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## *IXIA FCMGXM Load Modules*

This chapter provides details about FCMGXM family of load modules—specifications and features.

The FCMGXM family of high speed load modules delivers high-density, 2/4/8G fibre channel test solution. These load modules deliver high-density converged data center infrastructure for testing end-to-end Fibre Channel and Fibre Channel over Ethernet (FCoE) testing. The fibre channel load module comes with four or eight ports and each port can be configured to run at 2, 4, or 8 G speeds.

The 4-port and 8-port FCMGXM load modules deliver complete FC-2 and FCP data plane capabilities and performance.

One of the modules in this family, the FCMGXM8, is shown in the following figure.

Figure 33-1. FCMGXM Load Module



## Part Numbers

The part numbers are shown in [Table 33-1](#).

Table 33-1. Part Numbers for FCMGXM Modules

Load Module	Part Numbers	Description
FCMGXM4	950-0001 FCMGXM4S-01	4-Port Fibre Channel Load Module, with 2 Gbps, 4 Gbps and 8 Gbps support and SFP+ interface. It requires one or more SFP+ transceiver options.
FCMGXM8	950-0002 FCMGXM8S-01	8-Port Fibre Channel Load Module, with 2 Gbps, 4 Gbps and 8 Gbps support and SFP+ interface. It requires one or more SFP+ transceiver options.

## Specifications

The load module specifications are contained in [Table 33-2](#) on page 33-2.

Table 33-2. FCMGXM Load Module Specifications

Feature	Specification
Load Modules	FCMGXM8/FCMGXM4
Number of ports per module	8/4
Number of chassis slots per module	1
Maximum ports per chassis	<b>Note:</b> XM12 High Performance chassis is required for 88 ports to be installed in a single chassis. Up to eleven 8-port load modules are supported in an XM12 High Performance chassis, and up to 8 8-port load modules are supported in a standard XM12 chassis. The XM2 chassis supports up to 16 ports.
Supported transceivers	SFP+ Tri-rate 2/4/8G duplex LC connector 850nm multimode 1310 single mode.
Per-port CPU speed and memory	800 MHz, 1 GB/1 GHz, 1 GB.
Per-port capture buffer	512 MB
Interface speeds	2/4/8G FC
FC-1 Primitives	Yes
FC-2 Protocols	Yes

Table 33-2. FCMGXM Load Module Specifications

<b>Feature</b>	<b>Specification</b>
FCP Support	Yes
Number of transmit flows per port (sequential values)	Billions
Number of transmit flows per port (arbitrary values)	1 million
Number of trackable receive flows per port	1 million
Number of stream definitions per port	256 In packet stream (sequential) or advanced stream (interleaved) mode, each stream definition can generate millions of unique traffic flows.
Table UDF	1 million entries. Comprehensive packet editing function for emulating large numbers of flows. Entries of up to 256 bytes, using lists of values can be specified and placed at designated offsets within a stream. Each list consists of an offset, a size, and a list of values in a table format.
Packet flow statistics	Tracks 1 million flows.
Transmit engine	Wire-speed packet generation with timestamps, sequence numbers, data integrity signature, and packet group signatures.
Receive engine	Wire-speed packet filtering, capturing, real-time latency, and inter-arrival time for each packet group, data integrity, and sequence checking.
User defined field features	Fixed, increment, or decrement by user-defined step, value lists, range lists, cascade, random, and chained fields.
Filters	2x128-bit user-definable pattern and offset, frame length range, CRC error, data integrity error, and sequence checking error (small, big, reverse).
Data field per stream	Fixed, increment (byte/word), decrement (byte/word), random, repeating, user-specified, CJPAT, and CRPAT fields.
Error generation	CRC (good/bad), oversize frame, parity error, and R_RDY errors.
Latency measurements	20 nanoseconds resolution in packet timestamp.

Table 33-2. FCMGXM Load Module Specifications

Feature	Specification
Statistics	<p>The new statistics are as follows:</p> <ul style="list-style-type: none"> <li>• Link State and speed</li> <li>• (Tx) Bytes, Frames, (count and rate)</li> <li>• (Rx) Bytes, Frames, (count and rate)</li> <li>• (Rx) CRC errors, Oversize (2112), Undersize (24) (count and rate)</li> <li>• Packet group Latency</li> <li>• Data Integrity</li> <li>• Capture Trigger/Filter (count and rate)</li> <li>• User Defined Stats: 6 (count and rate)</li> <li>• Protocol Server Tx/Rx (count and rate)</li> <li>• Remote B-B Credit Value</li> <li>• Remote B-B Credit Count</li> <li>• R_RDY Tx/Rx (count and rate)</li> <li>• Disparity errors (count and rate)</li> <li>• Stats: Port CPU status</li> <li>• Transmit Duration</li> <li>• Invalid EOF Count/Rate</li> <li>• Code Error Count/Rate</li> <li>• FLOGI Sent</li> <li>• FLOGI LS_ACC received</li> <li>• FLOGO Sent</li> <li>• PLOGI Sent</li> <li>• PLOGI LS_ACC received</li> <li>• PLOGI Request received</li> <li>• PLOGO Sent</li> <li>• PLOGO Received</li> <li>• FDISC Sent</li> <li>• FDISC LS_ACC Received</li> <li>• NS Registration Sent</li> <li>• NS Registration Successful</li> <li>• NxPort Enabled</li> <li>• NxPort-IDs Acquired</li> <li>• NS Query Sent</li> <li>• NS Query Successful</li> <li>• PRLI Sent</li> <li>• PRLI Successful</li> <li>• PRLI Received</li> <li>• RSCN Received</li> <li>• RSCN Acc Transmitted</li> <li>• SCR Transmitted</li> <li>• SCR Acc Received</li> </ul>
Operating temperature range	41°F to 95°F (5°C to 35°C), ambient air.