Finisar

NEW!

2.5 Gbit/sec InfiniBand

IBT Protocol Analyzer

The InfiniBand Traffic System

- **2.5 Gbit/sec data capture capabilities**
- **2-16 simultaneous x1 link analysis**
- **Real-time performance monitor**
- **1 or 2 Gbyte trace memory**
- **8/10-bit data capture**
- **Multilevel triggers and capture filters**
- **Drag and drop trigger and capture filter setup**

InfiniBand IBT System Protocol Analyzer

Outstanding Signal Integrity
Ensure Accurate Measurements

A protocol analyzer, inserted into a high-speed link, must capture the required data and pass the signal along the link with minimum distortion. Finisar has designed the *IBT Protocol Analyzer* to ensure both accurate data collection and transparency on the link. The analyzer attaches to the system under test with user changeable Finisar Instrument Grade GBIC transceivers, which support data rates to 2.5 Gbit/sec. These GBICs and appropriate connector cables allow hot-swap changes between copper, shortwave and longwave optical links.

Finisar 2.5 Gbit/s rated Instrument Grade GBICs insure high signal integrity.

To ensure minimum InfiniBand system impact and high signal integrity, the user chooses from two operating modes:

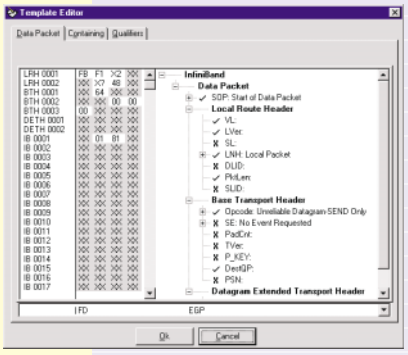
- **Analog pass through mode.** The received signal is buffered and retransmitted unmodified. The signal is amplified and link jitter is increased by < 100 psec.
- **Retiming mode.** The data is collected in a FIFO and re-transmitted with a new clock. Jitter is minimized and fill characters are added or deleted in compliance with the InfiniBand specification.

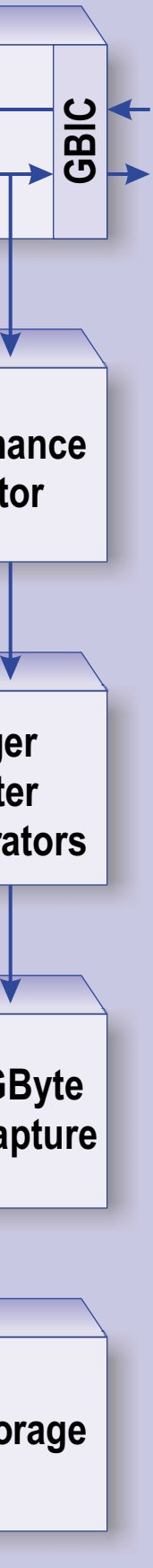
Real-time Performance Reporting
Shows Potential Problem Areas

Watch the heartbeat and health of your system continuously with the IBT Protocol Analyzer. The integrated *IBT-Performance Monitor* collects and graphically reports real-time performance metrics and data errors continuously, independent of the data capture process. View a display of megabytes and kilopackets of traffic for each direction of the InfiniBand link. See the number of megabytes and kilopackets per second transferred. The error indicators latch red if an error occurs on the link. Both the performance and error indicators are independent of the analyzer configuration or data capture status.

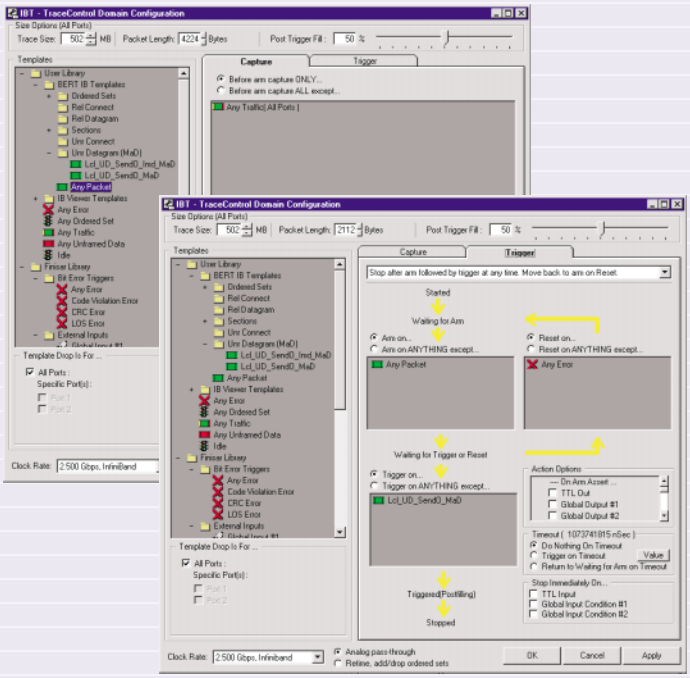
Trigger and Filter Conditions Defined Simply

Several analysis functions may require the user to define specific traffic types and conditions. Parameters for triggering and real-time capture filtering need to be defined to acquire specific segments of traffic. Viewing captured data requires search and display filter terms. Finisar has integrated these needs into a Traffic Library containing predefined and user-defined templates for packets, ordered sets, and errors. Terms in the library need only be defined once then applied in a drag-and-drop manner as required. With the Template Editor, terms may be defined in binary, HEX, or embedded protocol context.





Multilevel Triggering and Capture Filtering Pinpoints Problems



Trigger and real-time filter templates are applied by dragging them to the appropriate box.

If-Then-Else triggering, with a timeout condition, allows triggering on complex event sequences. This includes timing relationships such as too early or too late event arrival.

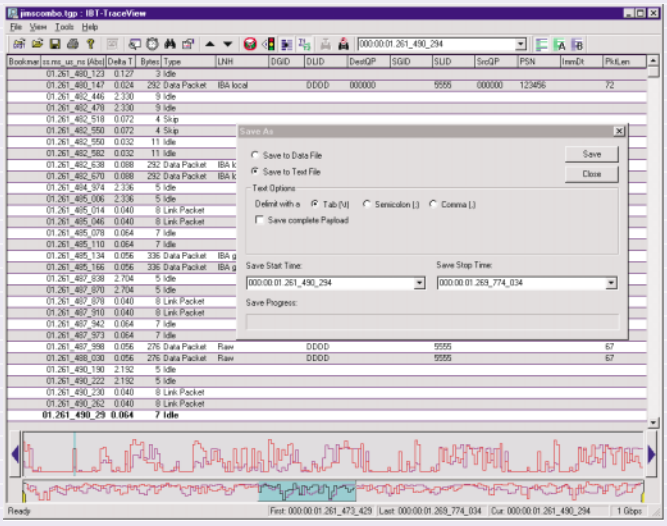
Capture filtering may also change depending on the information desired. For example, only MAD "get" and response packets may be captured prior to an error, and all traffic captured after the error. Using this approach, good traffic before the error is simply summarized and all traffic after the error is captured in detail.

Captured Data Spans a Long Time Window

The IBT Protocol Analyzer has up to 2 Gbytes of full-speed capture memory, spanning over 2 seconds of time on a fully-loaded, 2.5 Gbit/sec link, including a 48-bit timestamp for each packet, repeating ordered set, or error. Real-time data compression includes counting idles, storing valid traffic as 8-bit characters, and errors as 10-bit characters. Real-time pre-capture filtering can expand the capture time to minutes.

Save Results to Disk for Further Analysis

Captured traces can be analyzed directly from trace memory or saved to hard disk in either Finisar binary or Finisar Archive compressed format. The *IBT-TraceView* data display configurations and bookmarks are automatically saved with the data.



A section of a trace can be extracted and saved as an independent file. Extracted data contains the bookmarks, assigned alias names, and configuration information associated with the original data file.

Extracted data may also be saved in ASCII format for direct import to a spreadsheet or word processor.

IBT-TraceView, Finisar's data analysis software, is a portable application. Data files may be viewed on any NT based computer without having to access analyzer capture hardware.

IBT Family of Instruments

The IBT Protocol Analyzer is the first of a family of compatible InfiniBand instrumentation. Instruments are provided, fully-configured, in portable, desktop, or tower PC systems running the NT operating system. All instruments provide a consistent user interface and are GUI remote controllable over a network.

InfiniBand IBT System Protocol Analyzer

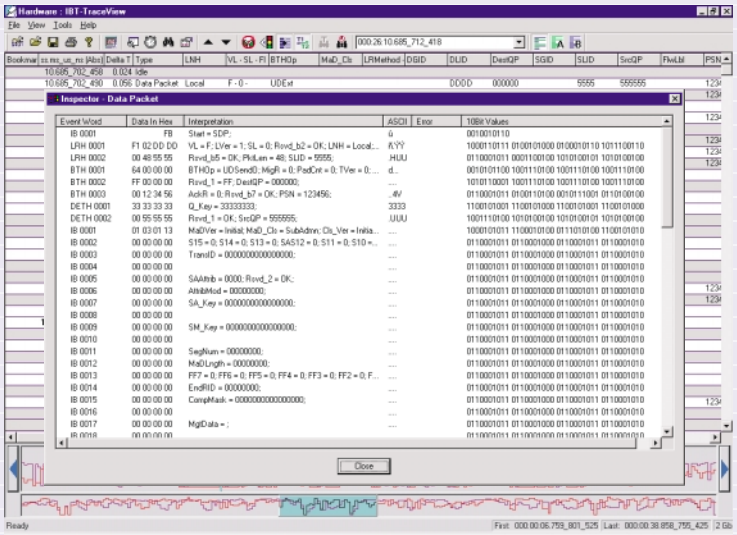
Configurable Data Viewer

Data captured by the Protocol Analyzer is displayed by IBT-TraceView, which is highly configurable to meet any presentation needs.

Columns may be moved and redefined. Multiple parameters may be combined to form a new column. Events may be named with bookmarks. A value in a column can be given an alias name.

The navigation histograms at the bottom of the display shows data density across the recording. The trigger position and current display window are also shown.

Ordered set types and packet contents are decoded to show embedded protocol values. Errors are flagged and shown as 10-bit values.



As an example of the power of IBT-TraceView, the display at the right uses the Inspector to view details of a Management Datagram (MAD).

IBT-TraceView is a portable application. Data files may be viewed on any NT-based computer without having to access analyzer capture hardware. IBT-TraceView is available at no charge from Finisar.

The full flexibility of IBT-TraceView is described in a separate brochure.

Other IBT Family Products

The second member of the family is the *IBT-B*, a high-performance 8/10-bit data generator and BERT. The IBT-B will operate at single and double rates Fibre Channel, Gigabit Ethernet, and 2.5 Gbit/sec InfiniBand speeds.

Specifications

InfiniBand Attachment

- **2.5 Gbit/sec bandwidth (Finisar GBICs)**
- **Link status, traffic rates, and power displays**
- **Analog pass through or re-clocked connection**

Capture Speed and Memory

- **Capture rates**
  - 2.5 Gbit/sec, 500 Mbyte/sec, full duplex
- **Capture memory**
  - 0.5 (opt. 1) Gbytes/channel, user configurable in 1 Mbyte steps
  - Stores all errors in 10-bit, valid data in 8-bit formats
- **Timestamp**
  - 16 nsec resolution synchronized across all channels
  - 48-bit time stamp rolls over in > 60 days

Channels

- **Duplex port monitoring, 2 channels, minimum**
- **Multiple analyzers**
  - To 32 channels for monitoring multiport networks
  - User configurable as multichannel individual analyzers
  - All analyzers are time-correlated

Pre-capture Filter and Trigger

- **Comparators for filter and trigger**
  - 4 packet comparators, 128 bytes deep per channel, bit level setting of any word
  - 2 ordered set comparators per channel
  - 3 error detectors per channel
- **Trigger conditions**
  - Arm, Reset, Trigger with time qualification
  - Trigger on “too early” or “too late” situations
- **Trigger position:** Any place in 1% or 500 Kbyte steps
- **Real-time capture filters assigned for:**
  - Separate pre- and post-Arm capture filters
  - Choices: All or specific ordered sets and packets
- **Packet truncation:** In words
- **Multichannel configurations**
  - User configurable as multiple wide or independent analyzers
  - Linked triggers within multiple channels of a wide analyzer
  - Two global trigger links between independent analyzers
  - Trigger in and out per analyzer

Specifications, configurations, and availability subject to change without notice.

For a demonstration of the capabilities of Finisar InfiniBand instrumentation, call Finisar or your local sales representative.

Finisar Corporation • 1308 Moffett Park Drive, Sunnyvale, CA 94089-1133 • (408) 548-1000 • FAX (408) 543-0083
Email: sales@finisar.com • Website: www.finisar.com