SierraFC™ M8-4
Fibre Channel 8G Protocol Verification System

**Fast, Flexible
And Affordable!**

Key Features

- 8 Gb/s FC protocol analysis system

- Lower cost 4 Gb/s version also available

- Highly flexible architecture

- 2-port or 4-port jammer options available

- Cascade up to 32 Fibre Channel ports

- Sync with other Sierra family analyzers

- Available rack-mount adapter kit

- Sophisticated 24 level triggering

- Hardware filtering

- Automatic error detection

- Comprehensive decoding of FCP & SCSI operations FC-SW-5, FCAL, SBC, basic and extended link services, FC-GS-6 transactions, and more

- Logical & chronological traffic displays

- Statistical reporting

- Trace memory up to 8 GB

- GbE/USB 2.0 host interfaces

Leveraging Teledyne LeCroy's extensive expertise in high-speed serial data analysis, the SierraFC is the latest addition to the Sierra family of powerful storage protocol analyzer products. Highly functional as stand-alone test systems, the flexible Sierra family products can also be linked together in cascade configurations to provide additional recording channel capacity. The SierraFC system provides up to 8 Gb/s Fibre Channel data capture and protocol verification for developers in storage networking, avionics, and embedded applications. Available with either 2 or 4 recording channels, and with the ability to add 2- or 4-port jammer capability, the SierraFC offers world-class protocol verifica-tion at a price point within reach of every budget. The SierraFC platform can be licensed to support either 8 Gb/s or 4 Gb/s signaling rates and is field upgradeable.

Flexibility to Meet Any Debug Challenge

The SierraFC's expert analysis software provides unmatched flexibility with data displays that can be customized to show only events of interest. FC- 4 layer decoding provides superior visibility for troubleshooting application layer

issues. Teledyne LeCroy's signature packet view allows users to easily track Fibre Channel exchanges from end-to-end in an intuitive logical display. Easy drill-down to frame and link layer events is always available to help uncover lower-level problems. SierraFC's protocol-specific decoding, combined with comprehensive search, filters, and traffic metrics allows developers to quickly pinpoint root cause problems.
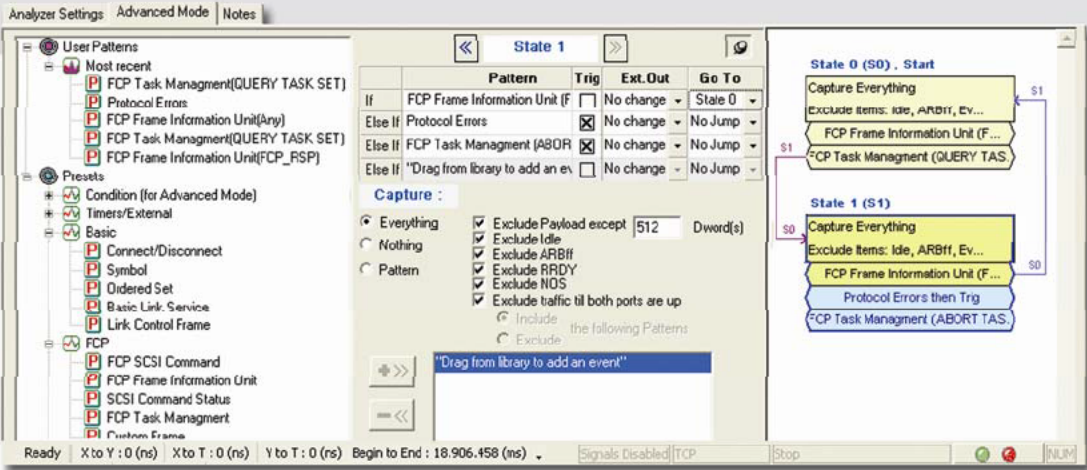
Versatile, Cost-effective Platform

The SierraFC is a highly cost-effective test platform that is easily integrated within a 19" rack or deployed as a bench top instrument, and is small enough to carry into the field. The system is available with either 4 or 8 GB of recording memory and comes with both USB and GbE interface ports for maximum connection flexibility to the PC hosting the analysis software. Convenient status LEDs provide information on negotiated link speed, link activity and line errors. Multiple Sierra systems can be combined to tackle complex high-port count applications, while providing substantial cost savings and flexibility for design verification.

Intelligent Triggering

Intelligent triggering and real-time filtering are the keys to solving complex Fibre Channel problems in live SAN environments. SierraFC's advanced triggering features save time and improve engineers' productivity with the ability to capture precise traffic conditions such as timing between events or changes in link state. Spend more time on engineering and less time searching for things that may not even be in the trace capture.

Graphical State Machine The Graphical State Machine view of the advanced triggering dialog makes it easy for users to visually construct and follow even the most complex scenarios. The trigger capabilities include up to a 24-level state sequencer, 4 independent timers, multiple counters, the ability to pre-filter at each state, and the ability to assign individual triggers to each port pair.

Flexible User Interface

When developing or debugging, one size does not fit all. The SierraFC gives you several trace display choices so that you can view the traffic in the format most meaningful for the task.

Spreadsheet View
The familiar spreadsheet view offers users an easy-to-understand columnar format, that can be customized, adding or deleting columns, and marking frame and event types with user-defined colors to speed the eye through complex traces.

Field View
The Field view provides frame details of each layer of Fibre Channel traffic in an expandable tree structure.

Frame Inspector
An important adjunct to the Spreadsheet View is the Frame Inspector View, which provides a detailed window into each frame and ordered set in several helpful formats. Spec View shows frames in the same format as you'd see them in the technical specification documents.
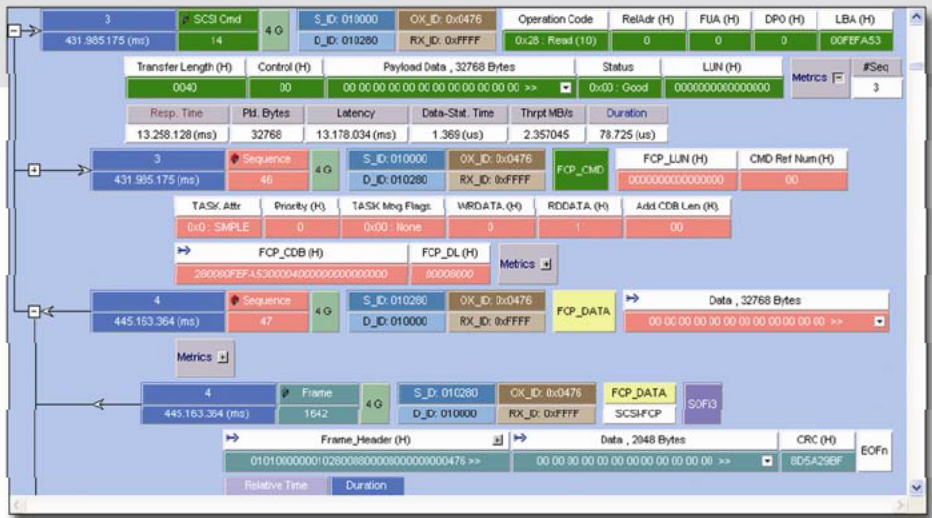
Text View The text view, shown below, facilitates the visualization of traffic flows between ports.

Cascade up to 8 Sierra systems to create 32 synchronized ports

Packet View The SierraFC packet view is specifically designed to aid understanding of application layer traffic, logically assembling frames and primitives relative to exchanges in the captured data. The protocol-specific packet view allows users to easily view exchange definitions, completion and status. This capability is especially useful in environments with outstanding exchanges, and large gaps of traffic between exchange start and exchange completion. The exchanges can then be expanded to view the sequence and frame layers for a deeper view of the underlying traffic.

| Ordered Sets | Frame | SCSI Commands | Ports | Seq Performance | Exchange Performance |

Port	Source ID	Destination ID	Type	Payload Size	Seq No	Status	Duration	Count	%
All ▼	---	---	All ▼	All ▼	All ▼	All ▼	All ▼	All ▼	---
P1	10000	10280	Write (10)	32768	4	Good	2.286 798 ms	29	20.14
P3	10000	10280	Write (10)	32768	4	Good	2.286 652 ms	29	20.14
P1	10000	10280	Read (10)	32768	3	Good	3.307 180 ms	42	29.17
P3	10000	10280	Read (10)	32768	3	Good	3.307 197 ms	42	29.17
P1	10000	10280	Read (10)	26624	2	Incomplete	63.888 412 us	1	0.69
P3	10000	10280	Read (10)	26624	2	Incomplete	63.892 704 us	1	0.69
							0.011316	144	100.00

Statistical Reports Statistical reports analyze and summarize the contents of a captured trace. A large number of settings are available to fit most any analysis need. This provides the ability to identify critical events and navigate directly to items of interest, such as primitive sequences, task management sequences, SCSI commands, incomplete exchanges, and CRC errors.

Sierra systems are easily portable to support off-site diagnosis and support

Specifications

Host Machine Minimum Requirements	Microsoft Windows® 8, Windows Server 2012, Windows 7, Windows Server 2008R2, Windows XP; 2 GB of RAM; Storage with at least 200 MB of free space for the installation of the software and additional space for recorded data; display with resolution of at least 1024x768 with at least 16-bit color depth; and USB 2.0 port. For optimal performance, please refer to our recommended configuration in the product documentation
Recording Memory Size	4 or 8 GB
Data Rates Supported	8 Gb/s Models: 2, 4 and 8 Gb/s 4 Gb/s Models: 2 and 4 Gb/s
No. of Ports Supported	2 or 4 ports per system
Cascade Capability	Up to 32 ports (8 Sierra systems)
Data Bus Interface	SFP+ up to 8 Gb/s
Host Interface	USB 2.0 and 10/100/1000baseT Ethernet
Front Panel Connectors	Four SFP+ ready ports, External Trigger IN/OUT, External Signals Connector, USB 2.0, 10/100/100 Ethernet Host Interface
Front Panel Indicators	5 LEDs (Trigger, Error, Link, Speed, Data) for each TX & RX pair, Status LCD Panel, Power LED
Front Panel Controls	Power ON/OFF
Rear Panel Connectors	AC Power, Expansion Port (Expansion cards are optional)
Dimensions (H x W x D)	Chassis: 29.8x5.7x30.5 cm (11.75" x 2.25" x 12") With Bumpers: 32.4 x 6.2 x 30.8 cm (12.75" x 2.5" x 12.1")
Weight	2.45 Kg (5.4 lb)
Power Requirements	90-254 VAC, 47-63 Hz

Ordering Information

Product Description	Product Code
Sierra FC M8-4 Protocol Analyzer (8 Gb/s, 4 ports, 8 GB memory)	FC-M008-804-X
Sierra FC M8-4 Protocol Analyzer (8 Gb/s, 4 ports, 4 GB memory)	FC-M008-404-X
Sierra FC M8-2 Protocol Analyzer (8 Gb/s, 2 ports, 8 GB memory)	FC-M008-802-X
Sierra FC M8-2 Protocol Analyzer (8 Gb/s, 2 ports, 4 GB memory)	FC-M008-402-X
Sierra FC M4-4 Protocol Analyzer (4 Gb/s, 4 ports, 8 GB memory)	FC-M004-804-X
Sierra FC M4-4 Protocol Analyzer (4 Gb/s, 4 ports, 4 GB memory)	FC-M004-404-X
Sierra FC M4-2 Protocol Analyzer 4 Gb/s, 2 ports, 8 GB memory)	FC-M004-802-X
Sierra FC M4-2 Protocol Analyzer (4 Gb/s, 2 ports, 4 GB memory)	FC-M004-402-X

TELEDYNE LECROY
Everywhere**you**look™

1-800-909-7211
teledynelecroy.com

Local sales offices are located throughout the world. Visit our website to find the most convenient location.