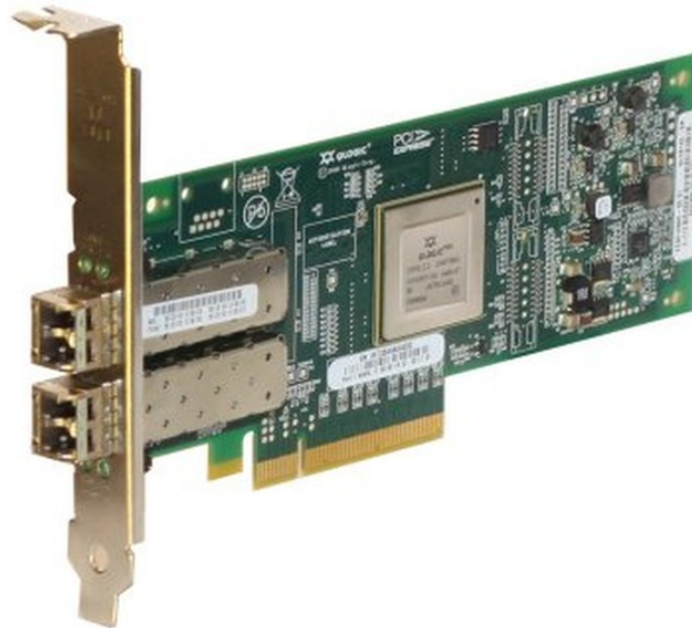




Lenovo QLogic 10Gb CNA for IBM System x and IBM Power Systems Owner's Manual

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Lenovo QLogic 10Gb CNA for IBM System x and IBM Power Systems Owner's Manual



The QLogic 10Gb CNA is a PCI Express 2.0 x4 10Gb Converged Network Adapter and is available for both IBM System x and IBM Power Systems servers. For IBM Power Systems, the adapter is known as the 10 Gb FCoE PCIe Dual Port Adapter (Feature 5708). The adapter connects to SFP+ Multimode Fiber SR optical modules. The System x version also supports SFP+ Active Copper cables, depending on the Ethernet switch used.

This adapter supports 10 Gbps per port maximum bidirectional throughput for high-bandwidth storage (SAN) and networking (LAN) traffic, with full hardware offload for Fibre Channel over Ethernet (FCoE) protocol processing. The QLogic 10Gb CNA is **shown in Figure 1**.



Figure 1. QLogic 10Gb CNA

Did you know?

Convergence of SAN and LAN traffic on a single adapter and wire helps lower the total cost of ownership by reducing the reduced hardware, power, cooling, management, and maintenance costs. It offers investment protection by providing seamless compatibility with existing Fibre Channel (FC) Storage, ethernet networks, driver software, and management applications.

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Part number information

Table 1. Ordering part number and feature code

Description	Option part number	Feature code
QLogic 10Gb CNA for IBM System x	42C1800	5751
QLogic 10Gb CNA for IBM Power Systems (Feature 5708, 10 Gb FCoE PCI e Dual Port Adapter)*	Not applicable	5708
QLogic 10Gb SFP+ SR Optical Transceiver	49Y4218	0064

* Includes the QLogic 10Gb SFP+ SR Optical Transceiver

Part number 42C1800 includes the following items:

- One QLogic 10Gb CNA for IBM System x
- 2U bracket
- Support CD
- Safety flyer

The transceiver is not included with part number 42C1800 or System x feature 5751, however it is included with Power Systems feature 5708. The adapter supports either SFP+ SR transceivers or twin-ax directattached copper cables as listed in Table 2.

Note: Direct-attach copper cables are not supported by the QLogic 10Gb CNA for IBM Power Systems, feature code 5708.

Table 2. Supported Transceivers and DACs

Description	Option part number
Optical Transceivers	
QLogic 10Gb SFP+ SR Optical Transceiver*	49Y4218
Active DAC/Twinax cables**	
IBM Twinax Direct Attach Cable (DAC) 1m	45W2398 (8-pack: 45W2401)
IBM Twinax Direct Attach Cable (DAC) 3m	45W2408 (8-pack: 45W2409)
IBM Twinax Direct Attach Cable (DAC) 5m	45W3039 (8-pack: 45W3042)

* This transceiver is standard with the Power Systems feature 5708

** Direct-attach copper cables are not supported by the QLogic 10Gb CNA for IBM Power Systems, feature code 5708

Features

The QLogic 10Gb CNA has the following features:

- PCI Express 2.0 compliance

- Operates at PCI Express 2.0 x4 or PCI Express 1.1 x8
- Transceiver support:
- System x option: Two SFP+ cages for either SFP+ Fiber SR or SFP+ Active Copper
- Power Systems feature: Two QLogic 10Gb SFP+ SR Optical
- Transceivers standard
- Standard PCI Express half length card with low profile form factor
- Support for both standard PCI-E slot and low profile PCI-E slot (System x option only)
- Support for 10Gb Converged Enhanced Ethernet (CEE)
- Support for Fibre Channel over Converged Enhanced Ethernet (FCoCEE)
- Full hardware offload for FC protocol processing
- Support for IPv4 and IPv6
- Support for PXE boot (firmware 1.01.94 or later)

Ethernet specifications

- The QLogic 10Gb CNA has the following Ethernet specifications:
- Throughput: 10 Gbps full duplex line rate per port
Topology: Any 10Gb Ethernet Network
- Ethernet Frame: 1500 byte or 9000 byte (Jumbo Frame)

Stateless offload features:

- IP, TCP, and UDP checksum offloads
- Large and Giant Send Offload (LSO, GSO)
- Receive Side Scaling (RSS)
- Header-data split
- Interrupt coalescing
- NetQueue

Enhanced Ethernet features:

- Priority-based flow control (802.1Qbb rev. 0)
- Enhanced transmission selection (802.1Qaz rev. 0)
- DCBX protocol (802.1Qaz rev. 0)

Compliance

- IEEE: 802.3ae (10Gb Ethernet)
- 802.1q (VLAN)
- 802.3ad (Link Aggregation)
- 802.1p (Priority Encoding)
- 802.3x (Flow Control)
- 802.3ap (KX/KX4)
- 802.3ak (CX4)

- IEEE 1149.1 (JTAG)
- IPv4 Specification (RFC 791)
- IPv6 Specification (RFC 2460)
- TCP/UDP Specification (RFC 793/768)
- ARP Specification (RFC 826)

FCoE specifications

The QLogic 10Gb CNA has the following FCoE specifications:

- Performance: 250,000 IOPS per port
- Logins: Support for 2048 concurrent logins and 2048 active exchanges
- Class of service: Class 3
- Protocols: FCP (SCSI-FCP), FC-TAPE (FCP-2)
- Compliance:
 - SCSI-3 Fibre Channel Protocol (SCSI-FCP)
 - Fibre Channel Tape (FC-TAPE) profile
 - SCSI Fibre Channel Protocol-2 (FCP-2)
 - Second Generation FC Generic Services (FC-GS-2)
 - Third Generation FC Generic Services (FC-GS-3)

Operating environment

The adapter is supported in this environment:

- Temperature:
 - Operating: 0° to 55°C (32° to 113°F) at 0 to 914 m (0 to 3000 ft)
 - Storage: -43° to 73°C (-40° to 163°F) at 0 to 914 m (0 to 3000 ft)
- Relative humidity: 5% to 93% (non-condensing)

Supported servers

The QLogic 10Gb CNA for IBM System x is supported in the IBM System x servers listed in Table 3.

Table 3. Supported System x servers (Part 1)

Adapter	Feature code	x3100M3	x3200M2	x3200M3	x3250M2	x3250M3	x3350	x3400	x3400M2	x3400M3	x3500M2
QLogic 10Gb CNA for IBM Power Systems (10 Gb FCoE PCIe Dual Port Adapter)	5708	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Table 3. Supported System x servers (Part 2)

Adapter	Feature code	x3550	x3550M2	x3550M3	x3620M3	x3630M3	x3650	x3650T	x3650M2	x3650M3	x3655
QLogic 10Gb CNA for IBM Power Systems (10 Gb FCoE PCIe Dual Port Adapter)	5708	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

See IBM ServerProven for the latest information on the System x servers that support this adapter:
<http://ibm.com/servers/eserver/serverproven/compat/us/>

The QLogic CNA is supported in the IBM Power Systems servers listed in Table 4.

Table 4. Supported Power Systems servers

Adapter	Feature code	Po w er 52 0	Po w er 55 0	Po w er 56 0	Po w er 57 0	Po w er 57 5	Po w er 59 5	Po w er 75 0	Po w er 75 5	Po w er 77 0	Po w er 78 0
QLogic 10Gb CNA for IBM Power Systems (10 Gb FCoE PCIe Dual Port Adapter)	5708	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y

Popular configurations

This section illustrates how the QLogic 10Gb CNA for IBM System x can be used in configurations.

Figure 2 shows QLogic 10Gb CNA installed in a supported x3650 M2 server. The server is connected to the IBM System Storage DS4700 via two IBM Converged Switch B32 switches.

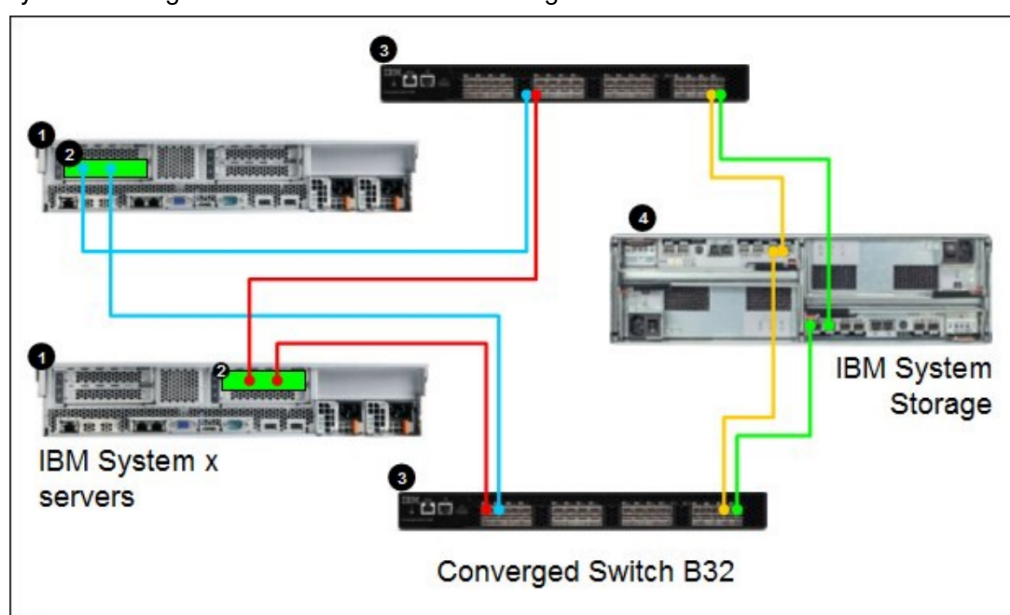


Figure 2. x3650 M2 server with the QLogic 10Gb CNA connected the IBM System Storage DS4700

The parts used are listed in Table 5.

Table 5. Components used when connecting QLogic 10Gb CNA to external disk storage (Figure 2)

Diagram reference	Part number/machine type	Description	Quantity
1	Varies	x3650 M2 or other supported server (See Tables 3 and 4)	2
2	42C1800	QLogic 10Gb CNA for IBM System x	2
3	49Y4218	QLogic 10Gb SFP+ SR Optical Transceiver	4
4	3758-B32	IBM Converged Switch B32	2
5	1814-70A or 1814-70H	IBM System Storage DS4700 (Model 70 or Model 72)	1

This configuration also requires cabling between the servers and the IBM Converged Switches B32 and between the IBM Converged Switches B32 and storage system. (The cable part numbers are not listed in Table 4.)

Supported operating systems

The QLogic 10Gb CNA for IBM System x supports the following operating systems:

- Microsoft Windows Server 2003, Web Edition
- 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 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
- Red Hat Enterprise Linux 4 AS for AMD64/EM64T
- 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 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
- Red Hat Enterprise Linux 6 Server Edition
- Red Hat Enterprise Linux 6 Server x64 Edition
- SUSE LINUX Enterprise Server 10 for AMD64/EM64T
- 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
- VMware ESX 4.0
- VMware ESX 4.1
- VMware ESXi 4.0
- VMware ESXi 4.1

See IBM ServerProven at <http://ibm.com/servers/eserver/serverproven/compat/us/> for the latest information about the specific versions and service packs supported.

The QLogic 10Gb CNA for IBM Power Systems (feature 5708) supports the following operating systems:

- AIX 5.3 with the 5300-11 Technology Level, or later
- AIX 6.1 with the 6100-04 Technology Level, or later
- SUSE Linux Enterprise Server 10 Service Pack 3 or later
- Red Hat Enterprise Linux 5.4 or later
- VIOS 2.1.2.0 (also for IBM i support)

Note: IBM i support is limited to Ethernet traffic only

Related publications

For more information refer to these documents:

- 10Gb CNAs for IBM System x product page
<http://ibm.com/systems/x/options/storage/cna>
- QLogic 10Gb CNA for IBM System x Installation and User's Guide (You will need to download the "publication release" EXE file and run it to unpack the PDF)
<http://ibm.com/support/entry/portal/docdisplay?Indocid=MIGR-5081072>
- Software and firmware for the adapter (QLE8142)
http://driverdownloads.qlogic.com/QLogicDriverDownloads_UI/Product_detail_new.aspx?oemid=395
- IBM US Announcement Letter for the QLogic 10Gb CNA for IBM System x
<http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS109-333>
- IBM US Announcement Letter for the QLogic 10Gb CNA for IBM Power Systems
<http://ibm.com/common/ssi/cgi-bin/ssialias?infotype=dd&subtype=ca&&htmlfid=897/ENUS109-571>
- IBM System x Configuration and Options Guide
<http://ibm.com/support/entry/portal/docdisplay?Indocid=SCOD-3ZVQ5W>

- IBM Redbooks paper, IBM Converged Switch B32, REDP-4588
<http://www.redbooks.ibm.com/abstracts/redp4588.html?Open>

Related product families

Product families related to this document are the following:

- Ethernet Adapters

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Documents / Resources

	<p>Lenovo QLogic 10Gb CNA for IBM System x and IBM Power Systems [pdf] Owner's Manual</p> <p>QLogic, 10Gb CNA, QLogic 10Gb CNA, QLogic 10Gb CNA for IBM System x and IBM Power, Systems</p>
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References

- [Support | Driver Downloads | QLogic Fibre Channel HBAs and FastLinQ Ethernet adapters and controllers - Marvell](#)
- [Enterprise Business Server Solutions | IBM](#)

-  [IBM Support](#)
-  [IBM Support](#)
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