

Flex System FC5172 2-port 16Gb FC Adapter Product Guide (withdrawn product)

The Flex System FC5172 2-port 16Gb FC Adapter enables high-speed access for Flex System compute nodes to connect to a Fibre Channel storage area network (SAN). This adapter is based on the proven QLogic 16Gb ASIC design and works with the 8 Gb and 16 Gb Flex System Fibre Channel switches and pass-thru modules.

The following figure shows the Flex System FC5172 2-port 16Gb FC Adapter.



Figure 1. Flex System FC5172 2-port 16Gb FC Adapter

Did you know?

These QLogic adapter supports nearly twice the throughput and 2.5 times the I/O operations per second (IOPS) per port compared to 8 Gb adapters. The adapter is ideal for high bandwidth and I/O-intensive applications, such as media streaming, backup/recovery, data warehousing, OLTP, Microsoft Exchange Server, and server virtualization. Through rigorous testing carried out using the ServerProven program, you can maintain a high degree of confidence that your storage subsystem is compatible and functions reliably when using this Flex System adapter.

Part number information

The following table shows the part number to order the adapter.

Table 1. Part number and feature code for ordering

Part number	Feature code	Description
69Y1942	A1BQ	Flex System FC5172 2-port 16Gb FC Adapter

The part number includes the following items:

- One Flex System adapter
- Adapter documentation

Features

The Flex System FC5172 2-port 16Gb FC Adapter has the following features and specifications:

- Single QLogic ISP8324 ASIC
- Port architecture that offers independent functionality on each port (independent CPU, isolated memory, and independent firmware image), which provides higher reliability and predictable performance.
- Support for Message Signaled Interrupts eXtended (MSI-X) improves host usage and enhances application performance.
- Support for 16 Gb, 8 Gb, and 4 Gb FC devices.
- Full hardware offload for Fibre Channel protocol.
- Bandwidth: 16 Gb per second maximum at half-duplex and 32 Gb per second maximum at full-duplex per port.
- Comprehensive virtualization capabilities with support for N_Port ID Virtualization (NPIV) with 2048 N_Port IDs per port.
- Support for FCP SCSI initiator and target operation.
- Support for Host-to-fabric Fibre Channel Security Protocol (FC-SP) authentication.
- 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 (FC-AL) public loop profile: Fibre Loop-(FL-Port)-Port Login.
- Support for Fibre Channel services class 2 and 3.
- Configuration and boot support in UEFI.
- A common driver model allows a single driver to support all QLogic HBAs on a given operating system.
- Universal boot capability allows the appropriate boot environment to be automatically selected for any given hardware.
- Boot from SAN capability reduces the system management costs and increases uptime.
- Power usage: 16 W approximately.
- RoHS 6 compliant.

Technical specifications

The adapter has the following specifications:

- Host interface: PCI Express 3.0 x4
- Dual-port adapter
- Support for 16 Gb, 8 Gb, and 4 Gb FC link speeds, which are automatically negotiated
- Data rate: 14.025 Gbps (1600 MBps), 8.5 Gbps (800 MBps), and 4.25 Gbps (400 MBps) autosensing (per port), with full duplex
- Performance: Over 1,200,000 IOPS per adapter (two ports)
- Throughput: 3,200 MB per port, full-duplex
- 2048 concurrent logins
- 2048 N_Port IDs (NPIV) per port
- Industry standards:
 - Current ANSI/IEEE standards: FC-PI-4, FC-PI-5, FC-FS-2 with amendment 1, FC-AL-2 with amendments 1 and 2, FC-LS-2, FC-GS-6, FC-DA, FC-SP-2, FCP-4, FC-MJS, FC-SB-4, FC-SP, SPC-4, SBC-3, SSC-3, and RFC4338.
 - Legacy ANSI/IEEE standards: FC-PH, FC-PH-2, FC-PH-3, FC-PI, FC-PI-2, FC-FS, FC-AL, FC-GS-2/3/4/5, FCP, FCP-2, FC-SB-2, FC-FLA, FC-HBA, FC-PLDA, FC-TAPE, FC-MI, SPC-3, SBC-2, SSC-2, and RFC2625.
- Topology: Point-to-point and switched fabric
- Supported media: 16 Gbps Fibre Channel LC SFP+ short wave optical transceivers (850 nm), hot-pluggable
- Management software:
 - The QLogic QConvergeConsole (QCC) management software delivers a unified web-based single-pane-of-glass management console across the QLogic family of storage and networking adapters. A graphical user interface (GUI) or command-line interface (CLI) are available. A VMware vCenter plug-in is also available.
 - Common IT tasks, such as VLAN configuration and teaming, can be easily accomplished either through the QConvergeConsole or through native OS tools, minimizing IT training and deployment costs.
 - Role-based authentication allows for separate logins and access for SAN and LAN administrators. This eliminates the need to change your organizational structure as you converge your network.

Supported servers

The following table lists the compute nodes that support the adapter.

Table 2. Supported servers

Part number	Description	x220 (7906)	x222 (7916)	x240 (8737, E5-2600)	x240 (8737, E5-2600 v2)	x240 (7162)	x240 M5 (9532)	x440 (7917)	x440 (7167)	x880/x480/x280 X6 (7903)	x280/x480/x880 X6 (7196)	SN550 (7X16)	SN850 (7X15)
Flex System FC5172 2-port 16Gb FC Adapter	69Y1942	Y	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N

For the latest information about the expansion cards that are supported by each blade server type, see ServerProven at the following web address:

<http://www.lenovo.com/us/en/serverproven/flexsystem.shtml>

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

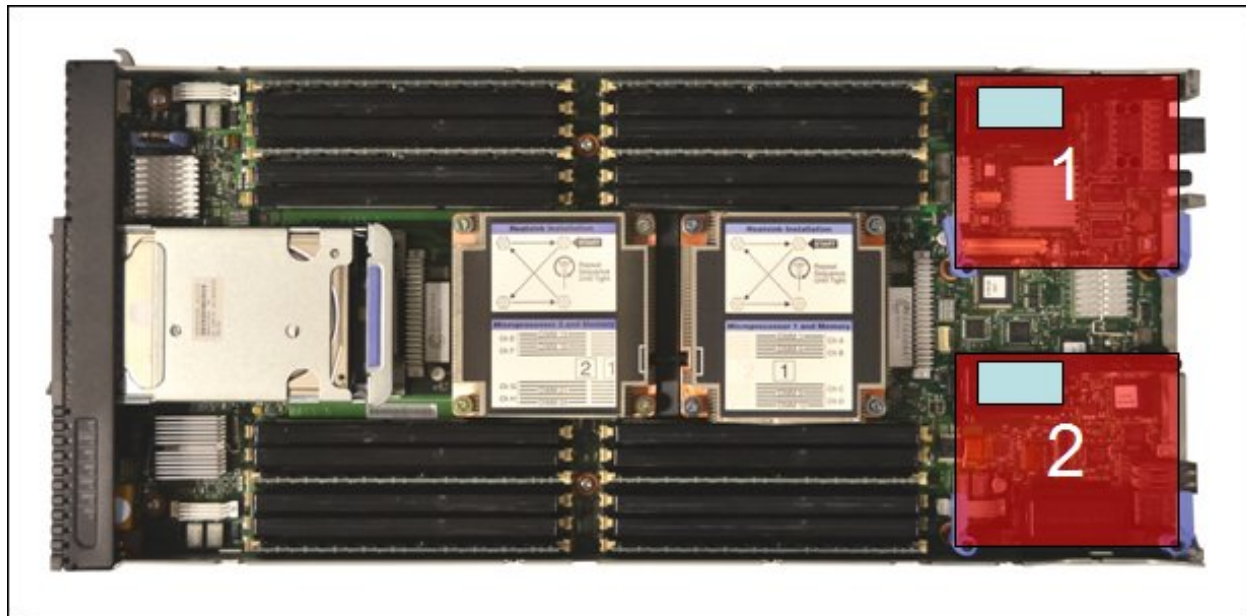


Figure 2. Location of the I/O adapter slots in the Flex System x240 Compute Node

Supported I/O modules

The adapters support the I/O module that is 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 and connected to switch ports.

Table 3. I/O modules that are supported by the FC5172 2-port 16Gb FC Adapter

Part number	Description	Supports the FC5172 adapter
69Y1930	Flex System FC3171 8Gb SAN Switch	Yes
69Y1934	Flex System FC3171 8Gb SAN Pass-thru	Yes
88Y6374	Flex System FC5022 16Gb SAN Scalable Switch	Yes
00Y3324	Flex System FC5022 24-port 16Gb SAN Scalable Switch	Yes
90Y9356	Flex System FC5022 24-port 16Gb ESB SAN Scalable Switch	Yes

The following table shows the connections between adapters that are 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 (x440 only)	Port 1	Module bay 1
	Port 2	Module bay 2
Slot 4 (x440 only)	Port 1	Module bay 3
	Port 2	Module bay 4

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

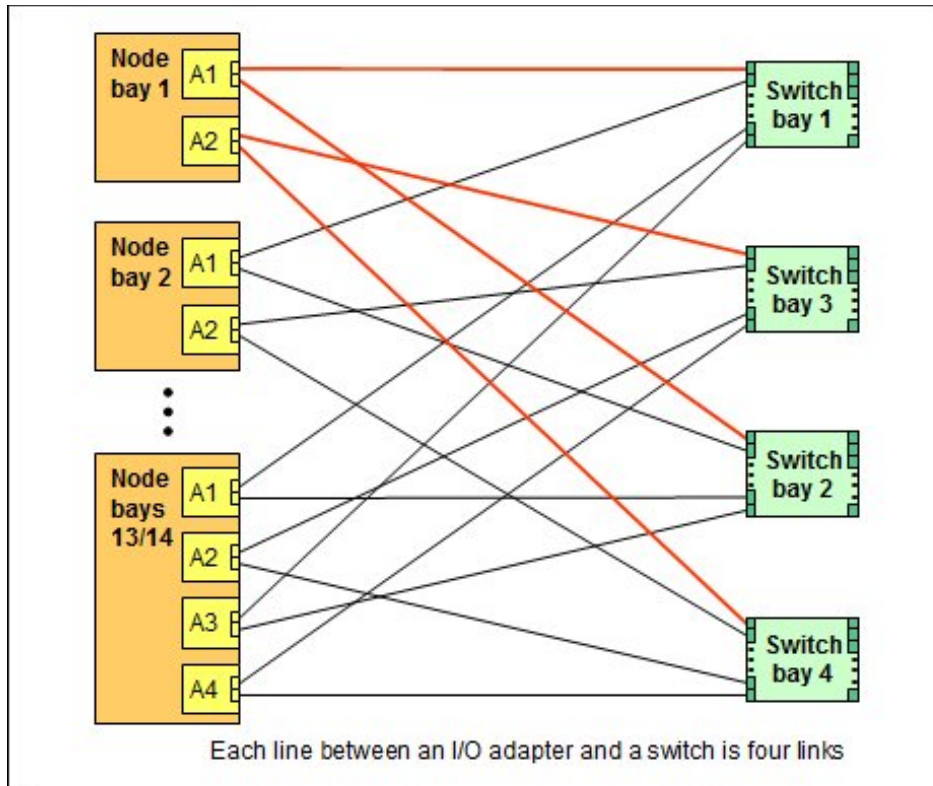


Figure 3. Logical layout of the interconnects between I/O adapters and I/O modules

Supported operating systems

The FC5172 2-port 16Gb FC Adapter supports the following operating systems:

- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2016
- Microsoft Windows Server version 1709
- Red Hat Enterprise Linux 6 Server x64 Edition
- Red Hat Enterprise Linux 71
- SUSE Linux Enterprise Server 11 for AMD64/EM64T
- SUSE Linux Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE Linux Enterprise Server 12
- SUSE Linux Enterprise Server 15
- SUSE Linux Enterprise Server 15 with Xen
- VMware vSphere 5.1 (ESXi)
- VMware vSphere Hypervisor (ESXi) 5.5
- VMware vSphere Hypervisor (ESXi) 6.0
- VMware vSphere Hypervisor (ESXi) 6.5
- VMware vSphere Hypervisor (ESXi) 6.7

For the latest information about the specific versions and service packs that are supported, see Lenovo ServerProven at <http://www.lenovo.com/us/en/serverproven/>

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, and 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, and EN61000-3-3)
- CISPR 22, Class A

Physical specifications

The dimensions and weight of the adapter is as follows:

- Width: 100 mm (3.9 in.)
- Depth: 80 mm (3.1 in.)
- 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)

Related publications

For more information, see the following resources:

- Flex System Information Center (User's Guides for servers and options)
<http://flexsystem.lenovofiles.com/help/index.jsp>
- QLogic home page for Lenovo products
<http://www.qlogic.com/go/lenovo>
- *Flex System Interoperability Guide*
<http://lenovopress.com/fsig>
- *Lenovo Flex System Products and Technology*
<http://lenovopress.com/sg248255>
- ServerProven for Flex System
<http://www.lenovo.com/us/en/serverproven/flexsystem.shtml>

Related product families

Product families related to this document are the following:

- [Blade Storage Adapters](#)

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