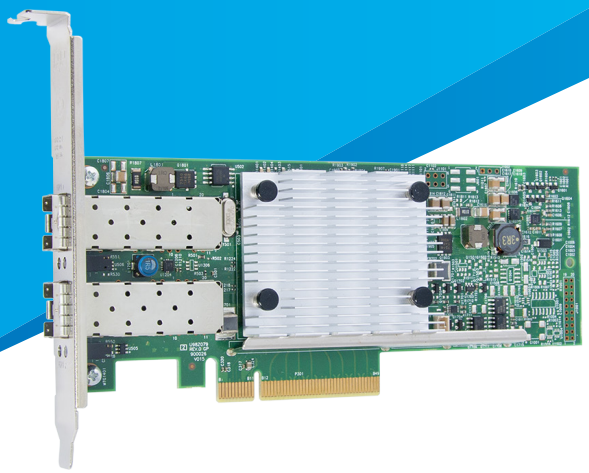
QLogic FastLinQ 8400 Series

10Gb Ethernet Converged Network Adapters



- Delivers full line-rate 10GbE performance across each port
- Consolidates network traffic (TCP/IP, FCoE, and iSCSI) over converged 10GbE connections
- Enables provisioning of 10GbE ports for greater deployment flexibility through switch-independent NIC partitioning
- Boosts host CPU efficiency with hardware offloads for network (TCP/IP) and storage (FCoE and iSCSI) data traffic
- Industry-leading storage (FCoE and iSCSI) transactional performance
- Simplifies deployment, troubleshooting, and lifecycle management using the QLogic QConvergeConsole® GUI, QLogic Control Suite™ CLI, vCenter Plug-in, and OpenStack integration

OVERVIEW

The QLogic® FastLinQ™ 8400 Series 10Gb Ethernet (10GbE) Converged Network Adapters (CNAs) support simultaneous LAN (TCP/IP) and SAN (Fibre Channel over Ethernet [FCoE] and iSCSI) traffic at 10Gb Ethernet (10GbE) line-rate speeds. The 8400 Series provides extremely low host CPU usage by enabling full hardware offloads.

The 8400 Series leverages QLogic's long-standing industry leadership in Ethernet by providing the highest levels of performance, efficiency, and scalability for the enterprise data center.

For more effective utilization of the 10GbE bandwidth, the QLogic FastLinQ 8400 Series CNAs offer switch-independent NIC partitioning (NPAR), which enables segmentation of a single 10GbE port into multiple network partitions and dynamic allocation of bandwidth to each port. The segmentation allows IT organizations to optimize resource utilization while lowering infrastructure and operational expenses (OPEX).

The acceleration of data center convergence—triggered by virtualization, software-defined networking (SDN), and multitenant cloud computing platforms—demands high-performance, converged network solutions. The QLogic FastLinQ 8400 Series CNAs are the solution of choice for workload-intensive computing environments, providing a reliable, high-performance 10GbE connectivity solution.

FEATURES

- PCI Express® (PCIe®) 3.0 x8 (8GT/s) support
- Full line-rate performance across both ports
- Broad OS and hypervisor support
- Network boot support:
  - iSCSI remote boot
  - FCoE boot from SAN
  - Preboot Execution Environment (PXE) 2.0
- Switch-independent NPAR with up to four partition assignments per 10GbE link
- MSI and MSI-X support
- IPv4 and IPv6 offloads
- PCI-SIG® Single Root I/O Virtualization (SR-IOV)
- Comprehensive stateless offloads
- RX/TX multiqueue:
  - VMware® NetQueue
  - Windows® Hyper-V® Virtual Machine Queue (VMQ)
  - Linux® Multiqueue

FEATURES (*continued*)

- Tunneling offloads:
  - Windows Network Virtualization using Generic Routing Encapsulation (NVGRE)
  - Linux Generic Routing Encapsulation (GRE)
  - VMware and Linux Virtual Extensible LAN (VXLAN)
- Receive side scaling (RSS)
- Transmit side scaling (TSS)
- Support for virtual LAN (vLAN) tagging
- Support for jumbo frames larger than 1,500 bytes (up to 9,600 bytes)
- Network teaming, failover, and load balancing:
  - Smart Load Balancing™ (SLB)
  - Link aggregation control protocol (LACP) and generic trunking
- Data center bridging (DCB)

BENEFITS

Designed for Next-Gen Server Virtualization

The 8400 Series CNAs support today's most compelling set of powerful networking virtualization features: SR-IOV, switch-independent NPAR, tunneling offloads (VXLAN, GRE, and NVGRE), and industry-leading performance, thus enhancing the underlying server virtualization features.

- SR-IOV delivers higher performance and lower CPU utilization with increased virtual machine (VM) scalability.
- QLogic NPAR enables up to four physical, switch-agnostic NIC partitions per adapter port that are switch-independent. Dynamic and fine-grained bandwidth provisioning enables seamless migration to 10GbE infrastructure.
- Concurrent support for SR-IOV and NPAR enables virtual environments with the choice and flexibility to create an agile virtual server platform.
- Designed to meet the demands of large public cloud deployments, the 8400 Series CNAs feature tunneling offloads for multitenancy with VXLAN, GRE, and NVGRE support.
- The 8400 Series is designed for maximum flexibility, which enables simultaneous, fully offloaded, high-performance, multiprotocol (FCoE, iSCSI, and NIC) support from each independent port of the adapter.

Extreme Application Performance

The QLogic FastLinQ 8400 Series Adapter features a high-speed, flexible architecture driven by independent, ultra-high performance engines. It delivers the industry's highest performance to meet and exceed the peak demands of the most demanding enterprise application or virtual platform.

- Availability of both RSS and TSS allows for more efficient load balancing across multiple CPU cores.
- Increases server performance with full hardware offload for storage traffic.
- Industry-leading FCoE performance of up to 2.6 million IOPS, suitable for high-density server virtualization and large databases.
- Industry-leading iSCSI performance of up to 1.5 million IOPS, suitable for a diverse set of applications leveraging the flexibility of iSCSI.

OPEX Savings with Low-power PCIe 3.0

The 8400 Series CNAs are PCIe 3.0 based adapters that have one of the lowest power consumption profiles in the industry.

- Supporting the latest generation of host bus connectivity, PCIe 3.0 enables the 8400 Series Adapters to deliver line rate dual-port performance without compromise.
- The 8400 Series Adapters are designed to provide maximum power efficiency, consuming a mere 7.85 watts (nominal, single-port -CU with DAC) of power and yet delivering a fully offloaded, high-performance I/O connectivity platform.

Simplified Management

The QLogic QConvergeConsole (QCC) delivers a broad set of powerful Ethernet and Fibre Channel (FC) adapter management features for administrators to maximize application performance and availability. Available in both GUI and CLI options, QCC offers application-based wizards to enable the environment to be quickly and easily provisioned based on published best practices. Additionally, vCenter Plug-ins and OpenStack integration are also available.

Leadership, Confidence, and Trust

QLogic FastLinQ adapters offer users peace of mind and confidence, as proven through the company's market share leadership: #1 in Converged Network Adapters. The 8400 Series CNAs offer the highest reliability, availability, and serviceability options that customers rely on to meet and exceed stringent service-level agreements for enterprise data centers.

Host Bus Interface Specifications

Bus Interface
- PCI Express (PCIe) 3.0 x8 (x8 physical connector)

Host Interrupts
- MSI-X supports independent queues

I/O Virtualization and Multitenancy
- SR-IOV
- Switch-independent NPAR
- GRE and NVGRE packet task offloads
- Virtual Extensible LAN (VXLAN) packet task offloads

Compliance
- *PCI Base Specification*, rev. 3.0
- *PCI Bus Power Management Interface Specification*, rev. 1.2
- Advanced configuration and power interface (ACPI) v2.0

Ethernet Specifications

Throughput
- 10Gbps line rate per port

Ethernet Frame
- 1,500 bytes and larger (jumbo frame)

Stateless Offload
- TCP segmentation offload (TSO)
- Large send offload (LSO)
- Large receive offload (LRO)
- Giant send offload (GSO)
- TCP and user datagram protocol (UDP) checksum offloads
- Receive segment coalescing (RSC)
- Interrupt coalescing
- RSS and TSS
- VMware NetQueue, Microsoft VMQ, and Linux Multiqueue

Compliance
- IEEE 802.3-2012 Clause 52 (10Gb Ethernet Optical)
- SFF8431 Annex E (10Gb Direct Attach Copper)
- IEEE 802.1q (VLAN)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3x (Flow Control)
- IPv4 (RFC 791)
- IPv6 (RFC 2460)
- IEEE 802.1Qbb (Priority-Based Flow Control)
- IEEE 802.1Qaz (DCBX and ETS)

FCoE Specifications

Performance
- 2.6 million FCoE IOPS (QLE8442)

iSCSI Specifications

Performance
- 1.5 million iSCSI IOPS (QLE8442)

Tools and Utilities

Management Tools and Device Utilities
- QLogic Control Suite (Windows, Linux, and CLI)
- QConvergeConsole® GUI
- QConvergeConsole Plug-ins for vSphere (VMware)
- Native OS management tools for networking

Boot Support
- iSCSI remote boot
- FCoE boot from SAN
- PXE 2.0

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

Physical Specifications

Ports
- QLE8440: single 10Gbps Ethernet
- QLE8442: dual 10Gbps Ethernet

Form Factor
- PCI Express short, low-profile card: 167.65mm × 68.90mm (6.60in. × 2.71in.)

Agency Approvals—Safety

US/Canada
- UL 60950-1
- CSA C22.2

Europe
- TUV EN60950-1
- TUV IEC 60950-1
- CB Certified

Agency Approvals—EMI and EMC

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

Europe
- EN55022
- 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

Environmental and Equipment Specifications

Temperature
- Operating: 32°F to 131°F (0°C to 55°C)
- Storage: –40°F to 149°F (–40°C to 65°C)

Airflow
- 100LFM at 55°C

Humidity (Relative, Non-condensing)
- Non-operational: 93% max at 65°C
- Operational: 7% -93% at 55°C

Power
- QLE8440-CU: 7.85 watts (nominal)
- QLE8442-CU: 8.40 watts (nominal)
- QLE8440-SR: 8.45 watts (nominal)
- QLE8442-SR: 9.60 watts (nominal)

Ordering Information

QLE8440-CU (Single-port)
- Ships with an empty SFP+ cage (optics and cables are not included)[1]

QLE8442-CU (Dual-port)
- Ships with empty SFP+ cages (optics and cables are not included)[1]

QLE8440-SR (Single-port)
- Ships with SR optical transceiver[1]

QLE8442-SR (Dual-port)
- Ships with SR optical transceivers[1]

1 Ships with a standard-size bracket installed. A spare low-profile bracket is also included.

Follow us:

Share:

Share

Share

Share

QLOGIC®

www.qlogic.com

Corporate Headquarters QLogic Corporation 26650 Aliso Viejo Parkway Aliso Viejo, CA 92656 949-389-6000

International Offices UK | Ireland | Germany | France | India | Japan | China | Hong Kong | Singapore | Taiwan | Israel