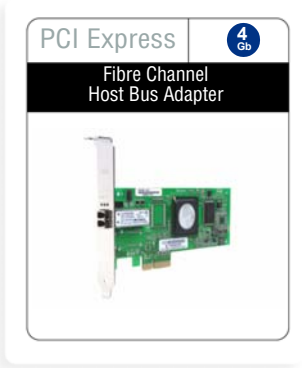
SANblade™

Single Port 4-Gbps Fibre Channel (FC) to PCI Express Host Bus Adapter (HBA)

QLE2460 Family

The industry's first, true enterprise class 4-Gbps FC to PCI Express host bus adapter.



Key Features

- 4-Gbps FC increases aggregate throughput rate to 800 MBps in full-duplex mode.
- PCI Express™ x4 host bus interface for high throughput applications.
- 100,000 IOPS delivers high I/O transfer rates for storage applications.
- SANsurfer® Pro allows for centralized management and remote control.
- Three LEDs display real-time status and link activity 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.
- 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
- SCSI initiator, target, and initiator/target modes
- Persistent binding
- HBA and target level failover
- HBA information, topology maps, statistics, and graphs
- LUN masking
- Loopback and read/write buffer tests
- RoHS compliance

Single Port 4-Gbps FC to PCI Express HBA

QLE2460 Host Bus Adapter. The QLE2460 is the industry's first, true enterprise class, 4-Gbps to PCI Express x4 HBA. The QLE2460 not only delivers unprecedented levels of performance and availability, but also intelligent networking features specific to enterprise class data centers. All QLogic HBAs are managed by SANsurfer Pro, which provides centralized management and remote control of distributed HBAs.

Enterprise Class Features. The QLE2460 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 PCI Express x4 bus speeds. More importantly, the QLE2460 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. QLogic SANsurfer Pro is a simple and easy to use device management tool for the installation, configuration, and management of QLogic HBAs. The QLE2460 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 available for all major operating systems, including Windows®, Linux™, Solaris™, and NetWare®. A single driver strategy per OS allows storage administrators to easily deploy and manage HBAs in heterogeneous SAN configurations. QLogic's driver suite supports all major hardware server platforms, including 32/64-bit computing platforms from Intel (IA32, IEM64T, IA64), AMD (Opteron64), 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 best-in-class SAN interoperability and compatibility. You can be confident purchasing QLogic HBAs to 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 with 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	PCI Express x4
Memory	1-MB SRAM, 1-MB flash (SPI), and 2-KB NVRAM (SPI)
Compliance	*PCI Express Base Specification* rev. 1.0a, *PCI Express Card Electromechanical Specification* rev. 1.0, *PCI Bus Power Management Interface Specification* revision. 1.1
Fibre Channel Specifications	
Data rate	4/2/1 Gbps auto-negotiation (4.2480/2.1240/1.0625 Gbps)
Performance	100,000 IOPS
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), FC-TAPE (FCP-2)
Compliance	*SCSI-3 Fibre Channel Protocol (SCSI-FCP), Fibre Channel Physical and Signaling Interface (FC-PH), Fibre Channel 2nd Generation (FC-PH-2), Third Generation Fibre Channel Physical and Signaling Interface (FC-PH-3), Fibre Channel—Arbitrated Loop (FC-AL-2), Fibre Channel Fabric Loop Attachment Technical Report (FC-FLA), Fibre Channel—Private Loop Direct Attach Technical Report (FC-PLDA), Fibre Channel Tape (FC-TAPE) profile, SCSI Fibre Channel Protocol-2 (FCP-2), Second Generation FC Generic Services (FC-GS-3), Third Generation FC Generic Services (FC-GS-3), Fibre Channel Framing and Signaling (FC-FS)*
Physical Specifications	
Ports	Single 4-Gbps FC
Connections	Small form factor fixed (SFF) multimode optic with LC-style connector
Form factor	Low-profile PCI Express Card: 16.765 cm × 6.89 cm (6.6 in. × 2.713 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	No airflow required.
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	5.0 W (maximum)
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		Agency Approvals—EMI and EMC	
US/Canada	UL, cUL UL60950 CSA C22.2 No.60950 Class 1 Laser Product per DHHS 21CFR J	US	FCC Part 15, Class B
		Canada	Industry Canada ICES-003, Class B
Europe	73/23/ECC Low Voltage Directive: TUV: EN60950-1: 2001 EN60825-1: 1994+A1+A2 EN60825-2: 1994 +A1	Europe	89/336/EEC EMC Directive CE Mark: EN55022: 1998 /CISPR22:1997 Class B EN55024: 1998 EN61000-3-2:1995 EN61000-3-3:1994
		Japan	VCCI, Class B
		Taiwan	CNS 13438 Class B
		New Zealand/Australia	AS/NZS 3548 Class B
		Korea	MIC

Software	
Applications	SANsurfer® Pro, SANsurfer CLI
Operating systems*	Windows® Server™ 2003; Windows 2000; Windows XP Pro; Solaris 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 Opteron64, 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, and FDMI
Ordering Information	
QLE2460-CK	Ships in an individually packed box with a standard size bracket and a spare low-profile bracket, SMS CD, and Quick Start Guide
QLE2460-BK	Ships in a bulk box in quantities of 20 and 50 with standard size brackets

Subject to availability of OS and hardware from respective OEMs.