



SANblade™

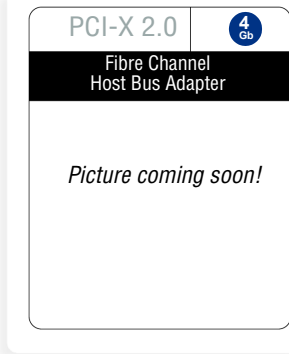
Single Port 4-Gbps Fibre Channel (FC) to
PCI-X 2.0 266-MHz Host Bus Adapter (HBA)

QLA®2460
Family

**The industry's first, true enterprise class 4-Gbps FC to PCI-X 2.0
266-MHz host bus adapter.**

Key Features

- 4-Gbps FC increases aggregate throughput rate to 800 MBps in full-duplex mode.
- 64-bit, PCI-X 2.0 266-MHz dual data rate (DDR) bus for high throughput applications.
- 100,000 IOPS delivers high I/O transfer rates for storage applications.
- SANsurfer® FC HBA Manager allows for centralized management and remote control.
- Three LEDs display real-time status and link activity information.
- Diagnostic monitoring interface (DMI) for detailed transceiver information.
- T10 cyclic redundancy check (CRC) ensures end-to-end data integrity across storage area networks (SANs).
- Overlapping protection domains for continuous protection of internal data paths.
- Cisco VSAN frame tagging allows physical ports to be part of multiple logical networks.
- Multi-ID and N_Port virtualization allows a single port to acquire multiple N_Port IDs.
- Universal boot support manages multiple hardware platforms and boot options.
- Storage networking industry association (SNIA) HBA application programming interface (API), and storage management interface specification (SMI-S) compliant.



Standard Features

- 4/2/1 Gbps (auto-negotiation)
- 2,048 concurrent logins
- Compatible with 66/33-MHz PCI and 133/100/66-MHz PCI-X systems
- Persistent binding
- HBA and target level failover
- SCSI initiator, target, and initiator/target modes
- LUN masking
- Loopback, and read/write buffer tests
- HBA information, topology maps, statistics, and graphs

QLA2460 Host Bus Adapter. The QLA2460 is the industry's first, true enterprise class, 4-Gbps to PCI-X 2.0 HBA. Unlike other HBAs, the QLA2460 not only delivers unprecedented levels of performance and availability, as well as intelligent networking features specific to enterprise class data centers. All HBAs in the SANblade QLA246x family are managed by the QLogic SANsurfer FC HBA Manager, which provides centralized management and remote control of distributed HBAs.

Enterprise Class Features. The QLA2460 HBA is the highest performing and most reliable HBA in the industry. It delivers unmatched performance by leveraging a single ASIC design, combining a unique hardware architecture to deliver over 100,000 IOPS, nearly 800 MBps throughput, and support for the PCI-X 2.0 266-MHz DDR bus speed. More importantly, the QLA2460 HBA provides new intelligent storage networking features that redefine the enterprise class HBA, providing increased data protection, advanced frame routing, and enterprise wide management capabilities.

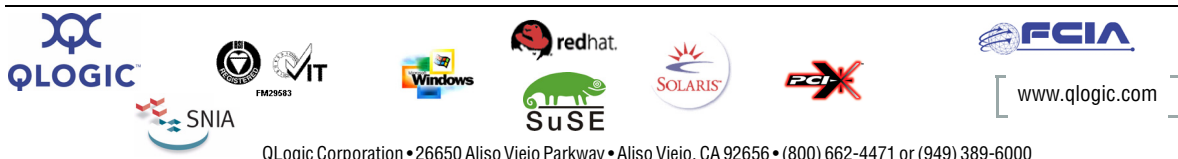
Simplified Management. The QLogic SANsurfer FC HBA Manager is a simple and easy to use device management tool for the installation, configuration, and management of QLogic HBAs. The QLA2460 is fully compatible with management applications that support the SNIA API and SMI-S standard, allowing IT managers to manage QLogic HBAs through third-party software applications.

Comprehensive Operating System (OS) Support. QLogic offers the broadest range of support for all major operating systems to ensure OS and hardware server compatibility. Drivers are fully tested and certified by all major operating systems, including Windows®, Linux™, Solaris™, and NetWare®. A single driver strategy per OS, allows storage administrators to easily deploy, configure, and manage HBAs in heterogeneous SAN configurations. QLogic's comprehensive driver suite supports all major hardware server platforms, including 32/64-bit computing platforms from Intel (IA32, IEM64T, IA64), AMD (Opteron 64), and SUN (SPARC).

Guaranteed Interoperability. Storage partner certifications, combined with agency and regulatory testing, ensures that all products meet world compliance hardware and software specifications. All HBAs are tested extensively with third-party hardware, along with multiple software applications, to ensure 100 percent SAN interoperability and compatibility. You can be confident purchasing QLogic HBAs will meet your FC storage networking needs.

Investment Protection. For over 15 years, QLogic has been a technological leader with products that address the current needs of customers, yet provide strong investment protection to support emerging technologies and standards. QLogic stands alone in the industry, its product portfolio depth and experience in successfully delivering technological solutions that address the needs of today and tomorrow.

Host Bus Interface Specifications	
Bus interface	64-bit, PCI-X 2.0 266-MHz DDR, compatible with 66/33-MHz PCI and 133/100/66-MHz PCI-X
Signal voltage	3.3V (mode 1), 1.5V (mode 2)
Memory	1-MB SRAM, 1-MB flash (SPI), and 2-KB NVRAM (SPI)
Compliance	Conforms to <i>PCI Local Bus Specification</i> , revision 2.3, <i>PCI-X Protocol Addendum to the PCI Local Bus Specification</i> , revision 2.0a, <i>PCI-X Electrical and Mechanical Addendum</i> (revision 2.0a) to the <i>PCI Local Bus Specification</i> , <i>PCI Bus Power Management Interface Specification</i> revision 1.1, <i>PCI Hot Plug Specification</i> , revision 1.0
Fibre Channel Specifications	
Data rate	4/2/1 Gbps auto-negotiation (4.2480/2.1240/1.0625 Gbps)
Performance	100,000 IOPS
Throughput	400 MBps maximum at half-duplex, 800 MBps maximum at full-duplex
Topology	Point-to-point (N_Port), arbitrated loop (NL_Port), and switched fabric (N_Port)
Logins	Support for F_Port and FL_Port login. 2,048 concurrent logins and 2,048 active exchanges
Class of service	Class 2 and 3
Protocols	FCP (SCSI-FCP), IP (FC-IP), FICON (FC-SB-2), FC-TAPE (FCP-2)
Buffer credits	3 credits available (2,112 Byte frame payload)
Compliance	<i>SCSI-3 Fibre Channel Protocol (SCSI-FCP)</i> , <i>Fibre Channel Physical and Signaling Interface (FC-PH)</i> , <i>Fibre Channel 2nd Generation (FC-PH-2)</i> , <i>Third Generation Fibre Channel Physical and Signaling Interface (FC-PH-3)</i> , <i>Fibre Channel-Arbitrated Loop (FC-AL-2)</i> , <i>Fibre Channel Fabric Loop Attachment Technical Report (FC-FLA)</i> , <i>Fibre Channel-Private Loop Direct Attach Technical Report (FC-PLDA)</i> , <i>Fibre Channel Tape (FC-TAPE) profile</i> , <i>SCSI Fibre Channel Protocol-2 (FCP-2)</i> , <i>Second Generation FC Generic Services (FC-GS-3)</i> , <i>Third Generation FC Generic Services (FC-GS-3)</i> , <i>Fibre Channel Framing and Signaling (FC-FS)</i>
Physical Specifications	
Ports	Single 4-Gbps FC
Connections	Small form factor fixed (SFF) multimode optic with LC-style connector
Form factor	Low-profile MD2: 16.93 cm × 5.15 cm (6.7 in. × 2.5 in.)
Bracket size	Standard: 1.84 cm × 12.08 cm (.73 in. × 4.76 in.); Low-profile: 1.84 cm × 8.01 cm (.73 in. × 3.15 in.)
Environment and Equipment Specifications	
Airflow	200 LFM (1.0 m/sec)
Temperature	Operating: 0°C/32°F to 55°C/131°F. Storage: -20°C/-4°F to 70°C/158°F
Humidity	Relative (non-condensing): 10% to 90%, Storage: 5% to 95%
Power dissipation	~11.0 W (estimate)
Cable distances	1 Gbps: 500 meters 50/125 µm fiber, 300 meters 62.5/125 µm fiber 2 Gbps: 300 meters 50/125 µm fiber, 150 meters 62.5/125 µm fiber 4 Gbps: 150 meters 50/125 µm fiber, 70 meters 62.5/125 µm fiber
Agency Approvals—Product Safety (Preliminary)	
US/Canada	UL, cUL UL60950 CSA C22.2 No.60950 Class 1 Laser Product per DHHS 21CFR J
Europe	73/23/ECC Low Voltage Directive: TUV: EN60950-1: 2001 EN60825-1: 1994+A1+A2 EN60825-2: 1994 +A1
Agency Approvals—EMI and EMC (Preliminary)	
US	FCC Part 15, Class A
Canada	Industry Canada ICES-003, Class A
Europe	89/336/EEC EMC Directive CE Mark: EN55022: 1998 /CISPR22:1997 Class A EN55024: 1998 EN61000-3-2:1995 EN61000-3-3:1994
Japan	VCCI, Class A
Taiwan	CNS 13438 Class A
New Zealand/Australia	AS/NZS 3548 Class A
Korea	MIC
Software	
Applications	SANsurfer [®] FC HBA Manager, SANsurfer [®] FC CLI, SANsurfer [®] Express
Operating systems	Windows [®] Server [™] 2003; Windows 2000; Solaris 9, 10; Linux Red Hat AS 3.0, 4.0; Linux SuSE SLES 8, 9; Novell NetWare 6.5
HW platforms	IA32 (x86), IA64, IEM64T, AMD Opteron 64, SUN SPARC
Flash utilities	Utilities for firmware, driver, boot code, and NVRAM
Boot support	BIOS, EFI, and FCode
Compliance	SNIA HBA API V2, SMI-S, FC-SP/DH-CHAP, and FDMI
Ordering Information	
QLA2460-CK	Ships in an individually packed box with a standard size bracket and a spare low-profile bracket, SANsurfer [®] CD, and Quick Start Guide
QLA2460-BK	Ships in a bulk box in quantities of 20, 50, or 100 with standard size brackets



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