Lenovo Multi-Switch Interconnect Module for IBM BladeCenter Owner's Manual

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Owner's Manual

Figure 1. Multi-Switch Interconnect Module

Contents

Multi-Switch Interconnect Module for IBM BladeCenter

The Multi-Switch Interconnect Module (MSIM) for IBM BladeCenter is an innovative solution if you are looking to use additional standard form-factor switches in place of the high-speed switch bays in the BladeCenter H chassis. By using redundant MSIMs, you can deploy virtualization-ready solutions by providing up to eight Ethernet network interface cards (NICs) to each blade server in the chassis.
Figure 1 shows the MSIM.

Part number information

Table 1 shows the part number to order this card.
Table 1. The part number and feature code for ordering

Description	Part number	Feature code
Multi-Switch Interconnect Module for IBM BladeCenter	39Y9314	1465

The part number includes the following items:

- One Multi-Switch Interconnect Module for IBM BladeCenter
- Multi-Switch Interconnect Module Installation and User's Guide
- The documentation CD
- Safety information

Features

MSIM has the following features:

- Provides standard I/O module support in the high-speed switch bays of BladeCenter H
- Accommodates two standard I/O modules (Ethernet Switch Modules, Fibre Channel Switch
- Modules, or Pass-thru Modules), side by side
- Leverages the I/O design of BladeCenter H to provide increased connectivity to each blade

Operating environment

- The expansion card is supported in this environment:
- Temperature: 10° to 35°C (50° to 95°F)
- Relative humidity: 8% to 80%, non-condensing

Supported BladeCenter chassis

Table 2 lists the IBM BladeCenter chassis that supports the Multi-Switch Interconnect Module.
Table 2. IBM BladeCenter chassis that supports the Multi-Switch Interconnect Module

		Blade Ca nter S	Blade Ce nter E	Blader C enter H	Blade Ce nter T	Blader C enter HT
Multi-Switch Interconnect Module f or IBM BladeCenter	39Y9314	N	N	Y	N	N

The MSIM is a switch module container that converts a stacked pair of high-speed I/O bays into two tandard I/O bays. Figure 2 shows the MSIM being installed into bays 7 nd 8 of the BladeCenter H chassis.

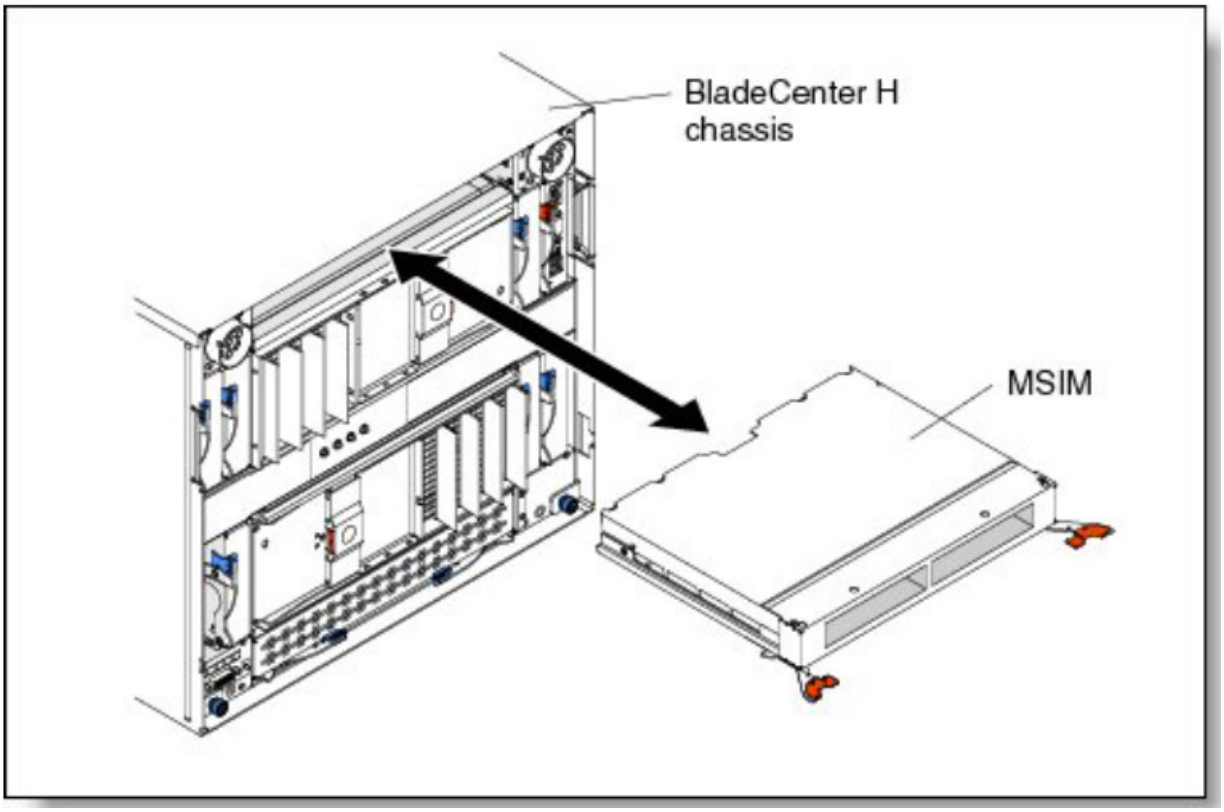

Figure 2. MSIM installed in bays 7 and 8 of the BladeCenter H chassis
Figure 3 shows how two MSIMs can be installed in BladeCenter H: one in the space of switch bays 7 and 8, and one in the space of switch bays 9 and 10. The MSIM accepts two supported standard switch modules and enables a blade server to have up to a total of eight network connections. To connect to the switch modules in the MSIM, a blade server must have a CFFh-type adapter installed.

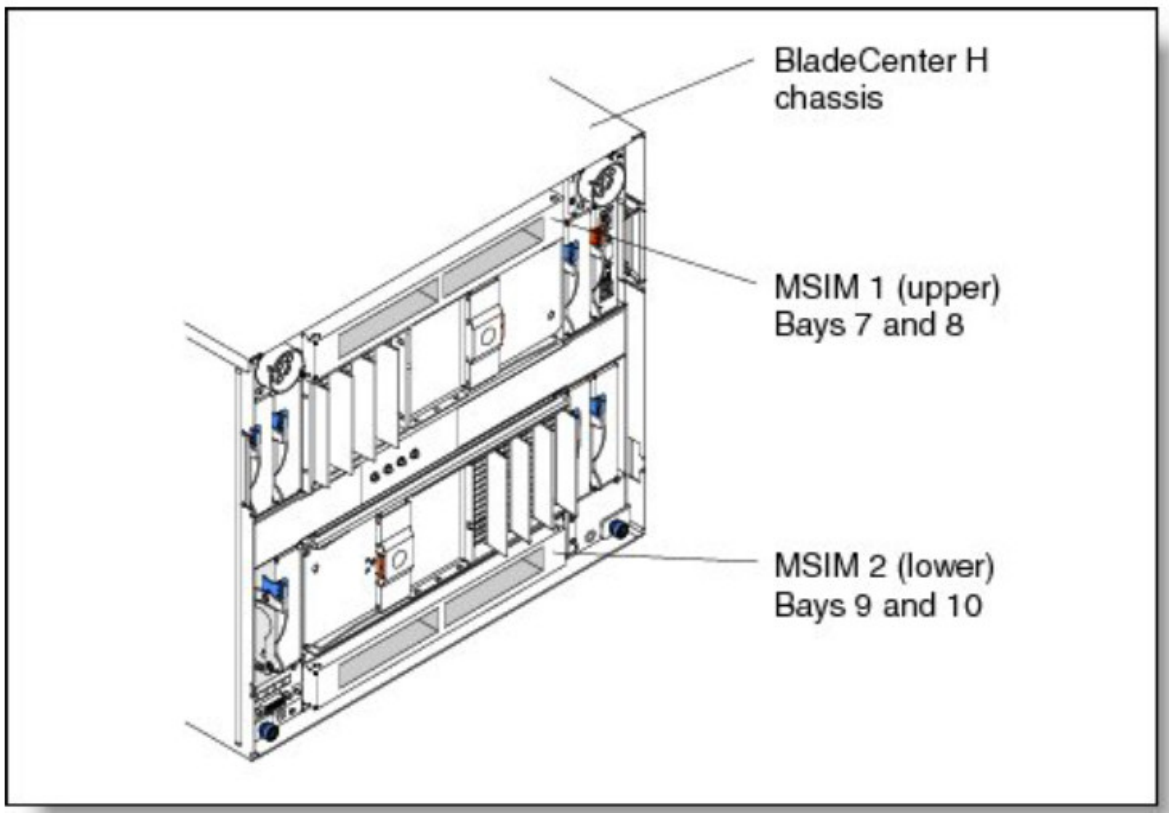

Figure 3. Two MSIMs installed in the BladeCenter H chassis

Supported expansion cards

To use the MSIM, each blade must have supported CFFh expansion cards installed. Table 3 lists the supported CFFh cards. Table 3. Expansion cards that can be used to connect to I/O modules in an MSIM

FCF expansion card	**Part number**	**Supported with MS IM**
2/4 Port Ethernet Expansion Card (CFFh)	44W4479	Supported
NetXen 10 Gb Ethernet Expansion Card (CFFh)	39Y9271	No
Broadcom 2-port 10 Gb Ethernet Expansion Card (CFFh)	44W4466	No
Broadcom 4-port 10 Gb Ethernet Expansion Card (CFFh)	44W4465	No
QLogic Ethernet and 4Gb Fibre Channel Expansion Card (CFFh)	39Y9306	Supported
QLogic Ethernet and 8Gb Fibre Channel Expansion Card CFFh)	44X1940	Supported
4X InfiniBand DDR Expansion Card	43W4423	No
Voltaire 4X InfiniBand DDR Expansion Card	43W4420	No
QLogic 2-port 10Gb Converged Network Adapter (CFFh)	42C1830	No
Emulex Virtual Fabric Adapter (CFFh)	49Y4235	No

The ports on the CFFh expansion cards in each server are hard-wired to specific bays in the switch modules in each MSIM. Table 4 lists the mapping of expansion card ports to the I/O bays of MSIMs.
Table 4. Mapping of expansion card ports to the I/O bays of MSIMs

Port number of the CFFh expa nsion card	Corresponding switch module bay in the MSIM
1	7 (upper left interconnect module bay)
2	8 (upper right interconnect module bay)
3	9 (lower left interconnect module bay)
4	10 (lower right interconnect module bay)

Supported I/O modules
Table 5 lists the supported standard form factor I/O modules and the MSIM bays in which they are supported. For each of the expansion cards that support the MSIM (see Table 3), the MSIM supports I/O modules in the left bay, the right bay, or both bays of the MSIM. Table 5 summarizes this support. Because the supported expansion cards are Ethernet or Fibre Channel only, no SAS or InfiniBand switch modules are supported in the MSIM.
Note the following explanation when viewing the table:

- Right means that the module is only supported in the rightmost I/O slot of the MSIM.
- Left means that the module is only supported in the leftmost I/O slot of the MSIM.
- Both means that the module is supported in both the rightmost and leftmost I/O slots.
- No means that the module is either not supported or not recommended for performance reasons (foexample,

mixing a 4 Gb FC with an 8 Gb FC).

Table 5. Supported standard form factor I/O modules and the MSIM bays in which they are supported (left bay, right bay, both bays) for each expansion card

		QL logic Eth + 4GB FC (39Y9306)	**QL logic Eth + 8 Gb FC (44x 1940)**	**2/4Port Ethernet (44W4479**)
Ethernet switch modules				
Cisco Intelligent Gb Ethernet Switch	32R1892	Left	Left	Both
Cisco Intelligent Gb Fiber Ethernet Switch	32R1888	Left	Left	Both
Cisco Catalyst Switch Module 3110G	41Y8523	Left	Left	Both
Cisco Catalyst Switch Module 3110X	41Y8522	Left	Left	Both
Cisco Catalyst Switch Module 3012	43W4395	Left	Left	Both
Server Connectivity Module	39Y9324	Left	Left	Both
BNT Layer 2-7 Gb Ethernet Switch	32R1859	No	No	No
BNT Layer 2/3 Copper Gb Ethernet Switch	32R1860	Left	Left	Both
BNT Layer 2/3 Fiber Gb Ethernet Switch	32R1861	Left	Left	Both
BNT 10Gb Uplink Ethernet Switch	32R1783	Left	Left	Both

		QL lofgic Eth +4Gvb FC (39Y9306)	QL logic Eth + 8GB FC (44×1940)	2/4 Port Ethernet (44W4479)
BNT 1/10 Gb Uplink ESM	44W4404	Left	Left	Both
Fibre Channel switch modules				
Brocade 20-port 4Gb SAN Switch	32R1813	Right	Right[1]	No
Brocade 10-port 4Gb SAN Switch	42C1828	Right[2]	Right	No
Brocade Enterprise 20-port 8Gb SAN Switch Mo	44X1920	Right[2]	Right	No
Brocade 20-port 8Gb SAN Switch Module	44X1921	Right[2]	Right	No
Brocade 10-port 8Gb SAN Switch Module	39Y9280	Right	Right[1]	No
Cisco 4Gb 20-port Fibre Channel Switch	39Y9284	Right	Right[1]	No
Cisco 4Gb 10-port Fibre Channel Switch	26R0881	Right	Right[1]	No
QLogic 20 port 4Gb Fibre Channel Switch	43W6725	Right	Right[1]	No
QLogic 20-port 4Gb SAN Switch Module	43W6724	Right	Right[1]	No
QLogic 10-port 4Gb SAN Switch Module	43W6723	Right	Right[1]	No
QLogic 4Gb Intelligent Pass-thru Module	44X1905	Right[2]	Right	No
QLogic 20-port 8Gb SAN Switch Module	44X1907	Right[2]	Right	No

Table 5 (continued). Supported I/O modules and the MSIM bays they are supported in (left bay, right bay, both bays) for each expansion card.

Optical Pass-thru Module	39Y9316	Both	Both[3]	Both
Copper Pass-thru Module	39Y9320	Left	Left	Both
Intelligent Copper Pass-thru Module	44W4483	Left	Left	Both
QLogic 4Gb Intelligent Pass-thru Module	43W6723	Righ	Right[1]	No
QLogic 8Gb Intelligent Pass-thru Module	44X1907	Righ	Right	No

Notes:

1. When this 4Gb I/O module is used with the QLogic Ethernet and 8Gb Fibre Channel Expansion Card (CFFh), the card operates only at 4 Gbps.
2. When this 8Gb I/O module is used with the QLogic Ethernet and 4Gb Fibre Channel Expansion Card (CFFh), the module operates only at 4 Gbps.
3. When the Optical Pass-thru Module is installed in the right-hand MSIM bay (for use with a Fibre Channel expansion card), the Optical Pass-thru Module only operates at 2 Gbps. This is a limitation of the OPM.

Popular configurations

This section illustrates how the MSIM can be used in BladeCenter H configurations to add four extra ports to each server in the chassis.

Eight Ethernet ports per server

With the MSIM, it is possible to supply eight Ethernet ports to every BladeCenter server installed in the BladeCenter H chassis, as shown in Figure 4. In this configuration, each BladeCenter server has both a 2/4 Port Ethernet Expansion Card (CFFh) expansion card plus an Ethernet expansion card (CFFv or CIOv form factor, depending on the model of the server). Eight Ethernet switch modules are installed in the BladeCenter H chassis, four of them in MSMEs. All connections between the cards and the switch modules are internal to the chassis. No extra cabling is needed.

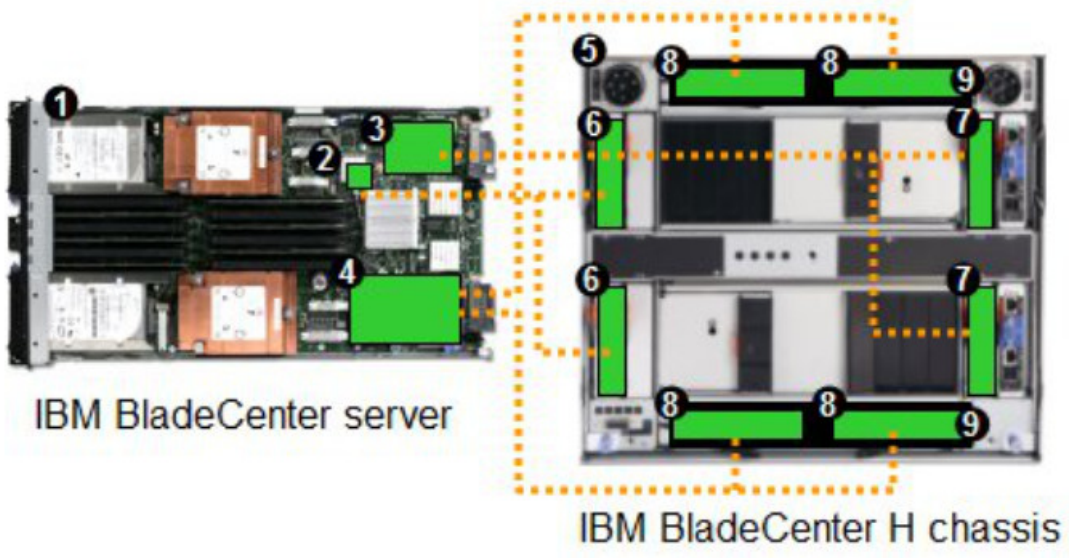

Figure 4. Using two MSIMs and eight Ethernet Switch Modules to route eight Ethernet ports per server

Table 6 lists the components that are used in the eight-Ethernet-ports-per-server configuration shown in Figure 4.

Table 6. Components used in the eight-ports-per-server configuration

Diagram	Part number /machine type	Description	Quantity
1	Varies	IBM BladeCenter HS22 or another server that supports CFFh cards	1 to 14
2	None	IBM BladeCenter HS22 or other servers that server	1 per server
3	Varies	Ethernet CFFv or CIOv expansion card	1 per server
4	44W4479	2/4 Port Ethernet Expansion Card (CFFh)	1 per server
5	8852	BladeCenter H chassis	1
6	Varies	Support Ethernet Switch Modules routing signals from the integrated controller (see Table 5)	2
7	Varies	Supported Ethernet Switch Modules routing signals from the CFFv or CIOv card (see Table 5)	2
8	Varies	Supported Ethernet Switch Modules routing signal from the CFFh card (see Table 5)	4
9	39Y9314	Multi-Switch Interconnect Module	2

Related publications

For more information, see the following resources:
Multi-Switch Interconnect Module Installation and User Guide: http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5070476
IBM US Announcement Letter for the Multi-Switch Interconnect Module:
http://ibm.com/common/ssi/cgi-bin/ssialias? nfotype=dd&subtype=ca&&htmlfid=897/ENUS107-088
IBM BladeCenter Interoperability Guide:
http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5073016
IBM Redbooks publication IBM BladeCenter Products and Technology, SG24-7523:
http://www.redbooks.ibm.com/abstracts/sg247523.html
Multi-Switch Interconnect Module Installation and User Guide:
http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5070476
IBM US Announcement Letter for the Multi-Switch Interconnect Module:
http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS107-088
IBM BladeCenter Interoperability Guide:
http://www.ibm.com/support/docview.wss?uid=psg1MIGR-5073016
IBM Redbooks publication IBM BladeCenter Products and Technology, SG24-7523:
http://www.redbooks.ibm.com/abstracts/sg247523.html
Related product families
Product families related to this document are the following: Blade Chassis

Notices

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Documents / Resources

	Lenovo Multi-Switch Interconnect Module for IBM BladeCenter [pdf] Owner's Manual Multi-Switch Interconnect Module, Interconnect Module, Multi-Switch Interconnect Module for I BM BladeCenter

References

- IBM BladeCenter Products and Technology
- Blade Chassis > Lenovo Press
- Multi-Switch Interconnect Module for IBM BladeCenter Product Guide (withdrawn product) > Lenovo Press
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