



10 Gigabit Ethernet XENPAK MSA Modules XLW-3720A/XLW-3721A

Product Overview

The SmartBits® XLW-3720A and XLW-3721A are SmartMetrics and TeraMetrics 10 Gigabit Ethernet (10GbE) XENPAK-MSA-based test modules used to measure the performance and test the interoperability of networking devices. TeraMetrics modules feature a dedicated Pentium® processor that provides integrated and highly scalable control and data plane performance testing. TeraMetrics enables you to test applications from Layer 2 to 7. SmartMetrics provides a complete suite of Layer 2 and Layer 3 test capabilities at a lower cost per port than the TeraMetrics version. Each module complies with the IEEE 802.3ae standard specification.

Applications & Benefits

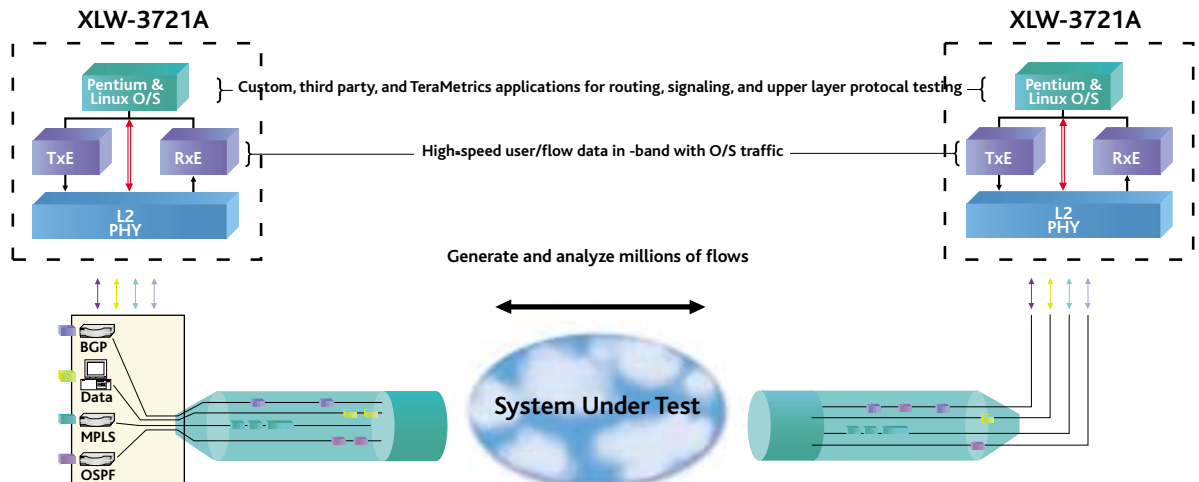
- Facilitates development and testing of 10GbE WAN products and services.
- Accelerates the development and deployment of 10 Gigabit Ethernet equipment through automated testing.
- A XAUI interface, which supports the testing of XAUI-based devices, is available via a pluggable extender unit. The XENPAK transceiver is hot-pluggable to the XLW-3720A/3721A and has a separate, internal power supply that complies with the XENPAK MSA.

- SmartBits correlates multiple key measurements like Packet Loss, Latency, Frame Sequencing, and load from one test iteration. This gives test engineers unique insight into how buffering and queuing mechanisms affect packet IP QoS.
- Tests core router performance by simultaneously creating routing events and tracking the effect on data plane traffic.
- Stresses a router by having it perform a different routing decision for each and every frame.
- Tests the aggregation performance of switches when many 10/100 Mbps or Gigabit Ethernet ports are sending traffic to one or more 10 Gigabit Ethernet ports.
- Tests the performance of switches and routers using RFC 2544 and RFC 2889 test methodologies. (Transmit round robin traffic pattern at wire rate with one packet per burst.)
- Performs negative testing by injecting errored traffic.
- Tests MulticastIP performance, as well as Diffserv and VLAN-enabled devices.
- Tests the forwarding performance of devices with a mix of IPv6 and IPv4 streams.

Spirent Communications
27349 Agoura Road
Calabasas Hills, CA
91301 USA
E-mail: productinfo@spirentcom.com

Sales Contacts:
North America
+1 800-927-2660
Europe, Middle East, Africa
+33-1-6137-2250
Asia Pacific
+852-2166-8382
All Other Regions
+1 818-676-2683

www.spirentcom.com



Environment using SmartBits 600x/6000x chassis equipped with XLW-3720A/3721A modules



Analyze | Assure | Accelerate™

Key Features

Transmit side

- Stream-based, wire-rate traffic generation at all frame sizes
- Frame sizes of 42 to 16,384 bytes
- Up to 512 independent IP streams
- Varies multiple address fields per stream to create millions of unique flows
- Supports random IFG generation
- Arbitrary stream sequencing enables the mixing of various frame rates
- Supports 802.1p, 802.1q, and 802.3ac VLAN tagged frames
- Supports 802.3x flow control commands
- Transmission modes: continuous, single-burst, multi-burst, continuous multiburst, and echo
- Ports are completely independent in operation
- Allows mask-based address skipping for easy test setup

Receive side

- Analyzes up to 64,000 unique streams in histograms
- Provides real-time analysis of TOS and DiffServe values, giving rates and events per traffic class.
- Simultaneously measures Packet Loss, Latency, and Frame Sequencing for each stream and correlates to traffic load

- Unicast, broadcast, and multicast traffic effects can be analyzed
- 32MB capture buffer enables the logging and exporting of filtered events to external protocol analysis equipment
- Per-port statistics include counters for transmitted/received frames, total bytes, CRC errors, over-and under-sized frames, VLAN tagged frames, Data Integrity, IP Checksum, Signature field, Jumbo frames, and Pause frames.
- Data integrity checking of payload
- IP header checksum verification

Protocol Support

IPv4, IPv6, UDP, TCP, ARP, ICMP, IGMP, RIP, BGP-4, OSPF, and MPLS

Internetworking Tests

The Terametrics XENPAK module, in combination with other SmartBits modules, can perform internetworking tests with 10/100/1000 Mbps Ethernet, Fibre Channel, ATM, Frame Relay, PPP, or Packet over SONET devices.

Both modules support the XENPAK MSA version 2.0 standard specifications, including key XENPAK management features.

Supported Modules

Feature	XLW-3720A SmartMetrics Module	XLW-3721A TeraMetrics Module
# Ports per Module	1	1
Maximum # Ports per Chassis	1 (SmartBits-600x) 6 (SmartBits-6000x)	1 (SmartBits-600x) 6 (SmartBits-6000x)
Connector Type	XENPAK MSA SC or LC	XENPAK MSA SC or LC
Laser Wavelengths	850nm*, 1310nm, or 1550nm	850nm*, 1310nm, or 1550nm
10GbE IEEE802.3ae protocols supported	Serial LAN, WAN	Serial LAN, WAN
Cabling	SMF or MMF Fiber, Twinax	SMF or MMF Fiber, Twinax
Signal Rate	10 Gbps	10 Gbps
# of Pentium Processors	Not Applicable	1

*Subject to availability of XENPAK MSA optical assemblies qualified by Spirent Communications. Please consult with the factory for additional information.

Spirent

Communications

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Calabasas Hills, CA
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E-mail: productinfo@spirentcom.com

Sales Contacts:

North America

+1 800-927-2660

Europe, Middle East,

Africa

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Asia Pacific

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The XENPAK MSA interface allows users to change the XENPAK optical transceiver to support different 10GbE laser wavelengths, reach ranges, and 10GbE Serial LAN Data Link Layer protocols. The XENPAK optical transceiver is hot-pluggable to the XLW test module. The hot-pluggable feature of the XENPAK MSA optical assembly allows the user to change the test system configuration as desired by simply changing the XENPAK MSA transceiver. The XLW test module automatically reconfigures itself to adapt to the different optic types.

The following XENPAK MSA modules are supported and can be ordered directly from Spirent Communications:

XENPAK Optical Assembly Description
10GbE Serial LAN, XENPAK MSA 850nm optic*
10GbE Serial LAN, XENPAK MSA 1310nm optic
10GbE Serial LAN, XENPAK MSA 1550nm optic
10GbE Serial WWDM, XENPAK MSA 1310nm optics*
10GbE Serial LAN/WAN, XENPAK MSA 1310nm optic
10GbE Serial LAN, XENPAK MSA Cx4

* Subject to availability of XENPAK MSA optical assemblies qualified by Spirent Communications.

Supported Applications

- AST II™
- Automated RFC Test Scripts
- SmartFlow™
- SmartMulticast IP
- SmartWindow™
- Spirent Connect™
- TeraRouting Tester™ (XLW-3721A only)

Requirements

- The XLW-3720A and XLW-3721A modules require two slots in a SmartBits 600x or 6000x chassis.
- An IBM or compatible Pentium™ PC running Windows® 2000/NT/XP, with mouse and color monitor.
- For chassis and module control: one Ethernet cable with RJ-45 connectors (use a crossover cable if directly connected from a PC to the SmartBits chassis or module), and a 10/100 Mbps half-duplex Ethernet controller card (in the PC/workstation).

Ordering Information

XLW-3720A

10GBase Ethernet, XENPAK MSA, 1-port, 2-slot, SmartMetrics module

XLW-3721A

10GBase Ethernet, XENPAK MSA, 1-port, 2-slot, TeraMetrics module

Spirent Communications offers a variety of ServiceEdge™ maintenance and support packages. For more information, visit the Spirent website at www.spirentcom.com <<http://www.spirentcom.com>> or contact your Spirent sales representative.



SmartBits XLW-3721A module

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