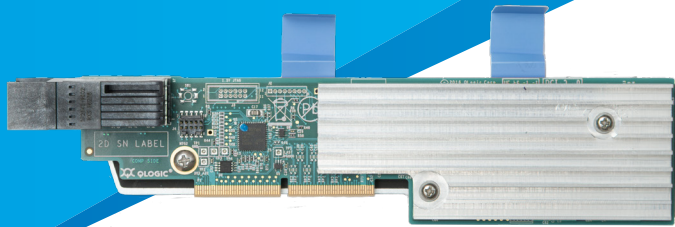


QLogic QME2692-DEL

Dual-port Enhanced Gen 5 (16GFC) Fibre Channel Mezzanine Adapter



- The latest and most advanced Enhanced Gen 5, dual-port mezzanine QLogic® adapter from Cavium™
- Up to 1.3 million IOPS fuel high performance in AFA and high-density virtualized environments
- Enhanced reliability, diagnostics, and accelerated deployment powered by QLogic StorFusion™ technology
- Port isolation design offers deterministic and scalable performance on each port

OVERVIEW

The QLogic QME2692-DEL is a dual-port, Enhanced Gen 5 16GFC mezzanine adapter that boasts industry-leading native FC performance with extremely low CPU usage and full hardware offloads.

ENHANCED GEN 5 FC

The QLogic Enhanced Gen 5 FC solution, offers higher per-port performance (up to 650K IOPS) and lower power consumption compared to Gen 5 FC. In addition, QLogic StorFusion technology delivers streamlined provisioning, guaranteed QoS, and improved resiliency. StorFusion addresses the needs of IT organizations that require reliability, integrated management, and guaranteed network performance.

Enhanced Gen 5 FC technology resolves data center complexities by enabling a storage network infrastructure that supports powerful virtualization features, application-aware services, and simplified management. The QME2692-DEL mezzanine adapter provides advanced storage networking features capable of supporting the most demanding virtualized and private cloud environments. This adapter fully leverages the capabilities of high-performance 16GFC, all-flash arrays (AFAs), and demanding enterprise applications. Powerful management tools automate and simplify SAN provisioning to help reduce cost and complexity, while the unmatched 16GFC line rate performance eliminates potential I/O bottlenecks in today's powerful multiprocessor, multicore servers.

SUPERIOR PERFORMANCE

The QME2692-DEL mezzanine adapter can accelerate mission-critical enterprise applications by delivering up to 1.3 million IOPS for physical, virtual, and private cloud environments. QLogic adapters deliver the best storage application performance in virtualized and non-virtualized environments with support for more than 6,000MBps of aggregate throughput.

VIRTUALIZATION OPTIMIZED

The QME2692-DEL mezzanine adapter supports standards-based virtualization features. Under VMware® ESXi 6.0 and 6.5, I/O requests and responses can be tagged with the virtual machine-ID (VM-ID) of the appropriate virtual machine, providing end-to-end visibility at the VM level. Support for N_Port ID virtualization (NPIV) enables a single FC adapter port to provide multiple virtual ports for increased network scalability. Standard class-specific control (CS_CTL)-based QoS technology per NPIV port allows bandwidth controls and guarantee per VM. In addition, the 16GFC line rate per physical port delivers unmatched storage performance to maximize the quantity of VMs per physical server.

QLOGIC STORFUSION TECHNOLOGY

QLogic Enhanced Gen 5 FC mezzanine adapters, powered by StorFusion technology, include advanced capabilities that are enabled when deployed with supported Brocade® switches. By combining these industry-leading solutions, SAN administrators can take advantage of enhanced features that improve availability, accelerate deployment, and increase network performance. StorFusion solves the top issues for SAN administrators worldwide.

Improved TCO and Reliability

QLogic technology includes the read diagnostic parameters (RDP) feature, which provides detailed port, media, and optics diagnostics. From any point in the fabric, an administrator can use RDP to easily discover and diagnose link-related errors and degrading conditions on any N_Port-to-F_Port link.

The extensive suite of diagnostic tools maximizes uptime and performance, allowing organizations to address problems before they impact operations.

Rapid Server Deployment and Orchestration

StorFusion technology includes fabric pre-provisioning services that enable servers to be quickly deployed, replaced, and moved across the SAN. By leveraging fabric-assigned port world wide name (FA-WWN) and fabric-based boot LUN discovery (F-BLD) capabilities, the creation of zones, LUNs, SAN-based boot images, and other services can be completed before the servers arrive on site—eliminating time-consuming, manual tasks that typically delay server deployment.

Performance SLA Enforcement with VM-level QoS

Network performance can be dramatically improved by implementing the industry-standard class-specific control (CS_CTL)-based frame prioritization QoS, which helps alleviate network congestion. When Dell adapters with QLogic StorFusion technology are connected to supported SAN fabrics, traffic is classified as it arrives at the switch, and is then processed on the basis of configured priorities. Traffic can be prioritized for delivery or subjected to limited delivery options. As a result, mission-critical workloads can be assigned a higher priority than less time-sensitive network traffic for optimized performance.

Higher Resiliency and Performance with Automatic Error Recovery

Forward error correction (FEC) improves performance and link integrity to support higher end-to-end data rates by automatically recovering from many transmission errors without re-sending the frames. FEC automatically detects and recovers from bit errors, which results in higher availability and performance.

Automatic buffer-to-buffer credit recovery (BB-CR) helps overcome performance degradation, congestion, and link resets caused by buffer credit loss, especially on longer distance and high-loss fiber connections.

SIMPLIFIED MANAGEMENT

The unified management application, QConvergeConsole® (QCC), provides single-pane-of-glass management across generations of Cavium FC adapters. In addition, QLogic supports all major APIs for deployment flexibility and integration with third-party management tools, including VMware vCenter™ and Brocade Network Advisor.

HIGH AVAILABILITY AND RELIABILITY

QLogic Enhanced Gen 5 FC mezzanine adapters continue the tradition of providing complete port-level isolation across their FC controller architecture. This architecture—unlike other vendor solutions—provides independent functions, transmit and receive buffers, an on-chip CPU, DMA channels, and a firmware image for each port. These features enable complete port-level isolation, prevent errors and firmware crashes from propagating across both ports, and provide predictable and scalable performance across both ports. The QLogic architecture delivers ultimate reliability to meet the needs of mission-critical enterprise applications with lower power and fewer CPU cycles, all while maintaining peak performance.

In addition, overlapping protection domains (OPDs) ensure the highest level of reliability as data moves to and from the PCI® bus and FC network.

The QME2692-DEL mezzanine adapter also provides end-to-end data integrity with support for T10 Performance Information (T10 PI), which prevents the risk of silent data corruption in environments running Oracle® Linux® with the Unbreakable Enterprise Kernel.

LEADERSHIP, CONFIDENCE, AND TRUST

The QLogic QME2692-DEL mezzanine adapter is compatible with the same FC software driver stack that has been tested and validated across all major hardware platforms, as well as all major hypervisors and operating systems.

Cavium technology makes it the undisputed leader in FC adapters, with over 20 years of experience, more than 20 million ports shipped, and multiple generations of FC products that have been the leading choice of Cavium customers. Cavium owns the most established, proven FC stack in the industry, with more FC ports shipped than any other vendor.

Host Bus Interface Specifications

Bus Interface

- QME2692-DEL: PCIe® 3.0 x8

Host Interrupts

- INTx and MSI-X

Compliance

- *PCI Express Base Specification*, Rev. 3.1
- *PCI Express Card Electromechanical Specification*, Rev. 3.0
- *PCI Bus Power Management Interface Specification*, Rev. 1.2

Fibre Channel Specifications

Throughput

- 16Gbps line rate per port (maximum)

Logins

- Support for 2,048 concurrent logins and 2,048 active exchanges per port

Port Virtualization

- NPIV

Compliance

- *Fibre Channel Physical Interface 5 (FC-PI5)*
- *Fibre Channel Tape (FC-TAPE) Profile*
- *SCSI Fibre Channel Protocol-2 (FCP-2)*
- *SCSI-3 Fibre Channel Protocol (SCSI-FCP)*
- *Second Generation Fibre Channel Generic Services (FC-GS-2)*
- *Third Generation Fibre Channel Generic Services (FC-GS-3)*

Tools and Utilities

Management Tools and Device Utilities

- QConvergeConsole integrated network management utility (GUI) for Linux and Windows

Boot Support

- BIOS
- Unified Extensible Firmware Interface (UEFI)

APIs

- SNIA HBA API V2
- SMI-S

Operating Systems

- For the latest applicable OS information, see support.dell.com

End-to-End Provisioning and Management Features

The following features require a supported Brocade switch running Fabric OS version 7.3.0a or later.

Performance

- QoS CS_CTL
- FEC
- Buffer-to-buffer credit recovery (BB-CR): automatic buffer credit loss detection and recovery

Diagnostics

- RDP

Deployment and Management

- FA-WWN
- F-BLD
- FC Ping
- FC Traceroute
- VM-ID
- Fabric device management interface (FDMI) enhancements

Physical Specifications

Ports

- QME2692-DEL: dual-port, Gen 5 FC

Form Factor

- Mezzanine adapter (Dell Blade Servers: MX740c and MX840c)

Environment and Equipment Specifications

Temperature

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

Humidity

- Operating: 10% to 90%
- Storage: 5% to 95%

Agency Approvals—Safety

US and Canada

- UL 60950-1
- CSA C22.2

Europe

- TUV EN60950-1
- TUV IEC 60950-1
- CB certified

Agency Approvals¹—EMI and EMC (Class A)

US and Canada

- FCC Rules, CFR Title 47, Part 15, Subpart Class A
- Industry Canada, ICES-003: Class A

Europe

- EN55032
- EN55024
- EN61000-3-2
- EN61000-3-3

Japan

- VCCI: Class A

New Zealand and Australia

- AS/NZS: Class A

Korea

- KC-RRA Class A

Taiwan

- BSMI CNS 13438

Ordering Information

QME2692-DEL

- Dell part number: G620Y

¹ Agency approvals have not been authorized at the time of publication; this list is preliminary.



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