8 Optixia X16 Chassis

This chapter provides details about Optixia X16 chassis—its specifications and features.

The Optixia X16 Chassis has 16 slots for support of up to 16 single wide load modules. The Optixia X16 supports all high power load modules with enhanced power supplies and cooling. The Optixia X16 was specifically designed to allow the hot-swapping of modules, without requiring a restart of the chassis. The Optixia X16 is shown in *Figure 8-1*.

Caution: This equipment is intended to be installed and maintained by Service Personnel.

Figure 8-1. Optixia X16 Chassis

The Optixia family of chassis has improved data throughput between Load Modules and the chassis. Two methods of data throughput improvements is used: High Speed IxBus and Module to Module data transfer.

The Optixia chassis provides improved modularity of major components to reduce downtime of a failed chassis and reduce the probability of needing to remove a failed chassis from the test environment. Among the modular features provided are:

- Power supplies
- Motherboard and support components (RAM, Hard Drive)
- Backplane power control and interface

Each of the modular components is capable of being removed in the field and replaced with minimum downtime for the customer.

Note: In the event of indications of inadequate power, remove load modules starting from the low-number slots (slot 1, 2, 3), then working upward toward slot 16 until the problem is solved.

Warning: To prevent accidental injury to personnel, do not leave unused SFP (or SFP+) ports on load modules uncovered. When transceivers are not installed, end caps must be used. For details, see *Use End Caps on Open Ports* on page xxxvii.

Specifications

X16 Chassis

Optixia X16 computer and chassis specifications are contained in *Table 8-1*.

Table 8-1. Optixia X16 Specifications

CPU	Intel Pentium 4, 3.0 GHz
	**Caution-Battery replacement** There is danger of explosion if battery is incorrectly replaced. Do not attempt to replace the battery. Return to Ixia Customer Service for replacement with the same or equivalent type of battery. Ixia disposes of used batteries according to the battery manufacturer's instructions.
Memory	2 GB
Disk	80GB Sata Disk DVD Drive
Operating System	Windows XP Professional
Physical	
Load Module Slots	16
Size	17.5"w x 14.5"h x 20.5"d (44.5cm x 36.8cm x 52.1cm)
Weight (empty)	47lbs (21kg)
Avg. Shipping Wt.	51lbs (23kg)
Shipping Vibration	FED-STD-101C, Method 5019.1/5020.1
Environmental	
Temperature	
Operating	41°F to 104°F, (5°C to 40°C) **Note**: Some high-density/high performance load modules may require a lower operating temperature; if this is the case, the operating temperature is specified in the load module datasheet.
Storage	41°F to 122°F, (5°C to 50°C)
Humidity	
Operating	0% to 85%, non-condensing
Storage	0% to 85%, non-condensing
Clearance	Rear: 4 in (10 cm); fan openings should be clear of all cables or other obstructions. Sides: 2 in (5 cm) unless rack mounted.
Power	100-240V 60/50Hz 16-8A

Table 8-1. Optixia X16 Specifications

	Caution: The X16 unit requires the building installation to be fitted with a separate circuit fitted with a 20A circuit breaker.
	Caution: The socket/outlets used to power the unit must be installed near the equipment and be easily accessible because the power plug may be used to disconnect the unit from the power source.
	Caution: Replacement of the power supply cord must be conducted by a Service Person. The same type cord and plug configuration shall be utilized.
Front Panel Switches	On/Off momentary power push button
Front Panel Connectors	
Mouse	PS/2 6-pin DIN for external mouse
Keyboard	PS/2 6-pin DIN for external keyboard
Monitor	HD-DB15 Super VGA for external monitor
Printer	Female DB25 parallel port for external printer
Ethernet	RJ-45 10/100/1000Mbps Gigabit Ethernet Management Port
Serial	2 male DB9 ports
USB	4 USB dual type A, 4-pin jack connectors
Sync In	4-pin RJ11
Sync Out	4-pin RJ11
Line In/Line Out/Mic	3.5mm mini-TRS stereo jacks
Back Panel Switches/ Connectors	Power On/Off rocker switch
Power	Male receptacle (IEC 60320-C19)
Front Panel Indicators	See *LEDs/LCD Display* on page 5
	2 Paired LEDs above each slot position indicating Power and Active status
	LCD on front panel to display chassis information
XM2 Noise Spec(Fan db)	Condition:Ixia XM2 Front Back Right Left Plugged in not started 56 54 57 58 Only CPU Running On Low Speed 58 56 58 60 On Medium Speed- On Full Speed 70 67 70 73

LEDs/LCD Display

The Optixia X16 has the following set of front panel LEDs, for each load module slot:

Table 8-2. Optixia X16 LEDs

Label	Color	Description
Power	Green	For each load module slot, the Power LED is illuminated when the board is being powered. When the Power LED is flashing, the board is being detected or initialized.
In Use	Green	For each load module slot, the In Use LED is illuminated when a Load Module in a particular slot is owned by you.

LCD Display

An LCD display is provided on the chassis to indicate the status of the chassis without an external display device (monitor). The LCD operates in two modes:

- Startup: The LCD displays messages from IxServer to indicate the operation of IxServer as it initializes.
- Run: The LCD display provides chassis information. Information displayed includes chassis name, IxOS version, IP address, and chassis status.

Supported Modules

The modules that are supported on the Optixia X16 are listed in *Table 8-3*.

Table 8-3. Optixia X16 Supported Modules

Gigabit Ethernet TXS family	10/100/1000 Ethernet Load Modules
TXS8	10/100 Ethernet Load Module
ALM1000T8	Special 10/100/1000 Ethernet Load Module
CPM1000T8	Special 10/100/1000 Ethernet Load Module
ELM1000ST2	Special 10/100/1000 Ethernet Load Module
LM622MR	ATM/POS Load Module
LSM1000POE4-02	4-port PoE Load Module
2.5G MSM POS	OC-48c Load Module
10GE LSM	10 Gigabit Ethernet Load Module, including 10GE LSM MACSec
10G MSM	LAN/WAN/POS Multimode Load Module
PLM1000P4-PD	Power over Ethernet Load Module

Hot-Swap Procedure

Each Optixia X16 chassis provides the ability of removing and reinstalling a Load Module without requiring the removal of power from the rest of the chassis. The process of removing/installing a Load Module does not impact either the operation of the OS or load modules installed in the chassis.

The hot-swap procedure is detailed in Appendix D, *Hot-Swap Procedure*.

Installing Filler Panels

The airflow in an Optixia X16 chassis can be inefficient if high density load modules are installed in a few slots and the rest of the chassis is left open. For best cooling results, filler panels are required. It is required that filler panels are used in situations where the slots in the chassis are not all in use.

An empty Optixia X16 chassis includes:

- Three 4-slot wide X16 Filler Panel units (p/n 652-0118-01)
- Two 1-slot wide X16 Filler Panel units (p/n 652-0117-01)
- Screws for attaching the panel faceplates to the chassis

Prerequisites for Filler Panel Installation:

- The technician should use industry-standard grounding techniques, such as wrist and ankle grounding straps, to prevent damage to electronic components on any Ixia Load Modules.
- The chassis should be placed in a horizontal position, in a well-lighted work area.

Filler Panel Installation Procedure:

ESD Caution: Use industry-standard grounding techniques to prevent Electrostatic Damage to the delicate electronic components on the Ixia Load Modules.

1. To install a 4-slot filler panel:

   Example: Slide the 4-slot filler panel, with the Ixia logo at the top, into Slots 1 through 4. The panel slides in on the slot rails in the chassis. Secure the faceplate of the filler panel to the chassis with 4 of the supplied screws.

2. .To install a 1-slot filler panel:

   Example: Slide the 1-slot filler panel, with the Ixia logo at the top, into the correct slot. The panel slides in on the slot rails in the chassis. Secure the faceplate of the filler panel to the chassis with 2 of the supplied screws.

Caution: Use extreme care to prevent damage to delicate electronic components on an adjacent load module.

Not using filler panels could cause random failures in port operations or damage installed modules..

Rack Mount Cautions

Caution: If this unit is installed in a Rack Mount, observe the following precautions:

a: Elevated Operating Ambient Temperature: If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, consider installing the equipment in an environment that is compatible with the maximum allowable ambient temperature specified for the chassis (40° C).

b: Reduced Air Flow: Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not reduced. Do not block the back or sides of the chassis, and leave approximately two inches of space around the unit for proper ventilation.

c: Mechanical Loading: Mount the equipment in the rack so that a hazardous condition is not caused due to uneven mechanical loading.

d: Circuit Overloading: Consider the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Pay attention to equipment nameplate ratings when addressing this concern.

e: Reliable Earthing: Maintain reliable earthing (grounding) of rack-mounted equipment. Chassis frame should be screwed down to racks to ensure proper grounding path. In Addition, Pay special attention to supply connections other than direct connections to the branch circuit (such as use of power strips).

f: Replacement of the power supply cord must be conducted by a Service Person. The same type cord and plug configuration shall be utilized.