Finisar

NEW!

2.125 Gbit/sec Fibre Channel

GTX Protocol Analyzer

The Extended Gigabit Traffic System

Data Capture Capabilities

- 2.125 and 1.062 Gbit/sec clock rates
- Simultaneous 2-16 duplex 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

Fibre Channel GTX 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 *GTX 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.

To ensure minimum Fibre Channel 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 eliminated and fill characters are added or deleted in compliance with the Fibre Channel specification.

For a fully transparent connection to the system under test, use the Finisar *Snoop GBIC* for attachment. The Snoop GBIC replaces the standard GBIC in the system under test and provides completely isolated monitor ports for analyzer attachment. Leave the Snoop GBIC in place to eliminate the need for disrupting the link to insert test equipment.

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

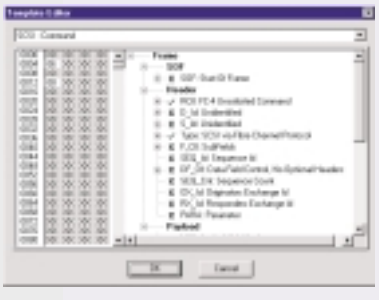
Finisar 2.5 Gbit/s rated Snoop GBICs provide a totally transparent attachment to the system under test.

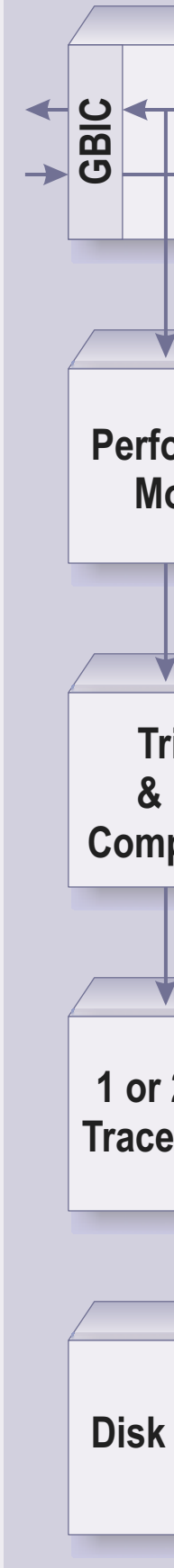
Real-time Performance Reporting Shows Potential Problem Areas

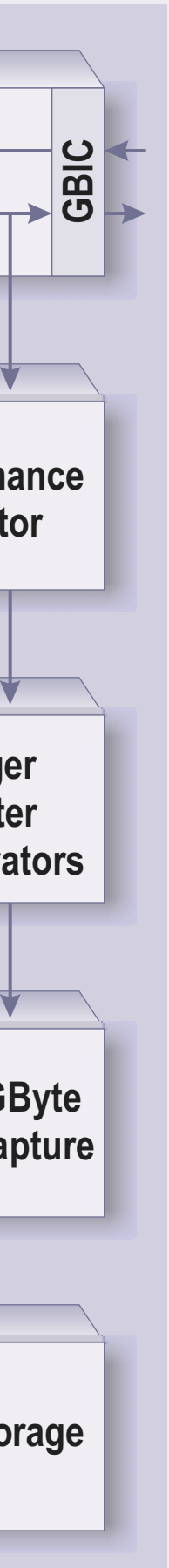
Watch the heartbeat and health of your system continuously with the GTX Protocol Analyzer. The integrated *GTX-Performance Monitor* collects and graphically reports real-time performance metrics and data errors continuously, independent of the data capture process. View a display of megabytes and kiloframes of traffic for each direction of the Fibre Channel link. See the number of megabytes and kiloframes 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 frames, 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.





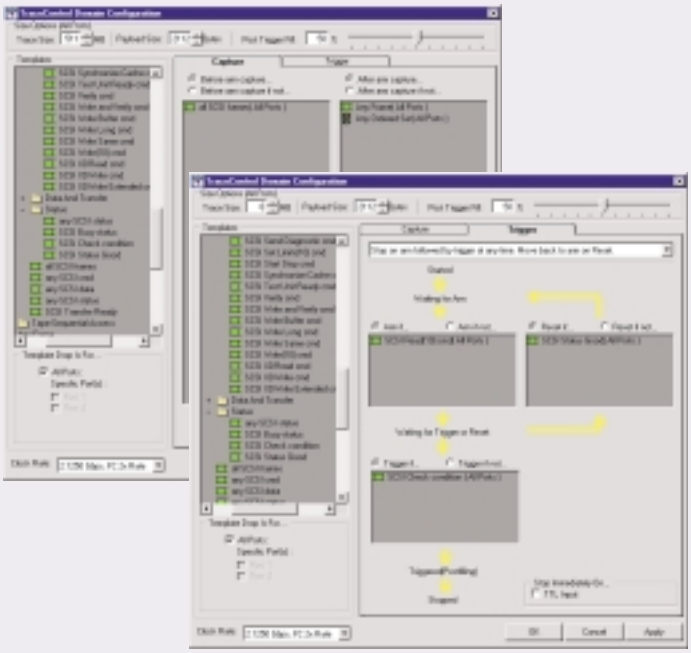


Multilevel Triggering and Capture Filtering Pinpoints Problems

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 SCSI command and response frames 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 GTX Protocol Analyzer has up to 2 Gbytes of full-speed capture memory, spanning over 4 seconds of time on a fully loaded, 2 Gbit/sec link, including a 48 bit timestamp for each frame, repeating ordered set, or error. Real-time data compression includes counting repeating ordered sets, 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.

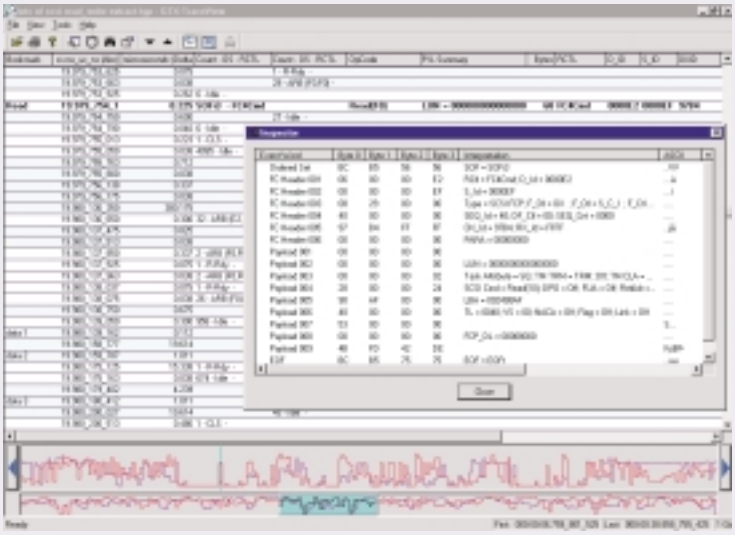
Save Results to Disk for Further Analysis

Captured traces can be analyzed directly from trace memory or saved to hard disk in either Finisar binary or Finisar Archive compressed format. The *GTX-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.

GTX-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.



GTX Family of Instruments

The GTX Protocol Analyzer is the first of a family of compatible Fibre Channel 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.

Fibre Channel GTX System Protocol Analyzer

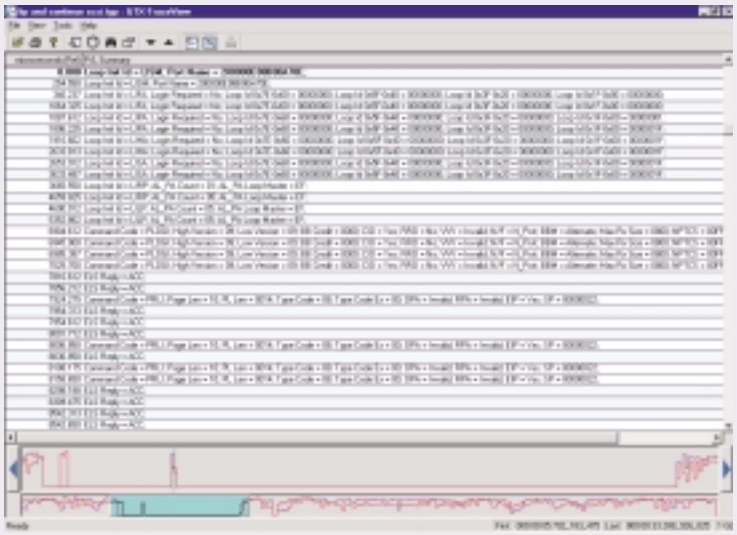
Configurable Data Viewer

Data captured by the Protocol Analyzer is displayed by GTX-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 frame contents are decoded to show embedded protocol values. Errors are flagged and shown as 10-bit values.



As an example of the power of GTX-TraceView, the display at the right has been formatted to show a complete loop log-on process.

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

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

Other GTX Family Products

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

Specifications

Fibre Channel 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**
  - 1.0625 Gbit/sec, 200 Mbyte/sec, full duplex
  - 2.1250 Gbit/sec, 400 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**
  - 18.75 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 frame 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 frames
- **Payload 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 Fibre Channel instrumentation, call Finisar or your local sales representative.

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