

10/100/1000 Mbps Ethernet Modules
LAN-3100A/LAN-3200A/As

Product Overview

The LAN-3100A and LAN-3200As are Ethernet modules that can be used to generate, monitor, and capture 10/100/1000 Ethernet traffic. The modules may be used in either SMB-600 or SMB-6000B chassis.

The LAN-3100A Ethernet full-/half-duplex module provides 8 IEEE 10/100Base-T ports. These ports support autonegotiation, flow control, VLAN tagged fields, and 1,522 byte packets per IEEE 802.p, 802.q and 802.3ac. Data capture is provided for up to 16 MB of packet data.

The LAN-3200A Gigabit Ethernet full-duplex module provides two 1000Base-SX ports with a physical interface of 850 nanometer, multi-mode fiber. The LAN-3200As module provides two 1000Base-LX ports with a physical interface of 1310 nanometer, single mode fiber. The LAN-3200A and LAN-3200As follow the IEEE 802.3z specification and are used to test the performance, conformance, and interoperability of Gigabit Ethernet backbones. Upstream traffic and throughput testing can be performed by using a LAN-3200A/3200As module in combination with a LAN-3100A module.

Key Features

- All modules transmit and receive beyond wire-rate speed.
- High port density for generating heavy and realistic loads.
- Generates, monitors, and captures data.
- Generates good and errored traffic.
- Generates oversized and undersized frames.

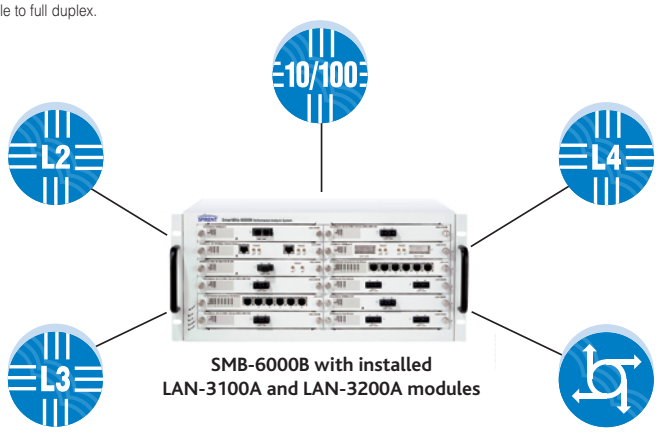
Specifications

	Modules	
Feature	**LAN-3100A**	**LAN-3200A/As**
Ports per Module	8	2
Interface	RJ-45	850 nm multi-mode
Speed	10/100 Mbps	1 Gbps
Duplex Mode	Full/Half	Full only
Packet Length	32-8,191 bytes	32-2,048 bytes
CRC Errors	Yes	Yes
Alignment, Dribble, Undersize, Oversize, Symbol Errors	Yes	No
Adjustable Preamble Length	Yes	Yes
IPG Adjustment Resolution	40ns	32ns
Alternate Streams	1	2
VLAN Tagging	Yes	No
Collision Control *	Yes	N/A
Flow Control	Yes	Yes
Traffic Receive Rate	Beyond wire rate	Beyond wire rate
Traffic Transmit Rate	Beyond wire rate	Beyond wire rate
Capture Buffer Size	16MB	128KB
Verify Incoming IP Checksum	Yes	No
VFD 3 size	2KB	2KB
Provides triggers for external device	Yes	No

* Only works in half duplex mode; not applicable to full duplex.

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

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LAN-3100A/3200A applications

Supported Applications

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

Transmit Functions

Transmit Modes

- Continuous Mode: Constant stream of packets.
- Single Burst Mode: Up to 16,777,215 packets (LAN-3100A) or 4,294,967,295 packets (LAN-3200A/As) in a single burst.
- Multi-burst Mode: Allows repetitive bursts with a user-adjustable delay (maximum 1.6 seconds) between bursts.
- Continuous Multi-burst Mode: Runs multi-burst mode continuously.
- Echo Mode: Sends one pre-defined packet when a trigger occurs.

Background Packet Data Fill Pattern

The user may configure a custom background fill or choose from any of the following: incrementing and decrementing byte; incrementing and decrementing word; random data; all zeros; all ones; or other patterns.

Variable Field Data

Insert up to three varying data fields in the transmitted packet.

- VFD1 and VFD2: May be up to 6 bytes in length specified by the following selections: On/Off, Value, Static, Increment, Decrement, Cycle Count, or Random. Offset range is 0 to 2,047 bytes.
- VFD3: User-specified 2,048 byte buffer to create a sequence of packets with different protocol headers varying from packet to packet with the following selections: On/Off, Offset, Number of Packets, or VFD3 Length.

Start-up Functions

Alternate Transmit Stream

An alternate stream of transmitted data can be configured to represent various traffic scenarios. The main data stream may be interspersed with a secondary data stream. This can be used to generate a controlled percentage of errored traffic, management frames, or pause frames.

Auto-Negotiation

These modules support the appropriate auto-negotiation protocol.

Receive Functions

Triggers

Two independent triggers consisting of from 1 to 6 bytes each. Trigger offset can be adjusted from the first byte to the last byte of the frame, including the CRC in 1-byte increments. Triggers can be used to count specific packets. Trigger counter can be set to: Trigger 1; Trigger 2; Trigger 1 or 2; or Triggers 1 and 2.

Counters

All counters may be set to display rates and events. The following counters are shown:

- Packets successfully transmitted.
- Valid packets received.
- Valid frame length packets with bad CRC.
- Packets with size greater than 1,518 bytes, including CRC.
- Undersized packets and fragments received with size less than 64 bytes, including CRC.
- Received bytes OR only bytes received in valid packets (user selectable).
- The number of packets received with trigger pattern.
- IP frames with checksum errors.
- ARP requests sent and received.
- ARP replies sent and received.
- Ping requests sent and received.
- Ping replies sent and received.

Latency

Latency measurements can be made with a variety of cards for internetworking analysis such as: Ethernet-to-Token Ring, Ethernet-to-Ethernet, and Ethernet-to-ATM.

Flow Control

Generation of and response to Pause commands for flow control testing.

Packet Capture

Each LAN-3100A and 3200A/As module has pre-capture filtering (CRC errors, Rx triggers) and can also capture oversize and undersize frames. In addition, the LAN-3100A can filter on Pause frames, ARP requests, VLAN frames, invalid IP checksums, and collisions. Display is in hex or decimal format.

VLAN Tagging

The LAN-3100A can generate VLAN tagged frames. Frames between 1,518 and 1,522 bytes long are counted as legal frames.

Requirements

- The LAN-3100A and LAN-3200A/As 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.

Ordering Information

LAN-3100A

10/100Base-TX Ethernet, 8-port module

LAN-3200A

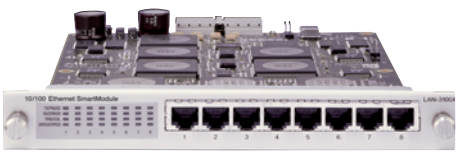
1000Base-SX Ethernet, 2-port, multi-mode, 850nm module

LAN-3200As

1000Base-LX Ethernet, 2-port, single mode, 1310nm module

SUS-SMB

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



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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

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