

# Gigabit Copper SmartCard GX-1420B

## Product Overview

The GX-1420B SmartCard offers Full Duplex Gigabit and 100 Mbps Ethernet testing capabilities over copper wire. The GX-1420B also supports IP checksum generation and analysis, ARPing, PINGing, and VLAN tagging. The card is compliant with the 802.3ab specification.

The single-port GX-1420B SmartCard supports wire-rate traffic generation, analysis, and capture. The physical interface is an RJ-45 interface that provides for connections of up to 100 meters, using CAT 5 cable. The GX-1420B is ideally suited for large-scale performance analysis of switches and routers based on industry standard RFCs. The card can also be used for customized testing scenarios using various SmartBits® software applications. The GX-1420B can be installed in either an SMB-200 or SMB-2000 chassis.

## Key Features

- Supports both 100 Mbps and 1,000 Mbps with auto-negotiation.
- Wire-rate traffic generation with IP checksum.
- Wire-rate traffic analysis and capture with IP checksum error detection.
- CRC error generation capability.
- IP checksum error generation capability.
- Generates millions of IP Flows in hardware.
- Generates oversized and undersized frames (20-2,048 bytes).
- ARP reply analysis.
- Ping generation.
- VLAN Tag generation.

## Transmit Functions

### Transmit Mode

- **Continuous Mode:** A constant stream of packets at a user-selected Interpacket Gap.
- **Single Burst Mode:** Up to 16 million packets in a single burst with user-selected Interpacket Gap.
- **Multi-burst Mode:** Up to 65,536 repetitive bursts with a user-adjustable delay (maximum 1.6 seconds) between each burst.
- **Continuous Multi-burst Mode:** Runs multi-burst mode continuously.
- **Echo Mode:** Sends one 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.

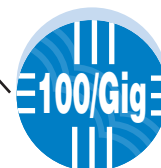
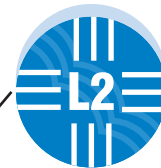
### Variable Field Data

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.



SMB-2000 with installed  
GX-1420B SmartCards



GX-1420B applications

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### 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.

### 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

The GX-1420B supports the generation of, and response to, Pause commands for flow control testing.

### Packet Capture

Each SmartCard can capture between 86 and 2,048 legal-sized packets depending on packet length, and can also capture oversized and undersized packets. Display is in hex or decimal format.

### Supported Applications

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

### Requirements

- The GX-1420B requires two slots in an SMB-200/2000 chassis.
- An IBM or compatible Pentium™ PC running Windows 98/2000/NT, with mouse and color monitor.
- An RS-232 modem (not null-modem) cable; or for Ethernet control, one RJ-45 straight-through cable and a 10 Mbps, half-duplex Ethernet controller card.

### Ordering Information

#### GX-1420B

100/1000Base Ethernet, Copper, 1-port SmartCard

#### SUS-SMB

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



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