TeraMetrics™ Modules
LAN-3301A/LAN-3311A

Product Overveiw

Spirent Communications' LAN-3301A and LAN-3311A are TeraMetrics Ethernet modules used to test the performance and interoperability of networking devices. TeraMetrics modules feature an open architecture and provide the world's first fully-featured, network-to-application layer network performance testing. TeraMetrics enables you to test applications beyond previous test realms. Third-party applications can be created on Linux operating systems and then run from an on-board Pentium™ III processor.

The copper-based LAN-3301A supports rates of 10, 100, and 1000 Mbps. The GBIC-based LAN-3311A supports 1000 Mbps (1 Gbps) over single and multi-mode fiber. Each module is capable of simulating the millions of clients and servers required to fully test network systems. The modules yield per-flow metrics for millions of IP flows used to assess the quality of service provided by BGP, MPLS, OSPF, IP QoS, VoIP, DiffServ, and VLAN enabled devices. Each module is capable of full wire-rate traffic and analysis and complies with the 10Base-TX/100Base-TX IEEE specification in 10/100 Mbps mode and the IEEE 802.3z draft specification in Gigabit mode. Use the LAN-3301A and LAN-3311A with other modules to test high-speed internetworking between 10/100/1000 Mbps Ethernet and either 10/100/1000 Mbps Ethernet, ATM, or Packet over SONET devices.

TeraMetrics also supports the on-board creation of traffic shaping and traffic generation, which speeds test setup. Traditional "packet blasting" and SmartBits® SmartMetrics™ modes are supported within a wide range of software applications. This makes it easy for you to perform frame loss, stream latency, latency over time, latency distribution, histogram analysis, and sequence tracking tests on systems ranging from a single device under test (DUT) to a full-blown router network. With TeraMetrics, you can run true user-oriented, real-world application tests and generate additional in-band traffic while still maintaining the SmartMetrics standard of testing that the industry has come to expect.

Welcome to the next generation of network performance analysis systems: TeraMetrics.

Primary Applications

- Measure specific control plane performance of network-embedded applications, such as routing, load balancing, Multicast IP, Mobile IP, and security.
- Simulate "smart" protocols at various OSI layers while transmitting real world data.
- Run custom and third-party applications enabled by the TeraMetrics architecture.
- Evaluate key performance parameters of 10/100/1000 Mbps networking devices such as switches, routers, VPN systems, cache servers, and load balancers under typical or extreme traffic load conditions.
- Qualify 10/100/1000 Mbps networking devices during development, quality assurance, and final regression testing.
- Perform stress and negative testing by injecting errored traffic.
- Perform comparative analysis of 10/100/1000 Mbps networking devices and re-qualify after firmware upgrades.

Key Features

- Stream-based, wire-rate traffic generation (up to 1,448,095 frames per second) and analysis.
- Supports autonegotiation.
- Supports frame sizes of 40 to 16,384 bytes.
- Ports are completely independent in operation.
- Generates up to 512 independent IP streams (peer-to-peer) and analyzes up to 64K streams.
- Instruments millions of flows per stream, thereby stressing a router by having it perform a different routing decision for each and every frame.
- Each frame may be set to a fixed frame size or may be set to generate random frame sizes using a uniform distribution.
- Virtually unlimited address space coverage with varying, multiple address fields.
- Allows mask-based address skipping for easier test setup.
- Generates and accepts 802.1q VLAN tagged frames.
- Provides optional MPLS label stack encapsulation.
- Generates and responds to 802.3x flow control commands.
- Supports ping and ARP.

LAN-3301A/LAN-3311A application

SPIRENT
Communications
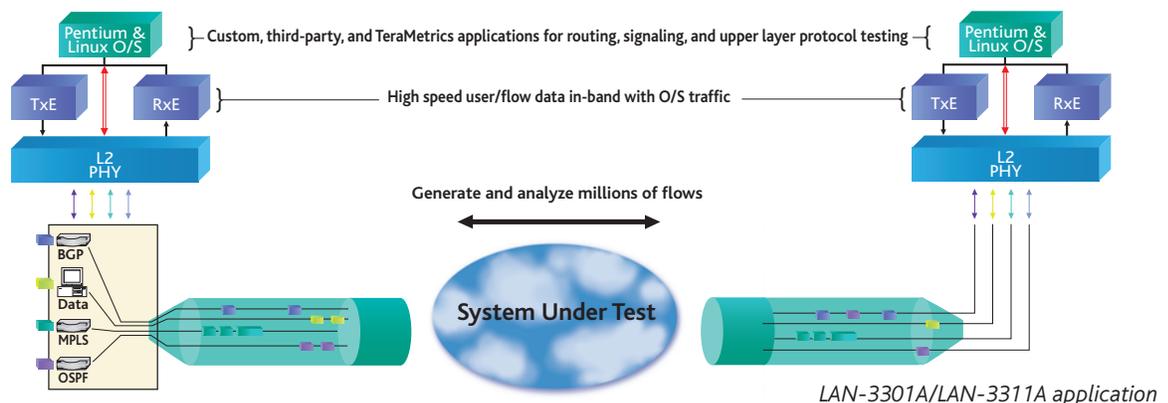
- Provides per-port transmission mode control settings (continuous, single-burst, multi-burst, continuous multi-burst, and echo).
- Arbitrary stream sequencing enables the mixing of various frame rates.
- Unicast, broadcast, and multicast traffic effects may be analyzed.
- 16 MB capture buffer enables the logging and exporting of filtered events to external protocol analysis equipment.
- Per-port statistics include counters for transmitted/received frames, bytes, CRC errors, over- and under-sized frames, VLAN frames, and pause frames.
- Additional analysis capabilities include data integrity checking of payload and IP header checksum verification.

Supported Applications

- SmartWindow™
- SmartLib™ Programming Library
- ScriptCenter™
- SmartApplications™
- SmartFlow™
- AST II™

Additional applications will be made available on an ongoing basis.

Specifications

Feature	LAN-3301A	LAN-3311A
# Ports per Module	2	2
Maximum # Ports per Chassis	4 (SMB-600) 24 (SMB-6000B)	4 (SMB-600) 24 (SMB-6000B)
Connector Type	RJ-45	GBIC
Cabling	Cat5	Fiber
Signal Rate	10/100/1000 Mbps	1000 Mbps
# of Pentium Processors	1	1

The LAN-3311A supports the use of a GBIC interface. GBIC is an industry standard interface that allows users to change the physical interface to support either multi-mode or single-mode fiber for Gigabit Ethernet. GBIC converters can be inserted or removed from a host chassis without removing power from the host system. Since the converters are hot-pluggable, they allow system configuration changes simply by plugging in a different type of converter. The following GBIC modules from OPC are supported and can be ordered directly from Spirent Communications:

Part Number	Description
ACC-6002A MM	Gigabit Interface Converter (GBIC) Multi-mode
ACC-6003A SM	Gigabit Interface Converter (GBIC) Single-mode

Requirements

- LAN-3301A and LAN-3311A modules require one slot in an SMB-600 or SMB-6000B chassis.
- An IBM or compatible Pentium PC running Windows®. 98/2000/NT, with mouse and color monitor.
- For chassis and module control: RS-232 modem (not null-modem) cable, 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 PC/workstation).
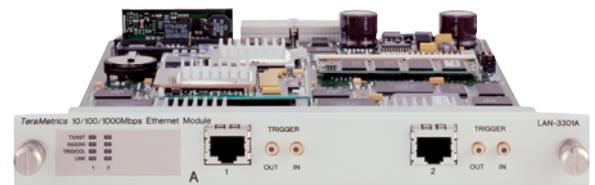
Ordering Information

LAN-3301A

10/100/1000Base-T Ethernet Copper, 2-port, TeraMetrics module

LAN-3311A

1000Base-FX Ethernet, GBIC, 2-port, TeraMetrics module

SUS-SMB

12-month Software Update Support Service (includes firmware support)

LAN-3301A

SmartBits Division
26750 Agoura Road
Calabasas, CA
91302 USA
Tel: 818-676-2300
Fax: 818-676-2700
Toll Free: 800-927-2660
www.spirentcom.com