

IBM Flex System FC3172 2-port 8Gb FC Adapter

IBM Redbooks Product Guide

The IBM Flex System™ FC3172 2-port 8Gb FC Adapter enables high-speed access for IBM Flex System compute nodes to connect to a Fibre Channel storage area network (SAN). This adapter is based on the proven QLogic 2532 8Gb ASIC design and works with the 8 Gb and 16 Gb IBM Flex System Fibre Channel switches and pass-thru modules.

Figure 1 shows the IBM Flex System FC3172 2-port 8Gb FC Adapter.



Figure 1. IBM Flex System FC3172 2-port 8Gb FC Adapter

Did you know?

The performance bottleneck with Fibre Channel storage typically exists in the switching. By moving to 8 Gb adapters and switches, you can optimize the bottleneck to the storage controller, where it can be managed by expanding the disks attached to storage. When compared to the previous-generation 4 Gb adapters, the new-generation 8 Gb adapters double the throughput speeds for Fibre Channel traffic. As a result, you can manage increased amounts of data and possibly benefit from a reduced hardware expense.

The adapter connects to the midplane directly, without having to use cables or small form-factor pluggable (SFP) modules. By eliminating these components for up to 14 servers, the resulting savings alone can cover the investment in the chassis.

Part number information

Table 1 shows the part number to order this card.

Table 1. Part number and feature code for ordering

Description	Part number	Feature code (x-config)	Feature ocde (e-config)
IBM Flex System FC3172 2-port 8Gb FC Adapter	69Y1938	A1BM	1764

* The first feature code listed is for configurations available through the System x sales channel. The second feature code listed is for configurations available through the Power Systems sales channel.

The part number includes the following items:

- One IBM Flex System FC3172 2-port 8Gb FC Adapter
- A documentation CD containing the adapter user's guide
- The *IBM@ Important Notices* document

Features

The IBM Flex System FC3172 2-port 8Gb FC Adapter has the following features and specifications:

- QLogic ISP2532 controller
- PCI Express 2.0 x4 host interface
- Bandwidth: 8 Gb per second maximum at half-duplex and 16 Gb per second maximum at full-duplex per port
- 8/4/2 Gbps auto-negotiation
- Support for FCP SCSI initiator and target operation
- Support for NPIV
- Support for full-duplex operation
- Support for Fibre Channel protocol SCSI (FCP-SCSI) and Fibre Channel Internet protocol (FCP-IP)
- Support for point-to-point fabric connection (F-port fabric login)
- Support for Fibre Channel Arbitrated Loop (FCAL) public loop profile: Fibre Loop-(FL-Port)-Port Login
- Support for Fibre Channel services class 2 and 3
- Configuration and boot support in UEFI
- APIs supported: SNIA HBA API V2, SMI-S, FDMI
- Support for IBM Fabric Manager
- Power usage: 3.7 W typical
- RoHS 6 compliant

Supported servers

The following table lists the IBM Flex System compute nodes that support the FC3172 2-port 8Gb FC Adapter.

Table 2. Supported servers

Description	Part number	x220	x240	x440	p24L	p260	p460
IBM Flex System FC3172 2-port 8Gb FC Adapter	69Y1938	Yes	Yes	Yes	Yes	Yes	Yes

See IBM ServerProven at the following web address for the latest information about the expansion cards that are supported by each blade server type:

<http://ibm.com/servers/eserver/serverproven/compat/us/>

I/O adapter cards are installed in the slot in supported servers, such as the x240, as highlighted in the following figure.

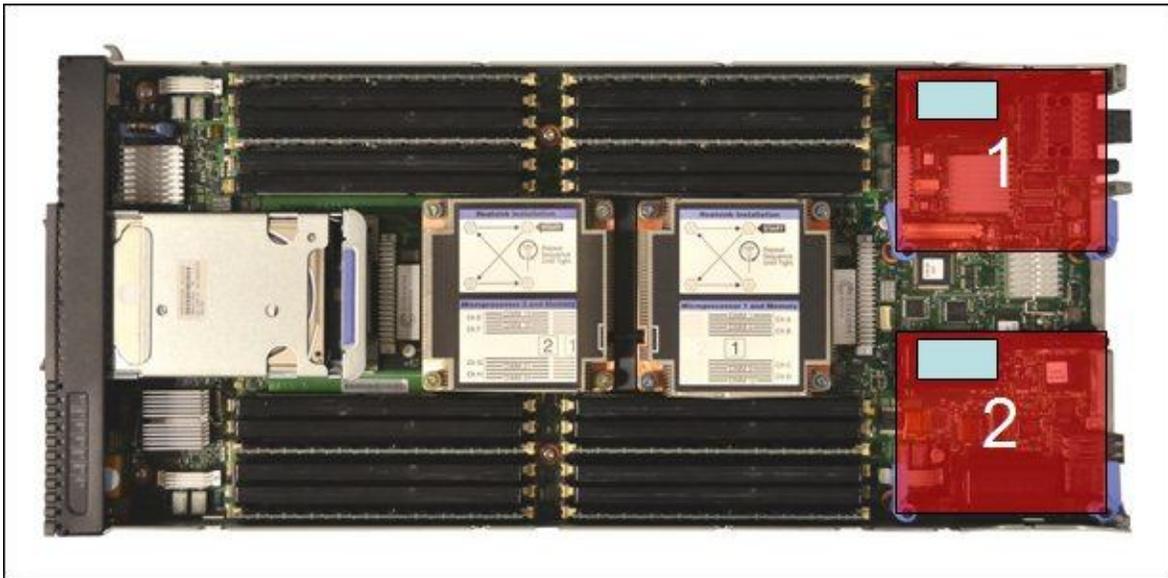


Figure 2. Location of the I/O adapter slots in the IBM Flex System x240 Compute Node

Supported I/O modules

The FC3172 2-port 8Gb FC Adapter supports the I/O module listed in the following table. One or two compatible switches must be installed in the corresponding I/O bays in the chassis. Installing two switches means that both ports of the adapter are enabled. When the adapter paired with a 16Gb switch, those switch ports will operate at 8 Gbps.

Table 3. I/O modules supported with the FC3172 2-port 8Gb FC Adapter

Description	Part number	Support the FC3172 adapter
IBM Flex System FC3171 8Gb SAN Switch	69Y1930	Yes
IBM Flex System FC3171 8Gb SAN Pass-thru	69Y1934	Yes
IBM Flex System FC5022 16Gb SAN Scalable Switch	88Y6374	Yes
IBM Flex System FC5022 24-port 16Gb SAN Scalable Switch	00Y3324	Yes
IBM Flex System FC5022 24-port 16Gb ESB SAN Scalable Switch	90Y9356	Yes

The following table shows the connections between adapters installed in the compute nodes to the switch bays in the chassis.

Table 4. Adapter to I/O bay correspondence

I/O adapter slot in the server	Port on the adapter	Corresponding I/O module bay in the chassis
Slot 1	Port 1	Module bay 1
	Port 2	Module bay 2
Slot 2	Port 1	Module bay 3
	Port 2	Module bay 4
Slot 3 (full-wide compute nodes only)	Port 1	Module bay 1
	Port 2	Module bay 2
Slot 4 (full-wide compute nodes only)	Port 1	Module bay 3
	Port 2	Module bay 4

The connections between the adapters installed in the compute nodes to the switch bays in the chassis is shown diagrammatically in the following figure.

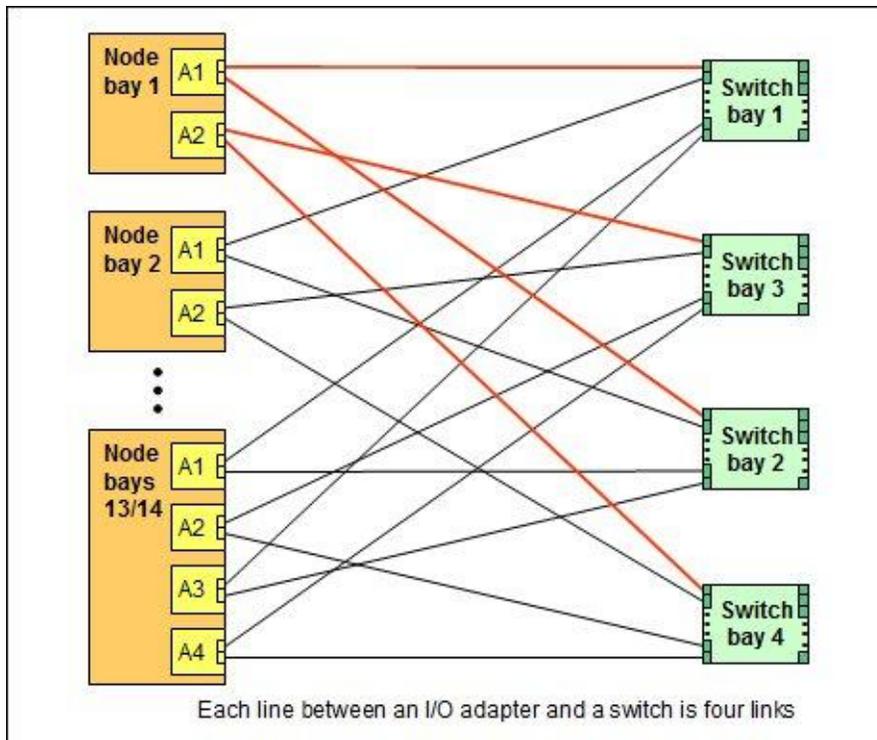


Figure 3. Logical layout of the interconnects between I/O adapters and I/O modules

Supported operating systems

The FC3172 2-port 8Gb FC Adapter supports the following operating systems on the x86 compute nodes:

- Microsoft Windows Server 2008 HPC Edition
- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Red Hat Enterprise Linux 6 Server x64 Edition
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- VMware ESX 4.1
- VMware ESXi 4.1
- VMware vSphere 5
- VMware vSphere 5.1

The FC3172 2-port 8Gb FC Adapter supports the following operating systems on the Power Systems compute nodes:

- AIX 5.3 with the 5300-12 Technology Level with Service Pack 5
- AIX 6.1 with the 6100-05 Technology Level and Service Pack 7
- AIX 6.1 with the 6100-06 Technology Level and Service Pack 6
- AIX 6.1 with the 6100-07 Technology Level
- AIX 7.1 with the 7100-00 Technology Level and Service Pack 4
- AIX 7.1 with the 7100-01 Technology Level
- IBM i 6.1 with i 6.1.1 machine code
- IBM i 7.1 TR3
- Virtual I/O Server 2.2.1
- Red Hat RHEL 5 U8 for POWER
- Red Hat RHEL 6 U1 for POWER
- SUSE Linux Enterprise Server 11 Service Pack (SP) 2 for POWER

See IBM ServerProven website for the latest information about the specific versions and service packs that are supported:

<http://ibm.com/servers/eserver/serverproven/compat/us/>

Regulatory compliance

The adapter conforms to the following standards:

- United States FCC 47 CFR Part 15, Subpart B, ANSI C63.4 (2003), Class A
- United States UL 60950-1, Second Edition
- IEC/EN 60950-1, Second Edition
- FCC - Verified to comply with Part 15 of the FCC Rules, Class A
- Canada ICES-003, issue 4, Class A
- UL/IEC 60950-1
- CSA C22.2 No. 60950-1-03
- Japan VCCI, Class A
- Australia/New Zealand AS/NZS CISPR 22:2006, Class A
- IEC 60950-1(CB Certificate and CB Test Report)
- Taiwan BSMI CNS13438, Class A
- Korea KN22, Class A; KN24
- Russia/GOST ME01, IEC-60950-1, GOST R 51318.22-99, GOST R 51318.24-99, GOST R 51317.3.2-2006, GOST R 51317.3.3-99
- IEC 60950-1 (CB Certificate and CB Test Report)
- CE Mark (EN55022 Class A, EN60950-1, EN55024, EN61000-3-2, EN61000-3-3)
- CISPR 22, Class A

Physical specifications

The dimensions and weight of the adapter are as follows:

- Width: 100 mm (3.9 inches)
- Depth: 80 mm (3.1 inches)
- Weight: 13 g (0.3 lb)

Shipping dimensions and weight (approximate):

- Height: 58 mm (2.3 in)
- Width: 229 mm (9.0 in)
- Depth: 208 mm (8.2 in)
- Weight: 0.4 kg (0.89 lb)

Popular configurations

The FC3172 2-port 8Gb FC Adapter can be used in various configurations. The following figure shows the I/O installed in an I/O adapter slot 2 of the x240, which in turn is installed in the chassis. The chassis is connected to an IBM System Storage V7000. The RAID functionality is provided by the external storage system.

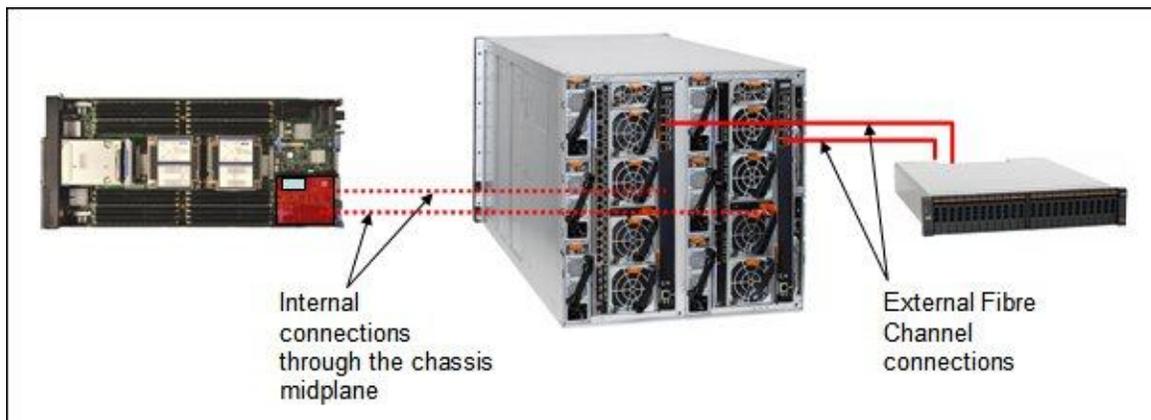


Figure 4. Example configuration

The following table lists the parts that are used in the configuration.

Table 5. Components used when connecting the FC3172 2-port 8Gb FC Adapter to external disk storage

Part number/machine type	Description	Quantity
8737	IBM Flex System x240 Compute Node or other supported server	1 to 14
69Y1938	FC3172 2-port 8Gb FC Adapter	1 per server
8721-A1x	IBM Flex System Enterprise Chassis	1
69Y1930	IBM Flex System FC3171 8Gb SAN Switch	1 or 2
44X1964	IBM 8Gb SFP+ SW Optical Transceiver	1 per FC cable
39M5698	IBM 1m LC-LC Fiber Channel Cable	1 for each V7000 connection
2076-124	IBM System Storage V7000	1

This configuration also requires additional V7000 features, such as drives and software licenses. These are not listed in the table.

Related publications

For more information, see the following resources:

- *IBM Flex System FC3171 8Gb SAN Switch and Pass-thru Product Guide*
<http://www.redbooks.ibm.com/abstracts/tips0866.html>
- *IBM Flex System FC5022 16Gb SAN Scalable Switch Product Guide*
<http://www.redbooks.ibm.com/abstracts/tips0870.html>
- IBM Flex System x240 Compute Node Product Guide
<http://www.redbooks.ibm.com/abstracts/tips0860.html>
- IBM Flex System p260 and p460 Compute Node Product Guide
<http://www.redbooks.ibm.com/abstracts/tips0880.html>
- *FC3172 2-port 8Gb FC Adapter Installation and User Guide*
<http://www.ibm.com/support>
- *IBM Flex System Interoperability Guide*
<http://www.ibm.com/support>
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