Fusion-enabled Gigabit Ethernet XMVDC LAN Services Modules

Under Ixia's Fusion program, LSM1000XMVDC16NG-02 and LSM1000XMVDC4NG load modules are capable of running the IxN2X application as well as IxNetwork, IxLoad and other Ixia applications. This unprecedented cross platform compatibility provides an extraordinary value proposition to the existing IxN2X user base in supporting Ixia applications as well as the IxN2X application on a high-density platform. It also allows the user base presently employing IxN2X and Ixia chassis platforms – XM2, XG12, and XGS12-SD – to leverage their hardware across both. IxN2X in conjunction with IxNetwork, IxLoad, and other Ixia applications provide support for a wide breadth of protocols and application testing such as Converged Ethernet.

Ixia’s Gigabit Ethernet XMVDC LAN Services Modules (LSMs) offer complete Layer 2-7 network and application testing functionality in a single test system. Each test port supports wire-speed Layer 2-3 traffic generation and analysis, high performance routing/bridging protocol emulation, and true Layer 4-7 application traffic generation and subscriber emulation. With up to 16 Dual-PHY ports per module, ultra-high density test environments can be created for auto-negotiable 10/100/1000 Mbps Ethernet over copper as well as Gigabit Fiber and 100Base-FX Ethernet over fiber. With 12 slots per XG12 rack mount chassis, or XGS12-SD rack mount chassis, up to 192 Gigabit Ethernet test ports are supported in a single test system.

Highlights

- Ability to run IxN2X, IxNetwork, IxLoad and other Ixia applications on a single hardware platform
- Extend existing IxN2X systems with Ixia chassis, 1GbE and 10GbE FUSION-enabled load modules, and Timing Distribution Module (TDM)
- Seamless IxN2X application support with no changes to APIs and GUI workflow
- Comprehensive layer 2-7 testing
- Access to Ixia’s superior L4-7 capability
- Award-winning, field-proven, high-density 1G hardware based on XMV family architecture
- High-density 1GE test solution (192 ports per 10U chassis)
- Processor per port / user per port
- 64MB of capture memory

LSM1000XMVDC16NG-02 Load Module
Each port on a 1GbE XMVDC module contains a powerful RISC processor running Linux and a full, testing-optimized TCP/IP stack. This architecture provides unprecedented performance and flexibility for testing routers, switches, broadband and wireless access devices, web servers, video servers, secure gateways, firewalls, and many other networking and application-aware devices.

Ixia’s LSM1000XMVDC16NG-02 and LSM1000XMVDC4NG load modules deliver high control plane performance and scalability for both Layer 3 routing protocol emulation and upper Layer 4-7 stateful traffic testing.

**Key Features**

- Ability to run IxN2X, IxNetwork, IxLoad, and other Ixia applications on a single hardware platform (requires compatible IxOS release version)
- Extend existing IxN2X systems with XM2 and XGS12-SD chassis, 1GbE and 10GbE FUSION-enabled load modules, and Timing Distribution Module (TDM)
- Seamless IxN2X application support with no changes to APIs and GUI workflow
- Comprehensive layer 2-7 testing
- Access to Ixia’s superior L4-7 capability
- Award-winning, field-proven, high-density 1G hardware based on XMV family architecture
- High-density 1GE test solution (192 ports per 12-slot chassis)
- Processor per port / user per port
- 64MB of capture memory

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>IxN2X Mode</th>
<th>Ixia Native Mode¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Load Module</td>
<td>LSM1000XMVDC16NG-02/4NG</td>
<td>LSM1000XMVDC16NG-02/4NG</td>
</tr>
<tr>
<td>Number of ports per module</td>
<td>16/4</td>
<td>16/4</td>
</tr>
<tr>
<td>Number of chassis slots per module</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maximum ports per chassis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- XG12 rack mount</td>
<td>160</td>
<td>192</td>
</tr>
<tr>
<td>- XGS12-SD rack mount</td>
<td>160</td>
<td>192</td>
</tr>
<tr>
<td>- XGS12-HS rack mount</td>
<td>Not Supported</td>
<td>192</td>
</tr>
</tbody>
</table>

¹ For more detailed explanation of features in Ixia Native Mode, refer to 10/100/1000 Mbps Ethernet and Gigabit Fiber XMVDC Load Modules datasheet.
<table>
<thead>
<tr>
<th>Feature</th>
<th>IxN2X Mode</th>
<th>Ixia Native Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>• XM2 Desktop</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>• XGS2-SD 3U</td>
<td>Not Supported</td>
<td>32</td>
</tr>
<tr>
<td>• XGS2-HS 3U</td>
<td>Not Supported</td>
<td>32</td>
</tr>
<tr>
<td>Connector Type</td>
<td>RJ45 or SFP</td>
<td>RJ45 or SFP</td>
</tr>
<tr>
<td>Port CPU / Memory per port</td>
<td>800 MHz / 1 GB</td>
<td>800 MHz / 1 GB</td>
</tr>
<tr>
<td>Per-port capture buffer</td>
<td>64 MB</td>
<td>64 MB</td>
</tr>
<tr>
<td>Latency Resolution</td>
<td>10 ns</td>
<td>20 ns</td>
</tr>
<tr>
<td>Layer 2/3 routing protocol</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>emulation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Layer 4-7 application traffic</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>testing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Center Bridging with FCoE</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>and PFC support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temp. range</td>
<td>41°F to 86°F (5°C to 35°C), ambient air</td>
<td></td>
</tr>
</tbody>
</table>

**Application Support**

- **IxN2X**: Integrated layer 2-3 data/control plane performance and functional testing, broadband, Carrier Ethernet, routing/bridging protocol emulation, conformance test manager, Quicktests, productivity applications, and including fully integrated Tcl API
- **Note**: The IxN2X application software is in the End-of-Life program and beyond the maintenance window. The last published version IxN2X 7.60GA SP2 is available for download from Ixia’s Support web portal. The matching IxOS version IxOS 6.80 EA SP1 is also required to run IxN2X 7.60GA SP2.
- **IxExplorer**: Layer 2-3 wire-speed traffic generation and analysis including FCoE
- **IxNetwork**: Integrated layer 2-3 data/control plane performance and functional testing. Data Center Ethernet, Broadband, Carrier Ethernet, Routing/bridging emulation.
- **IxLoad**: Layer 4-7 performance testing
- **Tcl API**: Custom user script development for layer 2-7 testing

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*The maximum operating temperature for these load modules lowers the maximum operating temperature of the entire XM12 (941-0009) chassis and the XM2 chassis (941-0023).*
**Fusion Program**

The following diagram shows how to make existing IxN2X systems extensible with Ixia 12-slot chassis, 1GbE and 10GbE FUSION-enabled load modules as well as running Ixia native applications on the same setup simultaneously (on separate modules).

The Timing Distribution Module (TDM) distributes timing & events:
- Acts as the timing master for all components
- Distributes events between XM chassis & IxN2X chassis
- Enables simultaneous operation of Ixia & IxN2X applications (not on the same module)


**Product Ordering Information**

**Load Modules**

**944-1072 LSM1000XMVDC16NG-02**

LSM1000XMVDC16NG-02. Fusion-enabled, Gigabit Ethernet Load Module, 16-Port Dual-PHY (RJ45/SFP) interfaces. The load module is compatible with these Ixia chassis in both the IxN2X mode and the Ixia native mode: XGS12-SD 12-slot, standard performance rack mount chassis bundle (940-0011), XG12 12-slot, rackmount chassis (940-0005) and the XM2-02 desktop chassis (941-0023). Additionally, this load module is compatible in the Ixia native mode only with these chassis: XGS12-HS 12-slot, high-speed performance rackmount chassis bundle (940-0006), XGS2-SD 2-slot, 3RU standard performance chassis bundle (940-0010), and XGS2-HS 2-slot, 3RU high-speed performance chassis bundle (940-0012)*; REQUIRES one or more SFP transceiver options: SFP-LX, or SFP-SX. *Note 1: IxN2X Stateful TCP, Video Server and Packet Personality are not supported on this load module. Note 2: This load module requires IxOS 6.60 GA or IxOS 6.70 EA and newer versions.

**944-1095 LSM1000XMVDC4NG**

LSM1000XMVDC4NG, FUSION-enabled, Gigabit Ethernet Load Module, 4-Port Dual-PHY (RJ45/SFP) interfaces. The load module is compatible with these Ixia chassis in both the IxN2X mode and the Ixia native mode: XGS12-SD 12-slot, standard performance rack mount chassis bundle (940-0011), XG12 12-slot, rackmount chassis (940-0005) and the XM2-02 desktop chassis (941-0023). Additionally, this load module is compatible in the Ixia native mode only with these chassis: XGS12-HS 12-slot, high-speed performance rackmount chassis bundle (940-0006), XGS2-SD 2-slot, 3RU standard performance chassis bundle (940-0010), and XGS2-HS 2-slot, 3RU high-speed performance chassis bundle (940-0012)*. REQUIRES one or more SFP transceiver options: SFP-LX, or SFP-SX. *Note. IxN2X Stateful TCP, Video Server and Packet Personality are not supported on this load module.

**Timing Distribution Device**

**942-0030**

IxN2X Timing Distribution Module, standalone unit for Ixia XM2 (941-0023), XM12 (941-0009) and XGS12-SD (940-0011) chassis to connect and synchronize up to eight (8) XM chassis to one or a stack of IxN2X chassis: IxN2X 2-slot portable (971-0100), IxN2X 4-slot chassis (971-0101), RoHS compliant; Includes one RJ-11 to dual-RJ-11 cable, USB cable, power supply, and one IxN2X rack-to-rack chassis synchronization cable, 3 meter length (971-0104).

**System Switch**

**971-0402 8-port 10/100/1000 Switch**

IxN2X 8-port System Switch, 10/100/1000Mbps, required for use with XM12 (941-0009) chassis and XM2 (941-0023) chassis in conjunction with IxN2X N5540A 2-Slot Portable Chassis (971-0100), or IxN2X N5541A 4-Slot Chassis (971-0101) and IxN2X N5543E Laptop Controller (971-0200) or IxN2X N5545D Rackmount Controller (971-0202).

**971-0403 24-port 10/100/1000 Switch**

IxN2X 24-port System Switch, 10/100/1000Mbps, required for use with XM12 (941-0009) chassis and XM2 (941-0023) chassis in conjunction with IxN2X N5540A 2-Slot Portable Chassis (971-0100), or IxN2X N5541A 4-Slot Chassis (971-0101) and IxN2X N5543E Laptop Controller (971-0200) or IxN2X N5545D Rackmount Controller (971-0202).
Ixia Application Controller

941-0021 Ixia Application Controller

1UAPPCNTRL-01, 1U High Performance Application Controller, Multi-User, Includes Windows 2008 Server Standard Edition (64 bit) with 10 user Terminal Server License; 2.66Ghz Six Core Processor, 24GB RAM 500 GB SATA hard-drive, 2 LAN Ports (10/100/1000-Base-T); Simultaneous operation as IxN2X Controller and Ixia Application Server; For IxN2X application, may be used with the IxN2X N5540A 2-Slot Portable Chassis (971-0100), IxN2X N5541A 4-Slot Chassis (971-0101) or IxN2X N5542A 4-Slot Chassis w/BITS/MTS Clock Input (971-0102). Additional Terminal Server Licenses are available as a separately purchased item (943-0009)

SFP Transceiver options

SFP-LX
SFP Transceiver - 1310nm LX

SFP-SX
SFP Transceiver - 850nm SX