Xgig 1000® 12 Gbps SAS Analyzer

The Viavi Solutions Xgig 1000 12 Gbps Analyzer is the leading and the most powerful monitoring and analysis system available for Serial Attached SCSI (SAS) applications, offering complete visibility into traffic flows with advanced trace and analysis capabilities. This multi-purpose, multi-protocol tool helps users overcome high-speed serial design challenges and accelerate development of today's Storage Area Networks (SAN) and storage subsystems. This solution supports 12/6/3 Gbps SAS and 6/3 Gbps SATA.

The Viavi Xgig 1000 12 Gbps SAS Analyzer is a versatile, state-of-art solution for monitoring and analyzing live traffic employing a stand-alone hardware architecture. Combining the blade and chassis into one stand-alone system reduces the total size of the unit to less than 9.5 x14 x3.5 inches. The new front-to-back airflow allows for standing the solution on end minimizing the overall footprint in desktop testing. This chassis supports 12 Gbps SAS with dual mini-SAS HD receptacles, allowing bidirectional analysis of single- and wide-port SAS links. Each port can provide up to 4 GB RAM to allow for up to 32 GB of tracing capability.

Key Benefits

- Eases troubleshooting with the industry's most powerful trace capabilities and advanced monitoring and analysis tools
- Accelerates development through patented search and filtering capabilities, including DWORD searches within frames and Traffic/Exchange view
- Provides the ability to analyze large port counts with time-sync groups up to 32 ports
- Automates troubleshooting with advanced scripting and capture capabilities
- Eliminates cabling complexity using native Mini-SAS HD Connector Interfaces

Key Features

- Protocol-aware analysis at 12/6/3 Gbps for SAS
- Fully integrated, stand-alone system with multi-functions (Analyzer, Generator, Jammer)
- Full network visibility with 100 percent capture at line rates
- 16 or 32 GB of Trace Memory per system
- Trace memory divided per port
- Memory segmentation for capture of multiple traces
- Analyzes SAS-3 traces
- Tunable RX/TX signaling
- Supports passive "analog pass-through" to minimize the analyzer's effect on signal integrity

Comprehensive Protocol Support

In order to assist users in designing leading-edge equipment, the Xgig 1000 12 Gbps Analyzer provides full line rate monitoring and analysis for SAS-3 at 12 Gbps. The analyzer also graphically shows SAS out-of-band (OOB) sequences, as shown in Figure 1—low-speed analog signaling patterns used to both reset and set up link properties—so users can quickly identify OOB-based errors. Capturing the timing of every Align Burst and Idle on both sides of OOB links, as well as automatically detecting OOB signaling patterns (COMWAKE, COMRESET, COMINIT, and COMSAS, each denoted by a different color), enables users to verify that both the host and device under test are performing OOB signaling as expected. The Traffic Summary pane shows metrics of errors, OOB events, speed negotiation events, primitives, ordered sets, and frames in a hierarchy. It provides a quick snapshot of exchanges occurring in the trace and allows users to go directly to any one of these exchanges. It also displays exchange age and various other metrics associated with it, as Figure 2 illustrates.

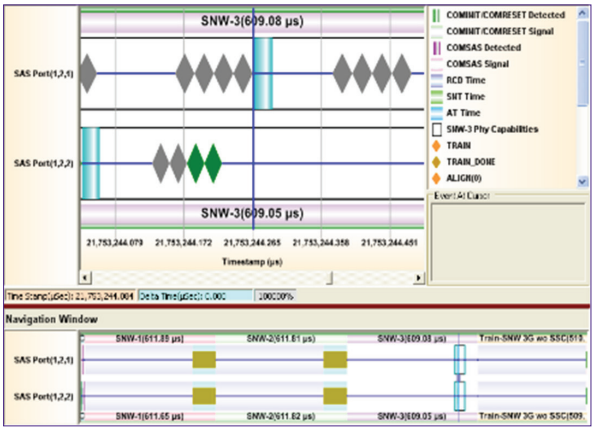

Figure 1. OOB and training graphical display

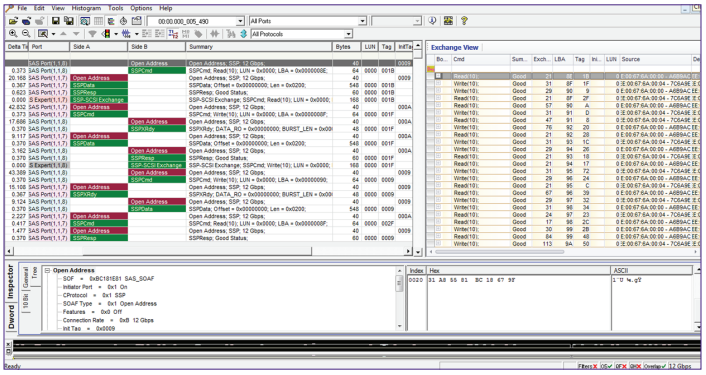

Figure 2. Traceview snapshot

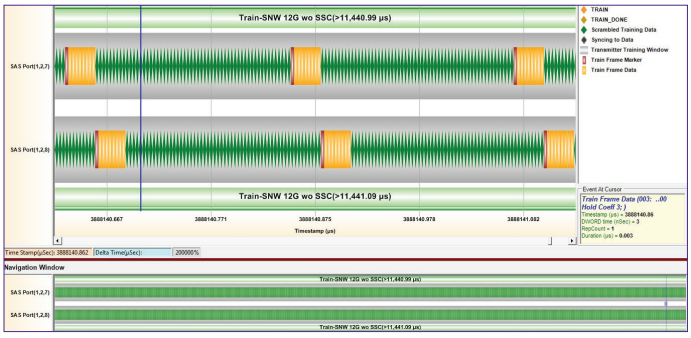

Figure 3. TX/RX Training Graphical Display

Non-Intrusive Monitoring

Different applications have different signaling sensitivities. For minimal signal impact, the Xgig 1000 12 Gbps Analyzer offers an Analog Pass-through mode that provides a truly passive, high-impedance, low-latency network connection. The analyzer passes every monitored bit through exactly as received, enabling users to see the same signal that the device under test sees. While this capability has always been part of Xgig Analyzers, Viavi has refined and improved the Xgig 1000 12 Gbps SAS Analyzer to address the specific characteristics of this protocol at high speeds.

For extended cable lengths, the Xgig 1000 12 Gbps solution supports both active HD and optical HD cables.

Multi-Function Support

The multi-function capability of the Xgig 1000 enables users to leverage a single solution blade to perform several functions for dramatic capital expense savings. In addition to capturing and analyzing traffic, SAS blades support traffic Jammer and Generation capabilities accessible by toggling software switches2. Users can manage these multi-function capabilities effortlessly through the Xgig 1000 12 Gbps Maestro GUI software that allows them to inject (jam) errors into live traffic. They can also generate arbitrary SAS (SSP, SMP, and STP) at full line rates with three levels of control so they can perform comprehensive testing and analysis to expose, identify, locate, and resolve network impairments.

Enhanced Analysis Capabilities

The Xgig 1000 12 Gbps Analyzer offers a wide array of analysis capabilities, including:

- Industry's most powerful trace capabilities
- Patented search and filtering functionality
- Multi-protocol support by cascading with other chassis
- Large trace buffers
- Memory segmentation to allow multiple trace captures
- Xgig 1000 12 Gbps SAS Expert, providing automatic analysis of more than 1800 metrics and 1200 analysis functions across protocols.

New 12 Gbps SAS capabilities include:

- Triggering and filtering across all logical ports
- Traffic Summary View supporting OOB signaling, primitives, error event types, frames, connections, and transaction event types, as well as navigation between each counter and associated events in the trace
- Protocol-aware decoding of all new SAS-3 primitives
- Spread-spectrum clocking (SSC) support
- Rx/Tx tuning support
- Optical and active cable support

Advanced Automation

Many design tests and troubleshooting procedures involve complicated, repetitive processes. With both GUI and API options available, users can define scripts from simple commands to complex regression test libraries, enabling automation of the extensive capabilities the Xgig 1000 offers.

Synchronization and Sharing

The ability to cascade up to four Xgig 1000 chassis lets users form synch groups, bringing together up to 32 time-synchronized SAS/SATA ports. Alternatively, using the Xgig 1000 port leasing model, reconfiguring the same set of hardware allows up to 16 individual simultaneous users to leverage a single test setup.

Specifications

Power supply 100 to 240 V, 50 to 60 Hz

Power consumption 200 W maximum

Ordering Information

Description	Part Number
Wide-port (4xlink) 12 Gbps SAS Analyzer stand-alone system (16 GB memory)	Xgig1k-1208
Wide-port (4xlink) 12 Gbps SAS Analyzer Software	Xgig1k-1208-AN
Generator Key 12 Gbps SAS (2 port key)	Xgig1k-S212GS
Jammer Key 12 Gbps SAS (2 port key)	Xgig1k-S212JS

1. Additional functions and options are available with the purchase of a function key. To learn more, talk to your JDSU Sales Representative.

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