



QLogic 4Gb Fibre Channel Expansion Card (CFFv) for IBM BladeCenter

IBM Redbooks Product Guide

The QLogic 4Gb Fibre Channel Expansion Card (CFFv) for IBM BladeCenter enables you to quickly and simply connect the BladeCenter servers with CFFv expansion slots to a Fibre Channel storage area network (SAN). Simply pick any Fibre Channel storage solution from the IBM System Storage DS3000, DS4000, DS5000, or DS8000 series, and begin accessing data over a high-speed interconnect.

This card is installed into the PCI-X CFFv slot of a supported blade server. It provides connections to Fibre Channel-compatible modules located in bays 3 and 4 of a supported BladeCenter chassis. A maximum of one QLogic 4Gb Fibre Channel Expansion Card (CFFv) is supported per single-wide (30 mm) blade server.

The QLogic 4Gb Fibre Channel Expansion Card (CFFv) is shown in Figure 1.



Figure 1. QLogic 4Gb Fibre Channel Expansion Card (CFFv)

Did you know?

The adapter connects to the midplane directly, without having to use cables or SFP modules. By eliminating these components for up to 14 servers, the resulting savings alone cover the BladeCenter chassis investment.

When using the CFFv adapter, you can simultaneously use a CFFh adapter to enable more types of I/O to supported blade servers such as the HS21 when installed in the IBM BladeCenter H chassis. The innovative design of the CFFv adapter works with the CFFh adapter to support this combination.

Part number information

The part number to order this card is shown in Table 1.

Table 1. Ordering part number and feature code

Description	Part number	Feature code
QLogic 4Gb Fibre Channel Expansion Card (CFFv)	00Y3276	A3JD
QLogic 4Gb Fibre Channel Expansion Card (CFFv) for IBM BladeCenter*	41Y8527*	2970*

* Part number 41Y8527 was withdrawn in November 2012, and was rereleased as the new part number, 00Y3276.

The part number includes the following items:

- One QLogic 4Gb Fibre Channel Expansion Card (CFFv) for IBM BladeCenter
- The Documentation CD that contains the *QLogic 4Gb Fibre Channel Expansion Card (CFFv) for IBM BladeCenter Installation and User's Guide*
- The *IBM Important Notices* document

Features

The QLogic 4Gb Fibre Channel Expansion Card (CFFv) has the following features:

- CFFv form factor
- PCI-X host interface, 64-bit, 100 MHz bus-master direct memory access (DMA) data transfers up to 800 MBps
- Support for two full-duplex Fibre Channel ports at 4 Gbps maximum per channel
- Support for Fibre Channel Protocol SCSI (FCP-SCSI) and Fibre Channel Internet Protocol (FC-IP)
- Support for Fibre Channel service (class 2 and class 3)
- Support for switched fabric, point-to-point, and Fibre Channel Arbitrated Loop (FC-AL) connections
- Configuration and boot support in Basic Input/Output System (BIOS) (Fast!UTIL via Ctrl+Q)

Each BladeCenter server provides redundant connections to data and storage networks. Clients can configure their blade servers with dual port host bus adapters and be assured that they will always have a connection to their SAN via BladeCenter's high-availability midplane. Through integration, BladeCenter eliminates the fiber cables from the server to the switch. This not only reduces the opportunity for misconfiguration, it lowers the expense for cables and optical transceivers (SFPs), and reduces potential points of failure, while increasing network availability.

Operating environment

The expansion card is supported in this environment:

- Temperature:
 - Operating: 0° to 45°C (32° to 113°F) at 0 to 914 m (0 to 3,000 ft)
 - Storage: -40° to 70°C (-40° to 158°F) at 914 m to 2,133 (3,000 to 7,000 ft)
- Relative humidity: 5% to 95% (noncondensing)

Supported servers and I/O modules

The QLogic 4Gb Fibre Channel Expansion Card (CFFv) is supported in the IBM BladeCenter servers listed in Table 2.

Table 2. Supported servers

Expansion card	Part number	HS12	HS21	HS21 XM	HS22	HS22V	HX5	LS21	LS22	LS41	LS42	JS12	JS21	JS22	JS23/JS43	PS700/1/2
QLogic 4Gb FC Expansion Card (CFFv)	41Y8527	Y	Y	Y	N	N	N	Y	Y	Y	Y	Y	Y	Y	N	N

The QLogic 4Gb Fibre Channel Expansion Card (CFFv) is also supported in an expansion blade when the blade server supports both the expansion card and that particular expansion blade.

See IBM ServerProven for the latest information about the expansion cards supported by each blade server type: <http://ibm.com/servers/eserver/serverproven/compat/us/>.

Figure 2 shows where the CFFv card is installed in a BladeCenter server.

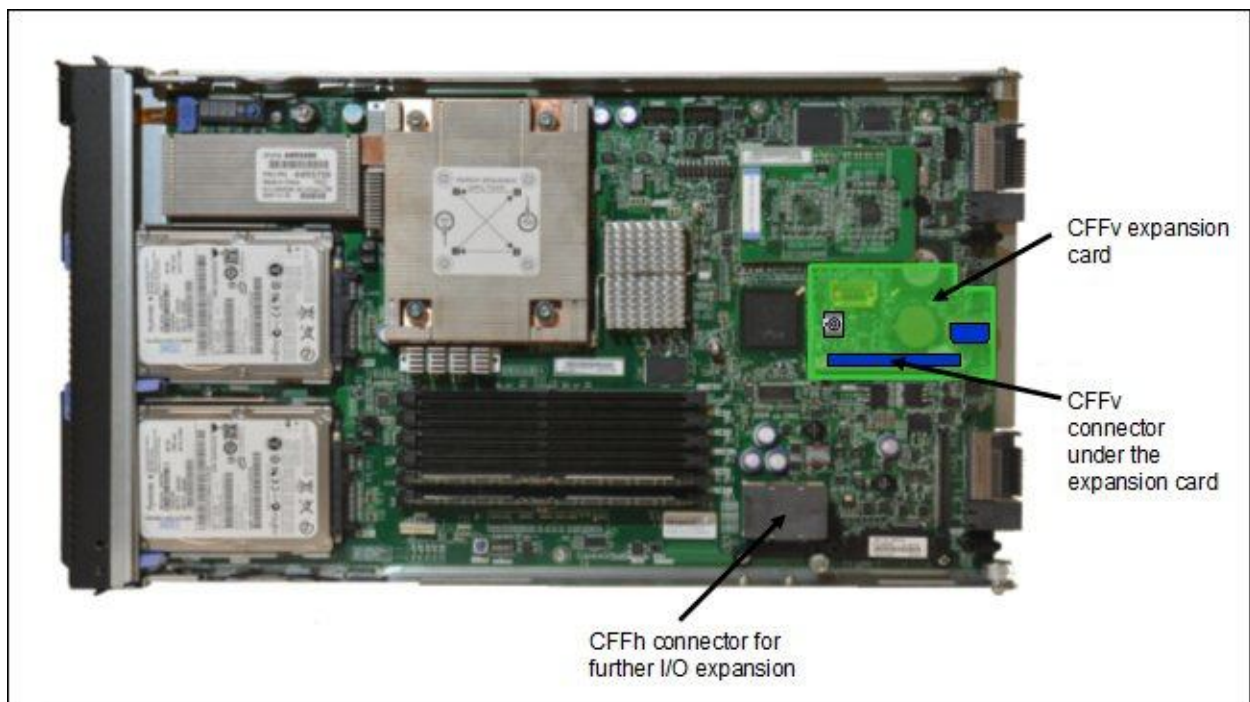


Figure 2. Location on the BladeCenter server planar where the CFFv card is installed

The QLogic 4Gb Fibre Channel Expansion Card (CFFv) supports the I/O modules listed in Table 3. The table also lists the BladeCenter chassis that support each I/O module.

The card requires that a supported I/O module is installed in bay 3 or bay 4 of the chassis, however for redundancy and performance purposes, we recommend that you install two I/O modules in the chassis, one in bay 3 and one in bay 4 of the chassis.

Table 3. I/O modules supported with the QLogic 4Gb Fibre Channel Expansion Card (CFFv)

I/O module	Part number	BladeCenter S	BladeCenter E	BladeCenter H	BladeCenter T	BladeCenter HT
Brocade 4 Gb 20-port SAN Switch Module	32R1812	N	Y	Y	Y	Y
Brocade 4 Gb 10-port SAN Switch Module	32R1813	Y	Y	Y	Y	Y
Brocade Enterprise 20-port 8Gb SAN Switch Module	42C1828	N	Y	Y	N	Y
Brocade 20-port 8Gb SAN Switch Module	44X1920	N	Y	Y	N	Y
Brocade 10-port 8Gb SAN Switch Module	44X1921	N	Y	Y	N	Y
Cisco 4 Gb 20-port Fibre Channel Switch Module	39Y9280	N	Y	Y	Y	Y
Cisco 4 Gb 10-port Fibre Channel Switch Module	39Y9284	Y	Y	Y	Y	Y
McDATA 4 Gb 20-port Fibre Channel Switch Module	32R1833	N	Y	Y	Y	Y
McDATA 4 Gb 10-port Fibre Channel Switch Module	32R1905	N	Y	Y	Y	Y
QLogic 4 Gb 20-port Fibre Channel Switch Module	26R0881	N	Y	Y	Y	Y
QLogic 4 Gb 10-port Fibre Channel Switch Module	32R1904	N	Y	Y	Y	Y
QLogic 20-port 4 Gb SAN Switch Module	43W6725	N	Y	Y	Y	Y
QLogic 10-port 4 Gb SAN Switch Module	43W6724	Y	Y	Y	Y	Y
QLogic 20-Port 8 Gb SAN Switch Module	44X1905	Y	Y	Y	Y	Y
QLogic 8 Gb Intelligent Pass-thru Module	44X1907	Y	Y	Y	Y	Y
QLogic 4 Gb Intelligent Pass-thru Module	43W6723	Y	Y	Y	Y	Y

Important considerations:

- The IBM BladeCenter Optical Pass-thru Module, 39Y9316, is not supported
- The BladeCenter S does not support all I/O modules, as shown in Table 3.
- When using an IBM BladeCenter Optical Pass-thru Module (OPM), the speed of the Fibre Channel link will be limited to 2 GB. This is a limitation of the OPM.
- Many of the I/O modules listed in the table also support the Mutli-Switch Interconnect Module (MSIM) and MSIM-HT. However, we do not list that support here since CFFv expansion cards do not support the use of the MSIM or MSIM-HT.

Popular configurations

Figure 3 shows how the QLogic 4Gb Fibre Channel Expansion Card (CFFv) can be used in configurations. It shows the CFFv card installed in a supported blade server, which is in turn installed in a BladeCenter chassis. The chassis is connected to the IBM System Storage DS3400. The RAID functionality is provided by the external storage system.

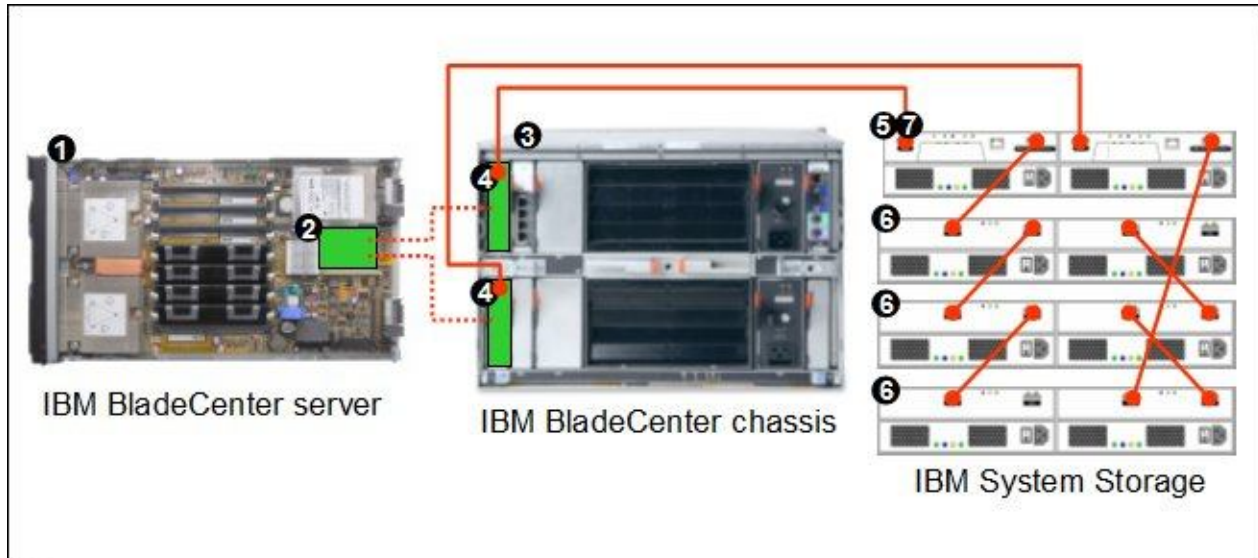


Figure 3. IBM BladeCenter connected to an external IBM System Storage DS3400 storage solution

The parts used in this configuration are listed in Table 4.

Table 4. Components used when connecting QLogic 4Gb Fibre Channel Expansion Card (CFFv) to external disk storage (as shown in Figure 3)

Diagram reference	Part number/machine type	Description	Quantity
1	Varies	IBM BladeCenter HS21 or other supported server	1 to 14
2	41Y8527	QLogic 4Gb Fibre Channel Expansion Card (CFFv)	1 per server
3	Varies	Supported BladeCenter chassis*	1
4	Varies	Supported Fibre Channel Switch module or Optical Pass-thru Module (see Table 3)	1 or 2
5	1726-41X or 1726-42X	IBM System Storage DS3400 (Single or Dual Controller)	1
6	1727	Optional IBM System Storage EXP3000 (Single or Dual ESM)	1 to 3
7	39R6536	DS3000 Partition Expansion License	1

*Note: The expansion card can be installed in servers in the BladeCenter S (8886). However, by doing so you will lose the ability to connect to the BladeCenter S Disk Storage Modules (DSMs). The Fibre Channel expansion card will go in the place of the SAS expansion card needed to connected to the DSMs.

This configuration also requires cabling between the chassis and the storage server and between the storage server and the expansion units. (The cable part numbers are not listed in Table 4.)

Supported operating systems

The QLogic 4Gb Fibre Channel Expansion Card (CFFv) supports the following operating systems:

- IBM AIX 5L for POWER Version 5.3
- Microsoft Windows Server 2003/2003 R2, Datacenter Edition
- Microsoft Windows Server 2003/2003 R2, Datacenter x64 Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise Edition
- Microsoft Windows Server 2003/2003 R2, Enterprise x64 Edition
- Microsoft Windows Server 2003/2003 R2, Standard Edition
- Microsoft Windows Server 2003/2003 R2, Standard x64 Edition
- Microsoft Windows Server 2008 HPC Edition
- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008, Datacenter x64 Edition
- Microsoft Windows Server 2008, Datacenter x86 Edition
- Microsoft Windows Server 2008, Enterprise x64 Edition
- Microsoft Windows Server 2008, Enterprise x86 Edition
- Microsoft Windows Server 2008, Standard x64 Edition
- Microsoft Windows Server 2008, Standard x86 Edition
- Microsoft Windows Server 2008, Web x64 Edition
- Microsoft Windows Server 2008, Web x86 Edition
- Microsoft Windows Small Business Server 2003/2003 R2 Premium Edition
- Microsoft Windows Small Business Server 2003/2003 R2 Standard Edition
- Microsoft Windows Storage Server 2003/2003 R2, Enterprise Edition x64
- Microsoft Windows Storage Server 2003/2003 R2, Standard Edition
- Microsoft Windows Storage Server 2003/2003 R2, Standard Edition x64
- Microsoft Windows Storage Server 2003/2003 R2, Workgroup Edition x64
- NetWare 6.5
- Red Hat Enterprise Linux 3 AS for AMD64/EM64T
- Red Hat Enterprise Linux 3 AS for x86
- Red Hat Enterprise Linux 3 ES for AMD64/EM64T
- Red Hat Enterprise Linux 3 ES for x86
- Red Hat Enterprise Linux 3 WS for AMD64/EM64T
- Red Hat Enterprise Linux 3 WS for x86
- Red Hat Enterprise Linux 4 AS for AMD64/EM64T
- Red Hat Enterprise Linux 4 AS for iSeries and pSeries
- Red Hat Enterprise Linux 4 AS for x86
- Red Hat Enterprise Linux 4 ES for AMD64/EM64T
- Red Hat Enterprise Linux 4 ES for x86
- Red Hat Enterprise Linux 4 WS/HPC for AMD64/EM64T
- Red Hat Enterprise Linux 4 WS/HPC for x86
- Red Hat Enterprise Linux 5 for System i and System p
- Red Hat Enterprise Linux 5 Server Edition
- Red Hat Enterprise Linux 5 Server Edition with Xen
- Red Hat Enterprise Linux 5 Server with Xen x64 Edition
- Red Hat Enterprise Linux 5 Server x64 Edition
- Solaris 10 Operating System
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- SUSE LINUX Enterprise Server 10 for IBM POWER
- SUSE LINUX Enterprise Server 10 for x86
- SUSE LINUX Enterprise Server 10 with Xen for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for AMD64/EM64T
- SUSE LINUX Enterprise Server 11 for x86

- SUSE LINUX Enterprise Server 11 with Xen for AMD64/EM64T
- SUSE LINUX Enterprise Server 9 for AMD64/EM64T
- SUSE LINUX Enterprise Server 9 for x86
- VMware ESX 3.5
- VMware ESX 4.0
- VMware ESX Server 3.0
- VMware ESXi 3.5
- VMware ESXi 4.0

See IBM ServerProven for the latest information about the specific versions and service packs supported: <http://ibm.com/servers/eserver/serverproven/compat/us/>. Select the blade server and then select the expansion card to see the supported operating systems.

Related publications

For more information refer to these documents:

- QLogic 4Gb Fibre Channel Expansion Card (CFFv) Installation and User Guide
<http://www.ibm.com/support/docview.wss?uid=psq1MIGR-5070477>
- IBM US Announcement Letter for the QLogic 4Gb Fibre Channel Expansion Card (CFFv)
<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
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