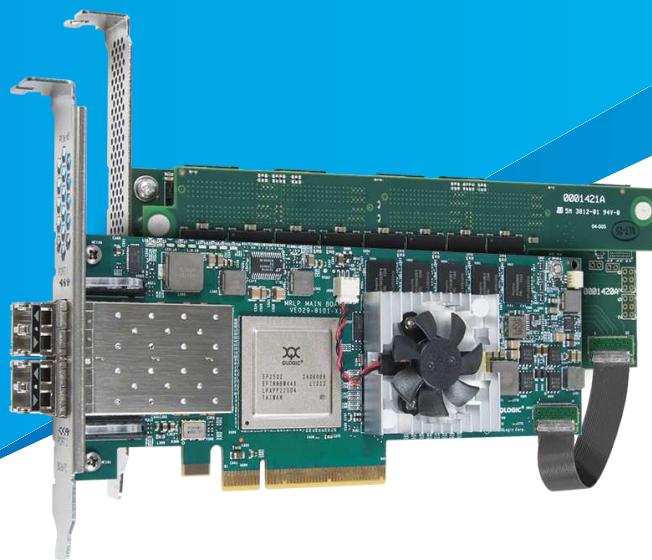![QLogic logo] The Ultimate in Performance

10000 Series

QLogic FabricCache Adapter

- Simplified caching implementation uses a single driver model in the OS software stack.
- Caching offload to adapter hardware accelerates performance without consuming additional server memory or CPU cycles, while minimizing the quantity of I/Os processed in the server.
- Hot data located close to the application increases workload performance and throughput, while improving storage performance and utilization.
- Provisioning cache data pools across multiple servers allows clustered applications to seamlessly share the cache.
- Seamlessly integrates cache data in the server with the SAN.
- Uses QLogic's proven Fibre Channel 8Gbps-to-PCI Express® technology.

OVERVIEW

The QLogic® FabricCache™ 10000 Series Adapter is an industry-first, integrated hardware solution that combines best-in-class Fibre Channel SAN connectivity, backed by enterprise-class PCIe® Flash to increase application performance and decrease latency through I/O data caching.

The QLogic FabricCache Adapter is a PCIe-based adapter that caches SAN data on a PCIe Flash card to accelerate server I/O access. The 10000 Series Adapter offloads caching to adapter hardware, which accelerates I/O and provides shared caching for clustered, virtualized, and distributed workloads across the data center. The 10000 Series Adapter also enables simple deployment by means of a single driver and management model that reduces software stack complexity.

INDUSTRY FIRST
The 10000 Series FabricCache Adapter is an industry-first, patent-pending, SAN connectivity product that accelerates data throughput to dramatically improve application performance by using industry-standard PCIe Flash as its data cache.

Built on Fibre Channel Host Bus Adapter, caching, and I/O management technology that has been hardened and proven in the enterprise, QLogic has created an adapter that transparently caches SAN data to QLE10000 Flash. The caching accelerates server I/O access and uniquely allows

servers to pool and share access to the cache. Today's enterprise applications demand faster I/O access because they are clustered and virtualized, and have distributed workloads across the data center. The QLogic FabricCache Adapter uniquely addresses these needs by providing shared, cached data and adapter clustering, which in turn maintains cache coherence, high availability, and optimal allocation of cache resources.

CACHING OFFLOAD TO ADAPTER HARDWARE
The 10000 Series Adapter controls all caching and Flash cache management in the adapter hardware, with zero changes as a standard Fibre Channel adapter in the server. This control results in a solution that is application-transparent, as well as infrastructure and storage subsystemagnostic. The 10000 Series Adapter caching offload enables faster application response time, provides lower latencies for data access, and results in increased productivity.

By providing full hardware offload, QLogic adapters deliver significant performance benefits and remove the protocol processing overhead from the CPU. Offloading conserves precious CPU cycles for applications and services, and it maximizes server virtualization ratios and saves RAM.

SINGLE SERVER TRANSPARENT CACHING

Because the 10000 Series Adapter contains Fibre Channel adapter functionality, it is fully aware of the read/write I/O traffic on the Fibre Channel link in a single server. This awareness enables the adapter to make transparent data caching decisions based on throughput traffic patterns, thereby optimizing data access for all applications running on the server.

CLUSTERED SERVER TRANSPARENT CACHING

The 10000 Series Adapter delivers the ability to cluster adapters and share cache between servers. Clustering creates a logical group of adapters that provides a single point-of-management, which cooperates to maintain cache coherence and high availability, and while optimally allocating cache resources.

Unlike standard Fibre Channel adapters, the QLogic FabricCache Adapters communicate with one another using the Fibre Channel infrastructure. This communication provides cluster and cache management across multiple server nodes. After defining caches for LUNs on the SAN, each adapter identifies the owner of the LUN cache. Because all FabricCache Adapters recognize the cache owner for a specific LUN, I/Os are redirected to the cache owner. This distributed cache model enables a single copy of cached data, maximizing the use of the cache and making a very scalable infrastructure.

COMPREHENSIVE OS SUPPORT

Built on QLogic core Host Bus Adapter and storage routing technology, the 10000 Series Adapter uses the QLogic Fibre Channel driver and management stack enhanced for I/O caching. This model greatly simplifies deployment of the 10000 Series Adapter because the hardware provides all of the Flash and cache management, and each OS requires only a standard Fibre Channel driver. The driver uses the QLogic QConvergeConsole® GUI and the Host CLI as management tools for cache creation and management, as well as standard Fibre Channel device management.

Host Bus Interface Specifications

Bus Interfaces (Two PCIe Slots Required)
- Storage adapter: PCIe Gen2 x4 (x8 physical connector)
- PCIe Flash daughter card: PCIe x8 power only

Host Interrupts
- INTx and MSI

Compliance
- *PCI Express Base Specification*, rev. 2.0; *PCI Express Card Electromechanical Specification*, rev. 2.0; *PCI Bus Power Management Interface Specification*, rev. 1.2

Fibre Channel Specifications

Throughput
- 8Gbps full-duplex line rate per port (maximum)

IOPS
- 310,000 initiator IOPS per adapter

Logins per Port
- 2,048 concurrent logins and 2,048 active exchanges

Negotiation
- 8, 4, and 2Gbps autonegotiation

Class of Service
- 2 and 3

Topology
- Switched fabric

Protocols
- FCP-3-SCSI
- FC-Tape (FCP-2)

Flash SSD Specifications

Bus Interface
- PCI Express power only (x8 physical connector)

Memory Type
- Single-level cell (SLC) NAND Flash

Capacity
- 200GB or 400GB

Tools and Utilities

QLogic Management Tools
- QConvergeConsole, a unified GUI tool for adapter and cache configuration and management
- Host CLI, a command line interface for adapter and cache configuration and management
- CIM provider and vSphere™ plug-in for VMware®

Operating Systems
- For the latest applicable operating system information, see http://driverdownloads.qlogic.com

Physical Specifications

Adapter Ports
- Dual 8Gbps Fibre Channel

Form Factor
- Storage adapter: low profile PCIe card (6.6 inches × 2.54 inches)
- 200GB Flash daughter card: low profile PCIe card (6.6 inches × 2.54 inches)
- 400GB Flash daughter card: low profile PCIe card (6.6 inches × 2.54 inches)
- Interconnect cables: 2.20 inches × 0.83 inches and 3.05 inches × 0.83 inches

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)

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

Required Airflow
- 200 linear feet per minute (LFM)

Power Consumption
- Storage adapter 18.5 watts (typical)
- PCIe Flash daughter card 21.5 watts (typical)

Multimode Optic Cable Distance (meters)			
Rate	OM1	OM2	OM3
2Gbps	150	300	500
4Gbps	70	150	380
8Gbps	21	50	150

Agency Approvals

Safety
- US, Canada, and Europe

EMI and EMC (Class A)
- US, Canada, Europe, Australia, New Zealand, Japan, and Korea

RoHS Compliance
- RoHS 6

Ordering Information

- Ships in individually packed boxes with standard size brackets and spare low-profile brackets
- Ships with SR optical SFP transceivers installed

QLE10522 (200GB)
- Storage adapter with two 8Gbps SFPs
- 200GB SLC PCIe daughter card
- Interconnect cables

QLE10542 (400GB)
- Storage adapter with two 8Gbps SFPs
- 400GB SLC PCIe daughter card
- Interconnect cables

Service SKUs Required with FabricCache Adapter Purchase

PRF1-105*xx*C
- One year preferred, 24×7 remote technical support.
- Next business day advanced hardware replacement

PRF3-105*xx*C
- Three years preferred, 24×7 remote technical support.
- Next business day advanced hardware replacement

Follow us:

Share:

QLOGIC®

The **Ultimate** in **Performance**

www.qlogic.com