Finisar®

BUS DOCTOR PROTOCOL ANALYZER FOR PCI EXPRESS® V. 2.0

DATA SHEET

HIGHLIGHTS

- Supports PCI Express® Gen 1 (2.5 Gb/s) and 2 (5.0 Gb/s) bus widths of x1, x4 and x8.
- **Industry's largest trace buffer** (16 GBytes) capable of being divided into up to **1024 segments** for capture across multiple events.
- **Powerful 12-level trigger sequencer** with support for counters and timers.
- New Traffic Summary View and Q-Tag Tree Listing.
- The only analyzer capable of **multi-protocol correlation across 13 storage and computing protocol domains simultaneously** on a single platform to ensure interoperability between different bus types

BENEFITS

- **Simultaneous PCI Express® logic and protocol analysis** ensures bus efficiency and reliability
- **Extensive display capabilities** – including command, state summary, Q-Tag Tree Listing, histogram and statistics views – provide unparalleled visibility
- **Extremely easy-to-use interface** enables developers to test all 13 bus types supported by Finisar Bus Doctor Analyzers from a single GUI, including CE-ATA, ATA, SCSI, SATA, Compact Flash, PCMCIA, PCI-X™, and USB
- **Exports results** for off-line analysis, **formats reports**, and offer tips to accelerate learning of new features
- **Affordable modular platform**

Protocol, Timing, and Statistical Analysis for Consumer Electronics and Computing Design and Test

The Bus Doctor™ Protocol Analyzer for PCI Express® v. 2.0 from Finisar empowers computing, storage, silicon, and design engineers to simplify and accelerate design and troubleshooting of devices utilizing PCI Express® technology. With line signaling rates reaching up to 5.0 Gb/s, developers need a comprehensive testing platform capable of providing visibility, flexibility, and advanced trace capture capabilities. Built upon a foundation of patented search and analysis logic implemented in hardware, the Bus Doctor brings affordable real-time capture, decode, and analysis capabilities to engineers to ensure the efficiency, reliability, and interoperability of their PCI Express®-based devices, including Host Board Adapters (HBAs), server and storage arrays, and Network Interface Cards (NICs).

UNMATCHED FLEXIBILITY AND ADVANCED ANALYSIS CAPABILITIES

The Bus Doctor Protocol Analyzer for PCI Express® v. 2.0 is a powerful modular test platform offering industry-leading trace functionality such as trace buffers twice the size of competing solutions (16 GBs) capable of containing millions of events with 4-nanosecond capture resolution. In addition, trace capabilities are further extended through hardware-based features that enable users to segment the trace buffer up to 1024 segments. This gives users the flexibility to define and capture data for more events than any other PCI Express® analyzer.

In order to identify, locate, analyzer, and resolve errors, users must be able to accurately capture specific events in the trace buffer. Capturing even the most complex PCI Express® bus issues is possible with the Bus Doctor's powerful trigger capabilities, including a 12-level sequencer with 2 timer and 2 counter levels. The Bus Doctor can be configured to stop on an error, a protocol violation, a hang condition, and any other condition required. The analyzer is able to analyze not only PCI Express® technology but also other consumer electronics and computing protocols such as SD/SDIO, SATA, SCSI, and USB.

MULTI-PROTOCOL ANALYSIS

The Bus Doctor is the only analyzer on the market which supports multi-protocol analysis of PCI Express® technology simultaneously with other storage and computing buses for correlation between up to 13 different protocols. In this way, developers can synchronize and track packets from an internal bus out to a peripheral with the ability to correlate results end-to-end as packets cross protocol domains.

BUS DOCTOR PROTOCOL ANALYZER FOR PCI EXPRESS® v. 2.0

NON-INTRUSIVE LOW-IMPACT SIGNAL TAPPING

Developers need access to bus traces in different ways during the development process, depending upon whether they are working with prototype or production hardware. In an effort to provide the best signal integrity at each development stage, lines of interposer especially for PCI Express® technology:

- **Mid-bus Probe**
- **Flying Probe (Lead Probe)**
- **Expresscard Probe**
- **Edge Connector**

Interposer TAPs automatically configure themselves using initial PCI Express® training sequences with the ability to autodetect lane reversals, lane ordering, and lane polarity.

POWERFUL INTERFACE TOOLS

The efficiency of users when troubleshooting is directly affected by how quickly and easily they can find the data they need. Once data is captured, the Bus Doctor's software simplifies analysis by organizing and grouping the captured bus data into different displays (see Figure 1). Powerful interface tools give users immediate access to key data characteristics:

1. **Command Listing:** Command sequences are summarized at a high-level to provide an intuitive view of system transactions.
2. **State Listing:** This chronological list of all captured PCI Express® events provides more detail than is shown in the Command Listing. PCI Express® primitives and frames are completely decoded in this view, giving users complete access to all interactions taking place over the PCI Express® bus.
3. **Histogram Listing:** An overall map view of the entire trace.
4. **Traffic Summary View:** Traffic Summary View provides users with important information at a glance, including:
   - The ability to pinpoint relevant packets directly rather than forcing users to sort through long lists of exchanges for a specific packet
   - Fast error identification and location of relevant data packets in the trace buffer
   - Shows packets by type, such as memory reads and writes, I/O requests, I/O writes, and others to enable users to search based on a particular command
   - Organizes and cycles through all of a particular command type. Much like a predefined search function, this feature speeds searching through data by allowing users to scroll through specific commands with the relevant trace data automatically adjusting.

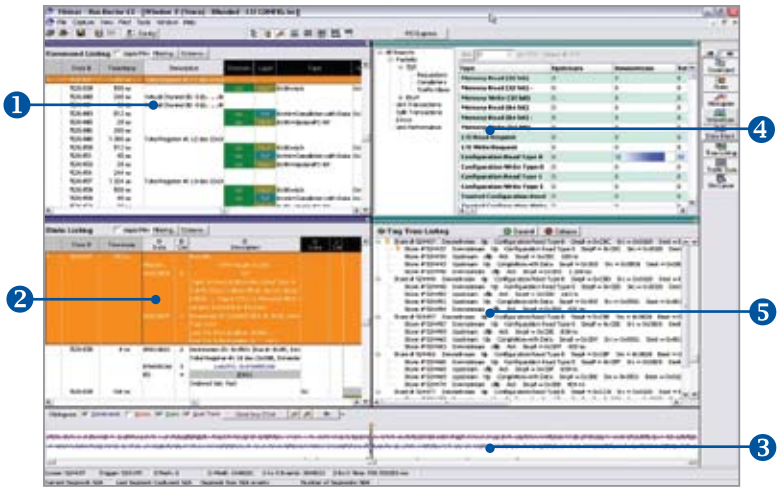


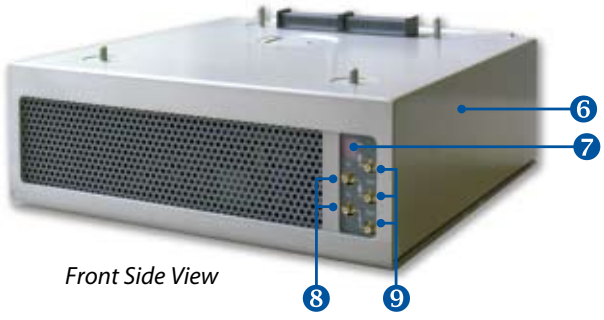
Figure 1: Bus Doctor Analyzer Software for PCI Express®

5. **Q-Tag Tree View:** Tree View shows conversation in the order in which they occurred. Command, responses and status are group together to show complete conversation at a glance.

BUS DOCTOR RX-252P ANALYZER

6. Bus Doctor RX-252P Analyzer
7. Analyzer ID
8. 2 SMB Trigger Outs
9. 3 SMB Trigger Ins

AC Power Connector (rear - not shown)
Power Switch (rear - not shown)
USB 2.0 Connector out to control PC (rear - not shown)



Front Side View

PROTOCOL SUPPORT

- PCI Express® specifications 1.0, 1.0a, 1.1, and 2.0
- Data Rate: 2.5 and 5.0 Gb/s
- Bus Width: x1, x4 and x8
- Spread Spectrum Clocking (SSC)
- Training Sequences
- 24 pins and 48 Pins Midbus Probe
- x8 Flying Lead
- ExpressCard (with USB header)

Finisar®

1389 Moffett Park Drive
Sunnyvale, CA 94089
Phone (US Toll Free): 888.746.6484
Phone Intl: 408.400.1000
Email: networktools-sales@finisar.com
www.finisar.com

2/09