	Multiprotocol media conversion	10/461,807	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/13/2003 at 014190/0326
40552-6133	Layer 3 network routing with RPR Layer 2 visibility	10/812,321	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/29/2004 at 015161/0655
40552-6134	Weight calculation for traffic management	10/861,272	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/3/2004 at 015444/0178
40552-6135	Multipoint to multipoint communication over ring topologies	10/933,572	Assignment from Inventors to Corrigent Systems Ltd. recorded 11/17/2004 at 015389/0644
40552-6137	Synchronized Ring Software Download (SRDL)	10/951,575	Assignment from Inventors to Corrigent Systems Ltd. recorded 9/27/2004 at 015844/0428
40552-6136	VPLS over ring networks	10/993,882	Assignment from Inventors to Corrigent Systems Ltd. recorded 11/19/2004 at 016019/0425
40552-6138	Link aggregation With Tunneling	11/123,801	Assignment from Inventors to Corrigent Systems Ltd. recorded 5/6/2005 at 016545/0876
40552-6140	Two Way Link Aggregation	11/279,045	Assignment from Inventors to Corrigent Systems Ltd. recorded 4/7/2006 at 017441/0881

40552-6142	Resource Sharing Among Network Tunnels	11/305,486	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/11/2006 at 017001/0167
40552-6144	VPLS Faliure Protection In Ring Networks	11/335,770	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/18/2006 at 017502/0055
40552-6143	Route Selection with Bandwidth Sharing Optimazation Over Rings	11/339,148	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/24/2006 at 017504/0802
40552-6145	High capacity ring communication network	11/367,231	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/2/2006 at 017651/0359; corrective assignment to add the additional name of a conveying party recorded 6/27/2006 at 017868/0544; corrective assignment to correct the 5th assignor's name previously recorded, recorded 7/31/2006 at 018035/0163
40552-6146	MAC address learning in a distributed bridge	11/419,444	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/10/2006 at 017904/0311
40552-6139	Transparent Transport of Fibre Channel Traffic Over Packet-Switched Networks	11/479,595	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/29/2006 at 018034/0195
40552-6149	Connectivity Fault Management (CFM) In Networks With Link Aggregation Group Connections	11/483,650	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/11/2006 at 018103/0490
40552-6150	Point-to-multipoint functionality in a bridged network	11/508,599	Assignment from Inventors to Corrigent Systems Ltd. recorded 8/22/2006 at 018222/0834
40552-6151	Fault-tolerant medium access control (MAC) address assignment in network elements	11/534,536	Assignment from Inventors to Corrigent Systems Ltd. recorded 9/22/2006 at 018292/0823
40552-6154	Hash-based multi-homing	11/559,037	Assignment from Inventors to Corrigent Systems Ltd. recorded 12/27/2007 at 020292/0128
40552-6152	Forwarding Multicast Traffic Over link Aggregation Ports	11/644,773	Assignment from Inventors to Corrigent Systems Ltd. recorded 12/21/2006 at 018743/0396
40552-6155	Frame Concatenation with Drop Precedence Assignment	11/704,615	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/8/2007 at 018986/0082
40552-6153	MAC ADDRESS SCALABILITY IN INTERCONNECTED RINGS	11/764,764	Assignment from Inventors to Corrigent Systems Ltd. recorded 6/18/2007 at 019459/0806
40552-6156	Prevention Of Frame Duplication In Interconnected Ring Network	12/044,158	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/7/2008 at 020615/0339
40552-6141	VPLS remote failure indicator	12/093,824	Assignment from Inventors to Corrigent Systems Ltd. recorded 7/22/2008 at 021269/0633
40552-6158	A Device Method and System for providing a media stream	12/143,944	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/2/2009 at 022186/0537

40552-6159	Efficient Full Mesh Load Testing of Packet based Communication Systems	12/261,072	Assignment from Inventors to Corrigent Systems Ltd. recorded 10/30/2008 at 021759/0438
40552-6162	Ring Network Aggregate Rates	12/348,361	Assignment from Inventors to Corrigent Systems Ltd. recorded 1/5/2009 at 022053/0650
40552-6160	High-Speed Processing of Multicast Content Requests	12/369,011	Assignment from Inventors to Corrigent Systems Ltd. recorded 2/11/2009 at 022238/0791
40552-6129	Efficient transport of TDM services over packet networks	12/404,444	Assignment from Inventors to Corrigent Systems Ltd. recorded 3/17/2009 at 022405/0541
40552-6161	Method for unicast streaming of multicast content	12/628,247	Assignment from Inventors to Corrigent Systems Ltd. recorded 12/1/2009 at 023582/0533

Electronic Acknowledgement Receipt

EFS ID:	9288779
Application Number:	10156851
International Application Number:	
Confirmation Number:	7672
Title of Invention:	HIDDEN FAILURE DETECTION
First Named Inventor/Applicant Name:	Leon Bruckman
Customer Number:	22850
Filer:	Peter Anthony Nieves/Elaine Cote
Filer Authorized By:	Peter Anthony Nieves
Attorney Docket Number:	223756US2
Receipt Date:	24-JAN-2011
Filing Date:	30-MAY-2002
Time Stamp:	13:00:35
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	executedpoaTOFILE.pdf	347366 df9ee8608d5bb0d5e838dff4303fbbb4d7577dc3	no	6

Warnings:

Information:

ARISTA NETWORKS, INC. EXHIBIT 1002

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/156,851	05/30/2002	Leon Bruckman	223756US2

57449
SHEEHAN PHINNEY BASS & GREEN, PA
c/o PETER NIEVES
1000 ELM STREET
MANCHESTER, NH 03105-3701

CONFIRMATION NO. 7672
POA ACCEPTANCE LETTER



Date Mailed: 01/31/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/24/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/sleutchit/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/156,851	05/30/2002	Leon Bruckman	223756US2

22850
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P.
1940 DUKE STREET
ALEXANDRIA, VA 22314

CONFIRMATION NO. 7672
POWER OF ATTORNEY NOTICE



Date Mailed: 01/31/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/24/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/sleutchit/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:



Practitioners associated with the Customer Number:

131926

OR



Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:



The address associated with Customer Number:

131926

OR

Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

Assignee Name and Address:

Orckit IP, LLC

874 Walker Road, Suite C, Dover, Delaware, USA

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE OF THE SIGNER OF RECORD

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature

Name

Title

Yehuda Binder

CEO and Owner of Orckit IP LLC

Date

June 5, 2016

Telephone

+972-54-4444577

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Leon Bruckman, Shmuel Ilan

Application No./Patent No.: 10/156,851

Filed/Issue Date: 05-30-2002

Titled: HIDDEN FAILURE DETECTION

ORCKIT IP, LLC, a Limited Liability Company

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;
2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or
3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

- A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

- B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Leon Bruckman, Shmuel Ilan To: CORRIGENT SYSTEMS LTD

The document was recorded in the United States Patent and Trademark Office at
Reel 012954, Frame 0104, or for which a copy thereof is attached.

2. From: CORRIGENT SYSTEMS LTD To: ORCKIT-CORRIGENT LTD

The document was recorded in the United States Patent and Trademark Office at
Reel 032579, Frame 0201, or for which a copy thereof is attached.

3. From: ORCKIT-CORRIGENT LTD To: ORCKIT IP, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 038541, Frame 0984, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Yehuda Binder/

Signature

Yehuda Binder

Printed or Typed Name

ORCKIT IP, LLC
DE LLC # 5886551
831 Beacon St. # 307
Newton, MA 02459-1840

June 19, 2016

Date

CE and Owner of Orckit IP LLC

Title

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	26106891
Application Number:	10156851
International Application Number:	
Confirmation Number:	7672
Title of Invention:	HIDDEN FAILURE DETECTION
First Named Inventor/Applicant Name:	Leon Bruckman
Customer Number:	57449
Filer:	Yehuda Binder
Filer Authorized By:	
Attorney Docket Number:	223756US2
Receipt Date:	19-JUN-2016
Filing Date:	30-MAY-2002
Time Stamp:	14:01:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Signed-POA.pdf	137789 03199d6fc2535ea8201418fc7d2606b12fce fb97	no	2

Warnings:

Information:

ARISTA NETWORKS, INC. EXHIBIT 1002

2	Assignee showing of ownership per 37 CFR 3.73	SIGNED-sb0096-54.pdf	139985 baa8db1bf82b172346f67c3a54f9cfd55f0c4d57	no	2
Warnings:					
Information:					
Total Files Size (in bytes):				277774	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/156,851	05/30/2002	Leon Bruckman	

131926
May Patents Ltd. c/o Dorit Shem-Tov
P.O.B 7230
Ramat-Gan, 5217102
ISRAEL

CONFIRMATION NO. 7672
POA ACCEPTANCE LETTER



Date Mailed: 06/24/2016

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/19/2016.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/rmtturner myles/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/156,851	05/30/2002	Leon Bruckman	

57449
SHEEHAN PHINNEY BASS & GREEN, PA
c/o PETER NIEVES
1000 ELM STREET
MANCHESTER, NH 03105-3701

CONFIRMATION NO. 7672
POWER OF ATTORNEY NOTICE



Date Mailed: 06/24/2016

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 06/19/2016.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/rmtturner myles/

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas - Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:22-cv-396	DATE FILED 4/19/2022	U.S. DISTRICT COURT Western District of Texas - Waco Division
PLAINTIFF Corrigent Corporation		DEFENDANT Cisco Systems, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,957,369	10/18/2005	Corrigent Corporation
2 7,113,485	9/26/2006	Corrigent Corporation
3 7,330,431	2/12/2008	Corrigent Corporation
4 7,593,400	9/22/2009	Corrigent Corporation
5 9,118,602	8/25/2015	Corrigent Corporation

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

ARISTA NETWORKS, INC. EXHIBIT 1002

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Save As

Arista Networks, Inc. v. Corrigent Corporation, IPR2023-00837 Page 150

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court _____ for the District of Delaware _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED 4/19/2022	U.S. DISTRICT COURT for the District of Delaware
PLAINTIFF CORRIGENT CORPORATION		DEFENDANT DELL TECHNOLOGIES INC. AND DELL INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,957,369	10/18/2005	Corrigent Corporation
2 7,113,485	9/26/2006	Corrigent Corporation
3 7,330,431	2/12/2008	Corrigent Corporation
4 7,593,400	9/22/2009	Corrigent Corporation
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court _____ for the District of Delaware _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED 4/19/2022	U.S. DISTRICT COURT for the District of Delaware
PLAINTIFF CORRIGENT CORPORATION		DEFENDANT ARISTA NETWORKS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,957,369	10/18/2005	Corrigent Corporation
2 7,330,431	2/12/2008	Corrigent Corporation
3 7,593,400	9/22/2009	Corrigent Corporation
4 9,118,602	8/25/2015	Corrigent Corporation
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
-------	-------------------	------

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy