

Comprehensive SATA Test Suite

**Complete End-to-End
SATA Solution**



COMPLETE END-TO-END SATA SOLUTION

Teledyne LeCroy is the only vendor which offers a full line of Serial ATA (SATA) test solutions for compliance, characterization, and debug. Transmitter and receiver tests are covered in one automated physical layer test package, QPHY-SATA-TSG-RSG, enabling streamlined testing. The Sierra SATA protocol analyzer can test the link layer for protocol compliance. Teledyne LeCroy provides the right solution for every stage of SATA development.

The Right Solution for Every Stage of Development

Successful development of new SATA products requires a coordinated end-to-end test program to cover all aspects of the SATA design. For transmitter testing it is essential to verify eye diagrams, jitter, and other performance measurements. Receiver testing plays a vital role in ensuring reliable data transfer under stressed conditions. Finally, no design is complete without verifying the protocol layer to ensure functionality and compliance to SATA requirements.

Teledyne LeCroy is the only vendor which offers a complete line of SATA test solutions covering transmitter test to protocol test, and every step in between for comprehensive verification, debug, and compliance.

All SATA testing can be accomplished with a single point of procurement and support.

Furthermore, these uniquely integrated test solutions combine test capabilities at multiple levels and merge the results for more accurate and meaningful information.

Experience and leadership in providing high-speed serial data test tools make Teledyne LeCroy the natural choice as a test partner for SATA development.

Teledyne LeCroy's test tools cover the full range of test needs: industry-leading oscilloscopes for physical layer validation and debug, unique products such as the Protocol-enabled Receiver and Transmitter Tolerance Tester (PeRT³), and a full line of serial data protocol analyzers. Our test tools are not only superb in their own test areas, but because they are well-integrated with each other, they help engineers easily move test designs and results from one Teledyne LeCroy system to another.



Comprehensive Verification, Debug and Compliance

Teledyne LeCroy's serial data analysis oscilloscopes are equipped with superior debugging tools which ensure reliable data transfer. The core Serial Data Analysis toolset provides the ability to perform complete link testing of the SATA channel, including jitter, eye diagrams, noise and crosstalk analysis. The serial data trigger options enable faster debug by isolating specific portions of SATA traffic. The serial data decode options display a SATA decode annotation directly on the physical layer waveform and can be synchronized with the protocol analysis software to allow hardware and software engineers to coordinate on debug activities.

Complete SATA Test Coverage

SATA Test Specifications	Teledyne LeCroy SATA Test Solution
PHY - PHY General Requirements TSG - PHY Transmit Signal Requirements RSG - PHY Receive Signal Requirements OOB - PHY OOB Requirements	SDA 813Zi-B Oscilloscope PeRT ³ Phoenix System QPHY-SATA-TSG-RSG
GTR - General Test Requirements NCQ - Native Command Queuing ASR - Asynchronous Signal Recovery SSP - Software Settings Preservation IPM - Interface Power Management DOF - Digital Optional Features	Sierra M6-2 SATA Analyzer

The PeRT³ integrates receiver testing with protocol-awareness, providing the ability to automate testing through active control of the product under test, and to integrate diverse test results from multiple levels. It is also able to easily manage through protocol issues such as ALIGN symbols which can interrupt testing on competitive products.

QualiPHY, Teledyne LeCroy's automated test engine, integrates and automates PHY, TSG, OOB, and RSG testing. QPHY-SATA-TSG-RSG permits the oscilloscope to communicate directly with the PeRT³, automating both instruments to seamlessly perform physical layer testing. Furthermore, through this communication QualiPHY is able to effortlessly perform the calibration of the jitter and OOB outputs.

About SATA

Developed and promoted through the Serial ATA International Organization (SATA-IO), SATA is an evolutionary replacement of the Parallel ATA computer bus interface. Teledyne LeCroy is an active member of SATA-IO through participation in workshops and specification definition. Teledyne LeCroy provides approved solutions for SATA Gen1, Gen2, and Gen3.

SATA Gen3, operating at 6 Gb/s, provides double the throughput of SATA Gen2 while maintain backwards compatibility, ensuring a smooth adoption path for all users. However, for developers SATA Gen3 requires new design approaches, high quality manufacturing processes, and comprehensive testing and debug procedures to achieve reliable data transfer and interoperability.

The SATA Unified Test Document (UTD) requires the use of Compliance Interconnect Channel (CIC) for transmitter compliance measurements. The SDA 813Zi-B with the Eye Doctor™ II analysis package has the ability to emulate the CIC for both compliance measurements and to troubleshoot the root cause of compliance failure.

TRANSMITTER COMPLIANCE TESTING AND DEBUG

The Perfect Scope and SDA Tools for SATA Testing

Teledyne LeCroy SDA 8 Zi-B Series of oscilloscopes upgraded to include SDAIII-CompleteLinQ is the perfect instrument for performing SATA compliance measurements. More importantly, these tools are especially designed for debugging compliance failures, allowing engineers to quickly find the root cause of serial data problems.

Complete Link Testing

SDAIII-CompleteLinQ includes multi-lane serial data, eye, jitter, noise and crosstalk analysis, and integrates the Eye Doctor™ II toolkit for equalization and channel/fixture de-embedding and emulation.

14.1 Gb/s 80-bit NRZ and 8b/10b Serial Data Trigger

Up to 14.1 Gb/s true hardware NRZ serial data pattern, symbol, and primitive trigger (optional). The specially-programmed hardware FPGA is constantly monitoring for specified events in realtime and triggering the oscilloscope on every occurrence found. This vastly simplifies and speeds debug of SATA systems that rely on 8b/10b symbol encoding.



Transmitter Compliance Testing

When you add QualiPHY SATA (QPHY-SATA-TSG-RSG) to the SDA 8 Zi-B oscilloscope, you have the ideal SATA Compliance Test Instrument.

QPHY-SATA-TSG-RSG is an automated test package for SATA compliance testing. It provides connection diagrams to ensure the proper setup for the required measurements, automates the oscilloscope for performing these measurements, and provides a comprehensive report of results including screenshots.

ProtoSync links physical layer waveforms, decode annotation and table information, and full transaction layer protocol analysis as shown here.

Decode Annotation and Protocol Analyzer Software Synchronization

The SATA decode option provides link layer decode information annotated on the SATA Gen1, 2, or 3 physical layer waveform. ProtoSync links physical layer waveforms, decode annotation and table information, and full transaction layer protocol analysis. Simply touch a decode table entry in the oscilloscope or a packet in the protocol analysis software and all views are automatically synchronized and aligned.



Using the PeRT³ Phoenix for Transmitter Testing

During TSG testing, the PUT is required to be in loopback mode (BIST-L) in order to be controlled to generate the necessary transmitter test patterns. The PeRT³ is used to put the PUT in loopback, and then any pattern such as HFTP, MFTP, LFTP, etc, generated by the PeRT³ will be looped back by the PUT for TSG measurements.

RECEIVER COMPLIANCE TESTING AND CHARACTERIZATION

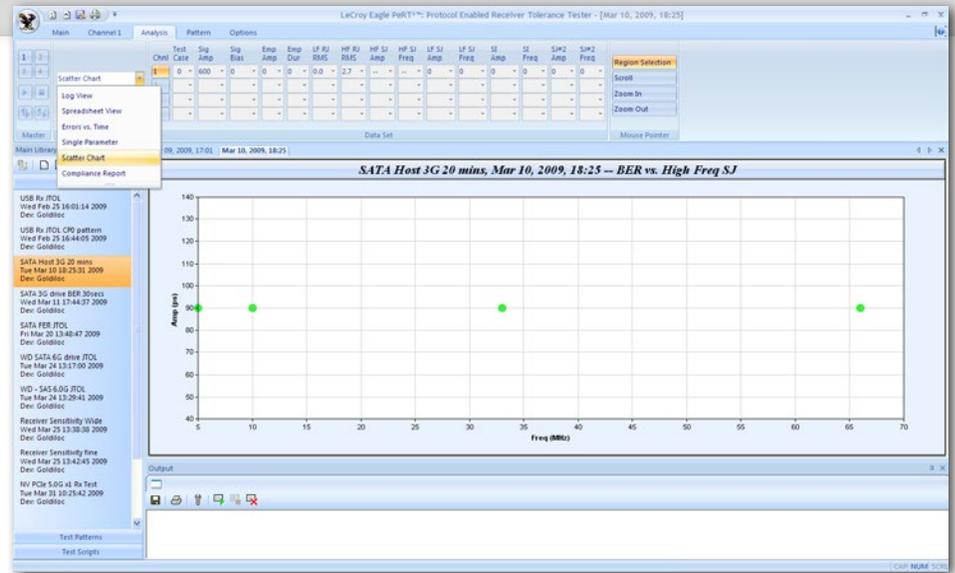
PeRT³ Test System

The PeRT³ is designed to test receivers under conditions of stress by starting with a clean signal and gradually introducing measured levels of a variety of different stress types into the signal, and simultaneously monitoring the Frame Error Rate (FER) to explore the full performance envelope of the receiver system.

Because the system is able to interpret and generate protocol traffic, the PeRT³ has the unique capability to manage automated testing of SATA products. For example, the PeRT³ can initialize the PUT and command the PUT to enter or exit loop-back mode while testing is in progress. In addition, the PeRT³ is capable of intelligently managing automated testing through events which may disrupt other test systems, such as the addition or deletion of ALIGN symbols by devices in the data traffic pattern.

Native Frame Error Rate Testing

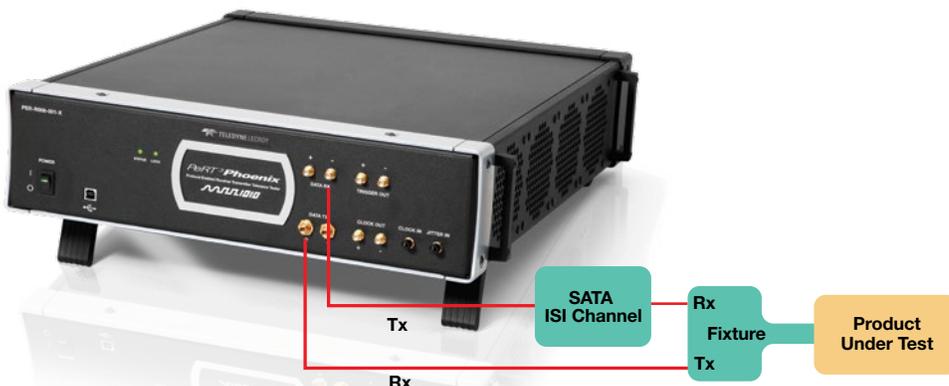
The PeRT³ allows you to extend testing into protocol areas, such as measuring CRC errors, frame errors



and other protocol-specific criteria while actively adding measured amounts of stress into the signal, such as increased jitter and noise. This allows for true native FER testing where the PUT does not need to be in any BIST mode. Instead of loopback, the PeRT³ will send SATA frames to the PUT and wait for the PUT response in terms of CRC, ACK or NACK. Based on these responses, PeRT³ will determine if the frame is successful or not and thereby calculate FER after sending the same Frame repeatedly. There are several advantages in performing true FER testing. First, the test becomes a system level test where both the PHY layer and the protocol layer are tested

together as a system. Second, the user can add read or write commands in the Frame and cause the drive to start spinning while testing for jitter tolerance which is a much more stressful and realistic test scenario than any BIST mode compliance tests.

Using a single integrated system, the PeRT³ can replace the Arbitrary Waveform Generator and the FER tester that are typically used for SATA compliance testing. This reduces the investment and makes the test setup much simpler. Furthermore, the PeRT³ can also be used for compliance testing of SAS, USB3.0, and PCI Express 3.0.



Calibrating the Jitter Output of the PeRT³

Receiver test specifications require calibration of the jitter output sources for the test instrument. When using the PeRT³ in conjunction with SDA 8 Zi-B oscilloscope, this calibration is done automatically by the QPHY-SATA-TSG-RSG application.

AUTOMATED TRANSMITTER & RECEIVER COMPLIANCE TESTING

Key Features

- Supports all PHY, TSG, OOB, and RSG compliance tests as described by the SATA UTD 1.5
- Automated physical layer testing and calibration
- Provides full reporting capability including Pass/Fail indications and screenshots
- Eye Doctor™ II enables channel emulation and equalization which aids in debugging SATA compliance failures
- SDAIII allows fast eye diagram creation and jitter analysis on long memory acquisitions



QPHY-SATA-TSG-RSG testing a SATA PUT with the PeRT³ Phoenix and an SDA 813-Zi-B.

QPHY-SATA-TSG-RSG and the PeRT³ Provide a Complete End-to-End SATA Solution

QPHY-SATA-TSG-RSG is an automated test solution for SATA compliance testing to be used in conjunction with the PeRT³. By leveraging the capabilities of both the oscilloscope and the PeRT³, QPHY-SATA-TSG-RSG can automatically perform all of the PHY, TSG, OOB, and RSG tests as described by the SATA UTD 1.5. Furthermore, QPHY-SATA-TSG can be configured to test Gen1, Gen2, and Gen3 SATA PUTs.

The PeRT³'s unique protocol awareness allows for QPHY-SATA-TSG-RSG to easily connect the PeRT³ to the PUT and place the PUT into loopback. Once the PUT is in loopback, QPHY-SATA-TSG-RSG can automatically configure the PUT to output the proper test pattern and rapidly test the PUT. Additionally, by using QPHY-SATA-TSG-RSG the oscilloscope can effortlessly be used to calibrate the PeRT³'s output for both the OOB and RSG tests.

For SATA testing a test fixture is required to connect the PUT to the oscilloscope running the QPHY-SATA-TSG-RSG software and the PeRT³. Teledyne LeCroy provides a test fixture (part number TF-SATA-C) to probe the PUT via a standard SMA connector interface. This test fixture is compatible with Gen1, Gen2, and Gen3 standards. Teledyne LeCroy also provides an ISI channel which is required for Gen1, Gen2, and Gen3 RSG testing.

QPHY-SATA-TSG-RSG Test Coverage

Phy General Requirements

- PHY-01 – Unit Interval
- PHY-02 – Frequency Long Term Accuracy
- PHY-03 – SSC Frequency
- PHY-04 – SSC Deviation

Phy Transmitter Signal Requirements

- TSG-01 – Differential Output Voltage
- TSG-02 – Rise/Fall Time (Informative)
- TSG-03 – Differential Skew (Informative)
- TSG-04 – AC Common Mode Voltage
- TSG-05 – Rise/Fall Imbalance (Obsolete)
- TSG-06 – Amplitude Imbalance (Obsolete)
- TSG-09 – Gen1 TJ at Connector, fBAUD/500
- TSG-10 – Gen1 DJ at Connector, fBAUD/500
- TSG-11 – Gen2 TJ at Connector, fBAUD/500
- TSG-12 – Gen2 DJ at Connector, fBAUD/500
- TSG-13 – Gen3 Transmit Jitter
- TSG-14 – Gen3 TX Maximum Differential Voltage
- TSG-15 – Gen3 TX Minimum Differential Voltage
- TSG-16 – Gen3 TX AC Common Mode Voltage (Obsolete)
- TSG-17 (TPR_069) - Gen3 TX Emphasis

Phy OOB Requirements

- OOB-01 – OOB Signal Detection Threshold
- OOB-02 – UI During OOB
- OOB-03 – COMINIT and COMWAKE Burst Length
- OOB-04 – COMINIT Transmit Gap Length
- OOB-05 – COMWAKE Transmit Gap Length
- OOB-06 – COMWAKE Gap Detection Windows
- OOB-07 – COMINIT Gap Detection Windows

Phy Receive Signal Requirements

- RSG-01 : Gen1 (1.5 Gb/s) Receiver Jitter Tolerance Test
- RSG-02 : Gen2 (3 Gb/s) Receiver Jitter Tolerance Test
- RSG-03 : Gen3 (6 Gb/s) Receiver Jitter Tolerance Test
- RSG-05 : Receiver Stress Test at +350ppm
- RSG-06 : Receiver Stress Test With SSC (Informative)

QualiPHY

QualiPHY is designed to reduce the time, effort, and specialized knowledge needed to perform compliance testing on high-speed serial buses.

- Guides the user through each test setup
- Performs each measurement in accordance with the relevant test procedure
- Compares each measured value with the applicable specification limits
- Fully documents all results
- QualiPHY helps the user perform testing the right way—every time!




SATA TSG, RSG Test Report

Overall result: Pass

DUT: Red Device
Comment: Red Device 10803025 A Phy, TSG, OOB, and RSG Using TF-SATA-C
Time of session start: 04/15/2013 14:09:33
Operator: Bill
Temperature: 57°C
Standard in use: SATA TSG, RSG

Run: 20130410 14:10:00
Time of run:
Configuration in use: Gen3 PHYT
Limits in use: Gen3
Oscilloscope Name: LCRT0432068142 Model: SDA8302-A
Oscilloscope Serial #: LCRT0432068142
Computer: LCRT0432068142
Oscilloscope firmware version: 7.1.1.2 (Build 184204)
QualiPHY core version: 0.8.8.0 (Build 189802)

QualiPHY script version: 0.2.0.006
Standard version: 1.2.0.0
MPU_Revision: 1.4.3 v1.00
Workflow path on oscilloscope: D:\Workflow\SATA\Red Device\Run1

Summary Table

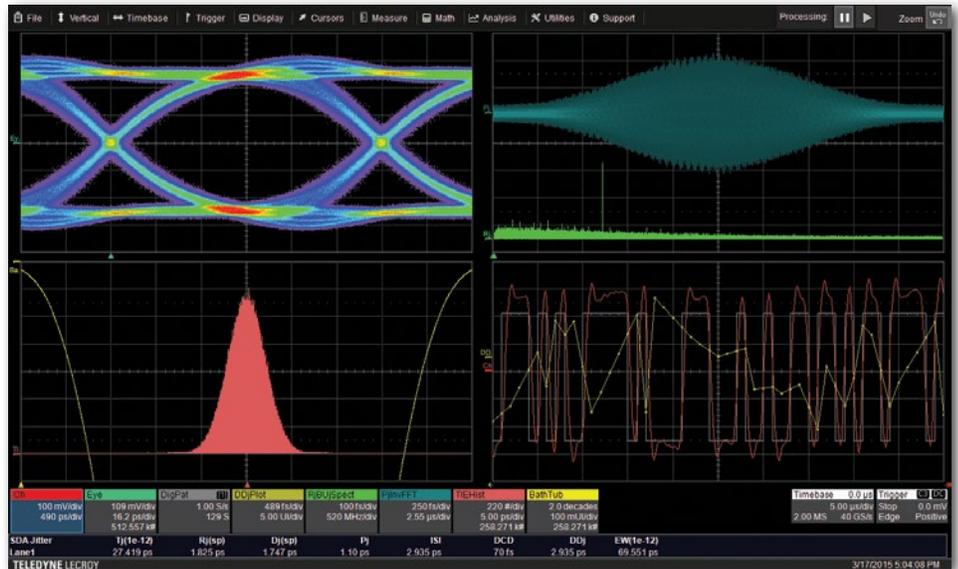
Pass	Run #	Test	Measurement	Current Value	Test Criteria
Pass	1	PHY-01	Unit Interval Min	186.6564 ps	Informational Only
Pass	1	PHY-01	Unit Interval Max	186.6689 ps	Informational Only
Pass	1	PHY-01	Unit Interval Mean	186.6626 ps	186.6023 ps <= x <= 187.5283 ps
Pass	1	PHY-02	Rd	24.41 ppm	-350.00 ppm <= x <= 350.00 ppm
Pass	1	TSG-02	Tx Rise LF2P	47.596 ps	x <= 68.000 ps
Pass	1	TSG-02	Tx Fall LF2P	47.367 ps	x <= 68.000 ps
Pass	1	TSG-03	Takeup TX HF2P	4.5 ps	x <= 20.0 ps
Pass	1	TSG-03	Takeup TX MF2P	2.2 ps	x <= 20.0 ps
Pass	1	TSG-04	Vom-aCTx	36.5 mV	x <= 120.0 mV
Pass	1	TSG-04	Vom-bCTx	33.6 mV	x <= 120.0 mV
Pass	1	TSG-13	TJ (ta,12) HF2P (avg)	19.006 ps	Informational Only
Pass	1	TSG-13	TJ (ta,12) HF2P	154 mUI	x <= 520 mUI

Compliance Reports contain all of the tested values, the specific test limits and screen captures. Compliance Reports can be created as HTML, PDF or XML.

SDAIII-COMPLETELINQ SERIAL DATA ANALYSIS

Key Features

- Most complete jitter decomposition, eye diagram and analysis tools
- Up to four simultaneous eye diagrams
- Up to 4-lane measurement and analysis capability
- Unique Reference Lane and LaneScope Comparison Mode
- Vertical noise measurements
- Crosstalk analysis
- Single CompleteLinQ dialog
- Integration of EyeDr and VirtualProbe functionality enables pre-emphasis and equalizer emulation, channel embedding, and fixture de-embedding



SDAIII Core Toolset showing eye diagram analysis, jitter breakdown, jitter spectrum and inverse FFT, bathtub, jitter histogram, and DDj analysis.

SDAIII Core Toolset

Teledyne LeCroy provides the most powerful toolset in the industry for jitter measurements and eye diagram/jitter analysis. Rj and Dj are separated and Dj is decomposed using one of three dual-dirac algorithms. Eye diagrams containing all acquired unit intervals are rendered 10-100x faster than competitive systems. Eye diagram analysis tools, such as the extrapolated IsoBER plot, aid insight. Multiple additional tools, such as jitter Tracks, Histograms, and Spectrum waveforms, speed root-cause diagnosis. Sophisticated pattern analysis tools like Intersymbol Interference (ISI) measurements and plots provide deep insight into Data Dependent Jitter (DDj) behavior.

SDAIII-CompleteLinQ

SDAIII-CompleteLinQ integrates class-leading additional capabilities into a single user-friendly interface:

Multi-lane measurements: See lane-to-lane differences in jitter measurements, eye diagrams, and jitter analysis on up to four lanes simultaneously.

EyeDoctorII: Easily configure basic de-embed/emulation scenarios, CTLE, DFE and FFE equalizers, and transmitter emphasis/de-emphasis.

VirtualProbe: Configure a multi-block model using S-parameters, and display the signal as it would appear before or after any block in the circuit.

Vertical Noise and Crosstalk: The Crosstalk and CrossLinQ packages provide vertical noise measurements and crosstalk analysis tools for complete aggressor/victim analysis.

LINK AND DATA LAYER PROTOCOL TRIGGER AND DECODE



Comprehensive SATA 1.5 and 3.0 Gb/s trigger and 1.5, 3.0, and 6.0 Gb/s decode simplifies debug of embedded systems and provides protocol awareness to your oscilloscope physical layer tool.

Oscilloscopes with SATA Protocol Analysis

Turn the oscilloscope into a protocol analyzer with the SATA decode option for Teledyne LeCroy oscilloscopes. The SATA decoder annotates link layer information on the physical layer waveform, providing the ability to view protocol traffic on the oscilloscope and verify that the link is alive and transmitting properly.

Interactive Tabular Display

Up to four different decoded signals of any type may be simultaneously displayed in a single time-interleaved table. Customize the table to show only the data of interest and touch a row in the table to automatically zoom to it and display it on the screen. The table can be exported as a .csv file for further offline analysis.

Intuitive, Color-Coded Overlays

A transparent overlay with color-coding for specific portions of the SATA frame makes it easy to understand your serial data information. Unlike other solutions, with protocol decode information away from the signal, our solution correlates the waveform and the protocol decode directly on the display. As the acquisition length is expanded or shortened, the decode overlay will adjust to show you just the right amount of information.

Pattern Search and Navigate

All decoders provide ability to search through a long record of decoded data by using a variety of search criteria, or values, or simply finding the next occurrence. Pattern Search automatically creates a zoom trace of the acquired waveform and displays the selected location complete with the transparent color-coded overlay.

Key Features

- Supports SATA 1.5, 3.0, and 6.0 Gb/s
- Recognizes scrambled or unscrambled data
- Intuitive, color-coded overlays
- Decode overlay adjusts as acquisition length is changed
- Interactive and customizable table
- Built-in search and navigate feature
- True hardware SATA trigger up to 3 Gb/s
- Trigger on SATA primitives with 8b/10b trigger up to 6 Gb/s
- Combine the SATA Decode with ProtoSync for a complete picture of physical layer, link layer, and protocol layer views

PROTOCOL COMPLIANCE AND VERIFICATION

Key Features

- Data Rates to 6G
- Fully Integrated, Multifunctional System
 - Analyzer
 - Exerciser
 - Error Injector
 - Compliance Test
- Fast Lock Time
- Intelligent Triggering
- Hardware Filtering
- Raw Bit Recording
- Error Detection
- Transparent Post Processing
- Memory Segmentation
- SATA Decoding
- Logical & Chronological Traffic Displays
- Statistical Reporting
- Expansion Port
- Cascading
- External Triggering
- Trace Memory up to 16 GB
- GbE/USB 2.0 Host Interface

The Sierra Protocol Test System is the 6th generation in the leading line of SATA protocol test solutions from Teledyne LeCroy, the leading manufacturer of protocol test systems. Designed for the current evolution of SATA (6G), the new Sierra product family sets new standards for performance while incorporating a complete range of features in a single, economical system.

Leveraging Teledyne LeCroy's extensive expertise in high-speed serial data analysis, the Sierra provides the most accurate capture, display and analysis of SATA data traffic at data rates up to 6 Gb/s. The Sierra product family includes the capability for protocol analysis, traffic generation, host and/or device emulation, and error injection, all within one system. The platform supports all features, and customers can configure specific features or add features later to match their requirements and budget.

The Sierra product family offers a choice of two different chassis, each of which supports the full range of test and analysis capabilities, including comprehensive protocol analysis, host and device emulation, error injection and compliance test. The Sierra M6-2 is a compact, portable, and economical package that supports up to two ports. The Sierra M6-4 provides expansion capabilities up to four ports. Both units can be cascaded by linking up to eight separate enclosures together to provide time synchronized data capture and analysis across as many as 32 ports.

With the flexibility to adapt to a user's current and future needs, the Sierra System brings a new standard for performance, capability and flexibility to SATA protocol test systems.

The Only Complete Protocol Test System for up to 6G

The Sierra SATA Protocol Test System combines creative industrial styling and a performance-enhancing native PHY with expert software features that minimize debug and development time. The Sierra platform integrates the best of the STX and CATC Trace software suites and adds additional capabilities at both the hardware and software levels.

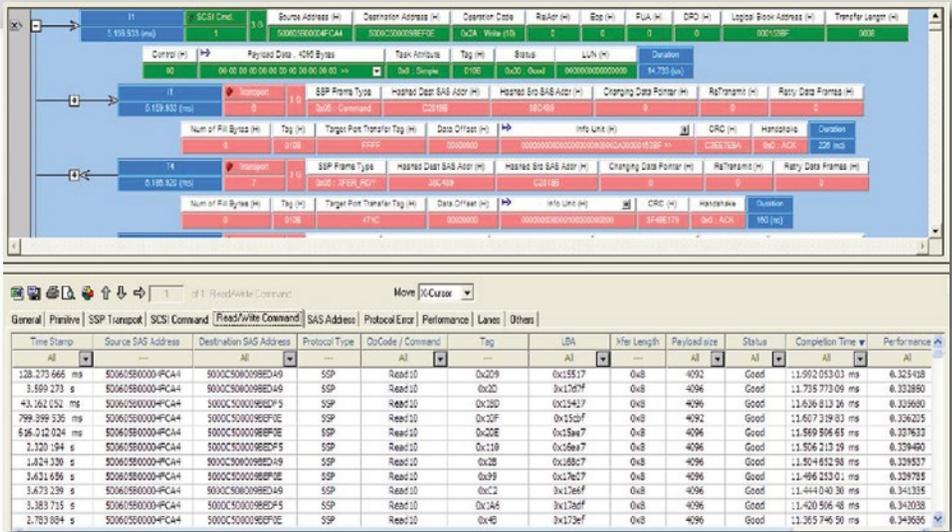
Detailed Protocol Specific Support

Sierra's analysis and design suites are developed specifically for use with the SATA protocol, and provide extensive protocol decoding, expert error analysis, and complete user support when decoding and viewing the recorded traffic. This extensive protocol support, combined with the different traffic views, advanced triggering, data filtering, traffic generation, and error injection capability, allows

engineers to rapidly become familiar with SATA-specific issues, and quickly understand new issues the first time they encounter them. Every engineer becomes a protocol expert with the support of Sierra's detailed expert analysis.

Innovative, Flexible, and Compact System Design

The Sierra platform is designed for convenience and functionality. The compact and portable Sierra M6-2 provides an economical choice when a one- or two-port system is sufficient. The larger Sierra M6-4 chassis supports up to four ports and provides all data bus ports, controls and connectors on the front panel, making it ideal for a lab workbench or rack-mount environment. Both systems include protective bumpers to guard against damage in busy environments, and to provide a convenient means for stacking multiple systems.



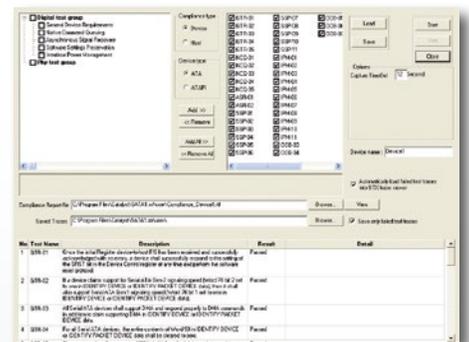
Sierra's intuitive trace displays include both graphical and tabular formats.

The Sierra's array of status indicators includes information on negotiated link speed, protocol error detection, link detection, and whether OOB or protocol frames are currently being sent over the link. The LCD screen reports which user is currently connected to the Sierra system, the system IP address and system status. Host connectivity to the Sierra includes support for both USB 2.0 and Gigabit Ethernet.

Both Sierra chassis provide an expansion port (located on the front panel of the Sierra M6-4 and on the rear panel of the Sierra M6-2). The expansion port supports cards providing additional capabilities, such as cascading of multiple units, DC power for drives under test, and also provides a simple means for future system enhancements. The expansion card for cascading multiple systems is provided as a standard feature for the Sierra M6-4.

Compliance Test to Ensure Interoperability

The Sierra system supports compliance testing to SATA standard to help insure interoperability between your product and other products under development or already on the market. The Teledyne LeCroy SATA Compliance Suite is approved by the SATA-IO. By using a complete suite of SATA compliance tests, you have the assurance of an industry-standard test method.



Sierra M6-2 Front Panel

ORDERING INFORMATION

Product Description

Product Code

SATA Electrical Compliance Test
SATA Protocol Compliance Test

Transmitter Test

SDA 813Zi-B Oscilloscope

13 GHz, 40 GS/s, 64 Mpts/Ch Serial Data Analyzer with 15.3" WXGA Color Display, 50 Ω and 1 M Ω Input	SDA 813Zi-B	✓
Eye Doctor Advanced Signal Integrity Tools	WM8Zi-EYEDRII	✓
QualiPHY Enabled SATA Software Option	QPHY-SATA-TSG-RSG	✓
SATA 1.5 Gb/s, 3.0 Gb/s and 6.0 Gb/s Compliance Test Fixture (Includes two 6dB attenuators)	TF -SATA-C	✓
Upgrade Bundle - Multi-Lane SDA LinQ Framework, incl. Eye, Jitter, Noise, Crosstalk Measurements, with EyeDrII & VirtualProbe	SDA8Zi-CompleteLinQ	•
32 GB RAM Upgrade (recommended with purchase of SDA8Zi-CompleteLinQ)	WM8Zi-8-UPG-32GBRAM	•
SATA Decode Option	WM8Zi-SATABus D	•
Decode Annotation and Protocol Analyzer Software Synchronization Option	WM8Zi-PROTOSYNC	•

Receiver Test

PeRT³ Hardware Platforms

Phoenix PeRT ³ System – 1 Channel	PER-R008-S01-X	✓
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PeRT³ Test Suite Options

Receiver Tolerance Test Suite	PER-R006-008-A	✓
SATA Receiver Test Suite	SAT-R006-004-A	✓

PeRT³ Accessories

SATA ISI Channel	PER-R008-ISI-X	✓
Low-Pass Rise Time Filter 100 ps (Qty. 2 filters needed)	Rise-Time-Filter-100ps	✓
Low-Pass Rise Time Filter 150 ps (Qty. 2 filters needed)	Rise-Time-Filter-150ps	✓
20 dB Attenuator (2 attenuators included)	20dB-SMA-Attenuator	✓

Protocol Test

Sierra Hardware Platforms

Sierra M6-4 SATA Platform 4 GB Memory	ST1-M006-004-X	
Sierra M6-4 SATA Platform 8 GB Memory	ST1-M006-804-X	✓
Sierra M6-4 SATA Platform 16 GB Memory	ST1-M006-164-X	

SATA Analyzer Software

6G Protocol Analysis Software – 4 ports	ST1-T006-004-A	
6G Protocol Analysis Software – 2 ports	ST1-T006-002-A	✓
6G Protocol Analysis Software – 1 port	ST1-T006-001-A	

✓ Indicates required for compliance testing.

• Indicates recommended for debug.

Accessories

Pair of ± 1 ps Matched SMA-SMA Cables 12 Inches	Matched-SMA-Cables-12inch-Pair
Pair of ± 1 ps Matched SMA-SMA Cables 18 Inches	Matched-SMA-Cables-18inch-Pair



1-800-5-LeCroy
teledynelecroy.com

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