



QUE2464

Quad Port 4-Gbps Fibre Channel to PCI Express Host Bus Adapter

High Performance

- 150,000 IOPS per port delivers high I/O transfer rates for storage applications
- Intelligent interleaved DMA (iDMA) ensures maximum utilization of data links
- Dual Read DMA (DRDMA) processes I/O requests faster
- Out-of-Order Frame Reassembly (OoOFR) reduces congestion and retransmissions

Superior Scalability

- Multi-ID and N_Port virtualization allows a single port to acquire multiple N_Port IDs
- Cisco® VSAN ready. Allows physical ports to be part of multiple logical networks
- Comprehensive Operating System (OS) driver support including Windows®, Linux®, Solaris™, and NetWare®
- Universal boot support manages multiple hardware platforms and boot options

Enhanced Reliability

- Overlapping protection domains for continuous protection of internal data paths
- T10 Cyclic Redundancy Check (CRC) ensures end-to-end data integrity across Storage Area Networks (SANs)
- Three LEDs per port display real-time status and link activity information



QUE2464 Host Bus Adapter. The QLE2464 is the industry's first, true enterprise class, 4-Gbps to PCI Express® x8 host bus adapter.. The QLE2464 not only delivers unprecedented levels of performance and availability, but also intelligent networking features specific to enterprise class data centers.

Enterprise Class Features. The QLE2464 adapter is the highest performing and most reliable adapter in the industry. It delivers unmatched performance, combining a unique hardware architecture to deliver over 150,000 IOPS per port, nearly 3.2 GBps throughput, and support for PCI Express x8 bus speeds.

Simplified Setup. Point-and-click installation and configuration wizards simplify the adapter setup process. Storage administrators can quickly deploy adapters across a SAN using standard host bus adapter management tools and device utilities. The QLE2464 is also fully compatible with industry standard Application Programming Interfaces (APIs), thereby allowing administrators to manage QLogic adapters using third-party software applications.

Comprehensive 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. A single driver strategy per OS allows storage administrators to easily deploy and manage host bus adapter in heterogeneous SAN configurations. QLogic's driver suite supports all major hardware server platforms.

Guaranteed Interoperability. Storage partner certifications, combined with agency and regulatory testing, ensures all products meet world compliance hardware and software specifications. All adapters 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 adapters to meet your Fibre Channel 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**

- PCI Express x8

Memory

- 1-MB SRAM per port, 1-MB flash (SPI), and 2-KB NVRAM (SPI)

Hardware platforms

- IA32 (x86), IA64, IEM64T, AMD™ Opteron64, Sun™ SPARC

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

- 150,000 IOPS per port

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 per port

Class of service

- Class 2 and 3

Protocols

- FCP (SCSI-FCP), 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-2)*, *Third Generation FC Generic Services (FC-GS-3)*, *Fibre Channel Framing and Signaling (FC-FS)*

Physical Specifications**Ports**

- Quad 4-Gbps FC

Connections

- Small Form Factor fixed (SFF) multimode optic with LC-style connector

Form factor

- PCI Express Card: 20.32 cm × 11.115 cm (8 in. × 4.376 in.)

Bracket size

- Standard: 1.84 cm × 12.08 cm (.73 in. × 4.76 in.)

Tools and Utilities**Management tools**

- SANsurfer® FC HBA Manager

Device utilities

- Command line interface; utilities for firmware, driver, boot code, and NVRAM

Boot support

- BIOS, EFI, and FCode

APIs

- SNA HBA API V2, SMI-S, and FDMI

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

Environment and Equipment Specifications**Temperature**

- Operating: 0°C/32°F to 55°C/131°F
- Storage: -20°C/-4°F to 70°C/158°F

Airflow

- 75 LFM

Humidity

- Relative (non-condensing): 10% to 90%,
- Storage: 5% to 95%

Power dissipation

- 16 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

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

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

Ordering Information**QLE2464-CK**

- Ships in an individually packed box with a standard size bracket, SANsurfer CD, and Quick Start Guide

QLE2464-BK

- Ships in bulk box in quantities of 10 with standard size brackets



The Ultimate in Performance



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