QLOGIC®

SANblade® QEM2462

Dual Port 4-Gbps Fibre Channel (FC) ExpressModule™

High Performance

- 300,000 IOPS delivers high I/O transfer rates for storage applications
- Intelligent interleaved DMA (iiDMA) ensures maximum utilization of data links
- 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™, and Solaris™
- 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)
- Supports hot plug and hot swap
- Three LEDs per port display real-time status and link activity information

QEM2462 Host Bus Adapter. The QEM2462 is the industry's first, true enterprise class, 4-Gbps FC ExpressModule. ExpressModule is a new form factor for PCI Express I/O adapters. The QEM2462 is based on the same design as the high-performance SANblade QEM2462 FC HBA. The QEM2462 not only delivers unprecedented levels of performance and availability, but also intelligent networking features specific to enterprise class data centers.

Enterprise Class Features. The QEM2462 HBA is the highest performing and most reliable FC ExpressModule in the industry. It delivers unmatched performance by leveraging a single ASIC design, combining a unique hardware architecture to deliver over 300,000 IOPS, nearly 1600 MBps throughput, and support for PCI Express x4 bus speeds. More importantly, the QEM2462 ExpressModule 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 Setup. Point-and-click installation and configuration wizards simplify the HBA setup process. Storage administrators can quickly deploy HBAs across a SAN using standard HBA management tools and device utilities. The QEM2462 is fully compatible with SNIA HBA API and SMI-S, thereby allowing administrators to manage QLogic HBAs using third-party software applications.

Comprehensive Operating System (OS) Support. Drivers are fully tested and available for all major operating systems and hardware server platforms. A single driver strategy per OS allows storage administrators to easily deploy and manage FC ExpressModules in heterogeneous SAN configurations.

Guaranteed Interoperability. Storage partner certifications, combined with agency and regulatory testing, ensures all products meet world compliance hardware and software specifications. All ExpressModules/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 ExpressModules/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.

Host Bus Interface Specifications

Bus interface
- Native PCI Express x4 via x8 ExpressModule connector

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

Hardware platforms*
- IA32 (x86), IA64, IEM64T, AMD Opteron 64, Sun (SPARC)

Compliance
- *PCI Express ExpressModule Electromechanical Specification*, rev. 1.0, *PCI Express Base Specification,* rev. 1.0a, *PCI Express Card Electromechanical Specification,* rev. 1.0, *PCI Local Bus Specification,* rev. 2.3

Fibre Channel Specifications

Data rate
- 4/2/1 Gbps auto-negotiation (4.2480/2.1240/1.0625 Gbps)

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), 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-2), Third Generation FC Generic Services*

(FC-GS-3), Fibre Channel Framing and Signaling (FC-FS)

Physical Specifications

Ports
- Dual 4-Gbps FC

Connections
- x8 ExpressModule connector, small form factor fixed (SFF) multimode optic with LC-style connector

Form factor
- Singlewide ExpressModule form factor

Enclosure
- 170mm × 112mm × 22mm (6.69in × 4.4in × 0.866 in)

Environment and Equipment Specifications

Airflow
- As per *PCI Express ExpressModule Electromechanical Specification*, rev. 1.0

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
- ~15 W (estimate)

RoHS compliant
- Yes

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

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

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, FCode

APIs
- SNIA HBA API V2, SMI-S, and FDMI

Operating systems*
- Windows® Server™ 2003; Windows 2000; Solaris 10; Linux Red Hat AS 3.0, 4.0; Linux SuSE SLES 8, 9

Ordering Information

QEM2462-BK
- (For OEMs Only) Ships in a bulk box in quantities of 10

Subject to availability of OS and hardware from respective OEMs.