Spirent TestCenter
10-Gigabit Ethernet Test Modules

Product Overview

10Gb/s Ethernet (10GbE) is fast becoming the preferred technology for linking workgroup switches. The Spirent TestCenter 10GbE Test Modules provide highly scalable line-speed testing of switches and routers. These modules can generate realistic traffic at different layers and analyze specific metrics for each layer. The modules can simultaneously correlate data plane tests with control plane traffic such as routing, to provide the most realistic performance measurements.

Two 10GbE test modules are offered for Spirent TestCenter:

- The XFP-1001A provides full Layer 2 and Layer 3 testing and can support higher layer protocols for functional and production environments.
- The XFP-2001A provides Layer 2 and Layer 3 testing and can support highly scalable protocol emulation to evaluate the key performance parameters of devices such as enterprise/metro routers.

Applications

Spirent TestCenter customers use the 10GbE Test Modules to evaluate the key performance parameters of 10Gb/s switches and routers under typical or extreme traffic load conditions. The modules help them to compare and validate 10Gb/s equipment for suitability prior to deployment, and ensure that advanced features such as QoS prioritization, VLAN and MulticastIP will perform as expected. Customers can also use the test modules to verify routing control and convergence capabilities.

Benefits

- *Improve product/service reliability*–Scalability of Layer 3 traffic allows the user to emulate very large networks and find issues in the lab before a service is deployed
- *Reduce cost*–Comprehensive features on XFP-1001A allow data and control plane testing on a low-cost module
- *Reduce time to test*–Test and configuration wizards support standards-based testing for 10Gb/s switches and routers and make troubleshooting test configurations easy
- *Real-world network emulation*–Ability to emulate 10Gb/s traffic and multiple protocols simultaneously while scheduling real-time events. Users can scale their tests to emulate realistic network-backbone loads

GET IT DONE FASTER WITH
Spirent TestCenter

- High-performance 10GbE tester
- Up to 32,767 customizable transmit streams per port
- Real time results per stream
- Interchangeable optical interface
- Hot-swappable modules
- Up to 12 ports of 10-GigE supported per 5U chassis
- Full IPv4/IPv6 dual stack support

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SPIRENT
Communications

Analyze | Assure | Accelerate™

Spirent TestCenter™
Component

Key Features

- When combined with RFC 2544 and RFC 2889 software, these test packages allow the user to easily measure performance at layers 2 and 3, using industry-standard methodology
- Traffic wizards allow easy setup of unicast, multicast, IPv4 and IPv6 streams
- Interactive feature allows functional and negative testing, including group join and prune messages, start/stop hellos and start/stop router emulation
- Integrated protocol counters track protocol messaging
- Real-time per stream statistics, such as average latency per traffic class
- Real-time event log allows user to view actual protocol messaging on a per-port basis
- Duplicate and copy/paste features allow quick setup of many multicast groups
- Flap scheduler provides integrated control plane and data plane events, allowing users to view the result of a control plane event graphically in real time
- Integrated capture feature allows user to capture and decode control plane and data plane, enabling deep functional troubleshooting
- Test automation is available through Spirent TestCenter APIs
- Hardware is field-programmable. The module can be upgraded on site in its chassis as new features and technologies become available

Technical Specifications

Transmit Generator Specifications

- 32,767 unique streams on a port
- Set packet rate per stream
- Up to 6 variable fields can be edited per stream
- Test duration: continuous, time burst, frame burst
- Load units: frames/second or % of line rate
- Burst size in frames
- Loads: fixed, stepped, or random with minimum and maximum
- Frame sizes: fixed, stepped, or random with minimum and maximum

Stream Encapsulations

- Ethernet II, 802.3, VLANs, Stacked VLANs
- MPLS label stack, mixed VLANs / MPLS labels
- IPv4, ToS, Diffserv, TTL
- IP QoS settings per ToS or DSCP
- IPV6 – neighbor discovery protocol, header extensions, dual stack
- ICMP, TCP, UDP
- User defined frames (48 bytes - 16K bytes)
- Error injection

Routing Protocol Emulation

For specifications on all unicast and multicast routing protocols that can run on the 10Gb/s test modules, please see separate Spirent TestCenter software datasheets.

Transmit Counters

- Total frame count
- Total byte count
- IPv4 frame count, ARP requests, ARP replies, PING requests, PING replies
- IPv6 frame count, PING requests, PING replies
- Protocol stack frame count
- Transmit frames per stream counter

Receive Analyzer Specifications

Per Port Receive Counters

- Total frame count
- Total byte count
- IPv4 frame count, ARP requests, ARP replies, ICMPv4 destination unreachable frames, PING requests, PING replies
- IPv4 checksum error count
- IPv6 frame count, ICMPv6 destination unreachable frames, PING requests, PING replies
- Protocol stack frame count
- VLAN frame count
- MPLS frame count
- Frames with Spirent signature count
- Jumbo frame count
- Undersized frame count
- Oversized frame count
- FCS-32 error count
- Receive trigger counter – Eight 4 byte triggers

Analyzer Results per Stream

- Up to 65,535 streams analyzed per port in real time
- Latency average, minimum, maximum
- Total packet count
- Packets with Spirent signature
- IPv4 checksum errors
- Packets in-sequence count
- Packets out of sequence errors

Analyzer Results per Stream - Real Time Viewing

- Total packet count
- Total byte count
- Receive frame rate, per stream, per customized tracking group, IPv4 QoS group (with or without VLAN), MPLS label group
- Average latency
- Packets in sequence count
- IPv4 packet count
- IPv6 packet count

Features	XFP-1001A	XF-2001A
Connector Type	XFP MSA SC	XFP MSA SC
Laser Wavelengths	850nm, 1310nm, 1550nm	850nm, 1310nm, 1550nm
10GbE IEEE 802.3ae variants supported	Serial LAN, WAN	Serial LAN, WAN
Cabling	Multi-mode, Single mode fiber	Multi-mode, Single mode fiber
Signal rate	10 Gbps LAN, 9.58464 Gbps WAN	10 Gbps, 9.58464 Gbps WAN
CPU memory	256MB	512MB
Maximum transmit streams	16,384	32,767
Total number of Variable Fields per Stream (VFD)	4	6
Maximum receive streams	65,535	65,535
Minimum frame size	48 Bytes	48 Bytes

Supported Chassis

Module	Description
SPT-2000A	Spirent TestCenter 2U Chassis
SPT-5000A	Spirent TestCenter 5U Chassis

Requirements

- Pentium™ or greater PC running Windows® 2000 SP4 or XP SP1/1A/2 with mouse/color monitor required for GUI operation
- One Ethernet cable and one 10/100/1000 Ethernet card installed in the PC
- Fiber ports require separately ordered XFP transceiver

Ordering Information

XFP-1001A 10G XFP, 1 Port
XFP-2001A 10G XFP, 1 Port

Optional Optical Interfaces

ACC-6030A Optical transceiver, 850nm
ACC-6031A Optical transceiver, 1310nm
ACC-6032A Optical transceiver, 1550nm

Spirent Global Services

Spirent Global Services provides a variety of professional services, support services, and education services — all focused on helping customers meet their complex testing and service assurance requirements. For more information, visit the Global Services website at www.spirentcom.com/gs or contact your Spirent sales representative.

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