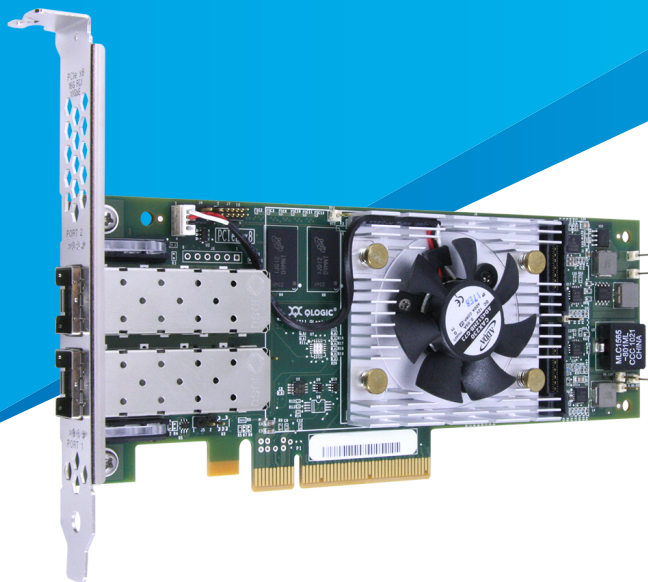


QLogic® 8300 Series

10Gbps Ethernet-to-PCIe® Converged Network Adapters



- 10GbE per-port maximum throughput for high bandwidth storage and networking traffic
- Reduced hardware, cabling, and management costs by enabling more applications (VMs) to run on a single server with converged traffic to top-of-the-rack switch
- Decreased power and cooling costs by using the fewest PCI Express® lanes in PCIe® Gen3 environments
- Overlapping protection domains (OPD) to ensure a high level of reliability as data moves to and from the PCI bus
- Future-proof design enables conversion to a 16Gb Fibre Channel Adapter

OVERVIEW

The 8300 Series Adapters are QLogic's fourth generation of Converged Network Adapters. The 8300 Series supports simultaneous LAN (TCP/IP) and SAN (Fibre Channel over Ethernet (FCoE) and iSCSI) traffic at line rate, 10Gbps Ethernet (GbE) speeds at extremely low CPU usage with full hardware offloads. This extreme performance eliminates potential I/O bottlenecks in today's powerful multiprocessor, multicore servers.

In addition, support for powerful virtualization features makes this adapter ideal for virtualized environments that need excellent I/O performance to service growing numbers of virtual machines (VMs). The ability to simultaneously support multiple protocols on the same hardware offers multitenancy flexibility, which is ideal for private and public cloud environments.

LEADERSHIP, CONFIDENCE, AND TRUST

QLogic is the undisputed leader in Fibre Channel and Converged Network Adapters, with over 20 years of experience and more Fibre Channel and FCoE ports deployed than any other vendor. QLogic's Fibre Channel and Converged Network Adapters have been qualified by all major server and storage OEMs to provide networking, Fibre Channel, iSCSI, and FCoE connectivity from host and storage to fabric. QLogic is the only vendor with proven Ethernet, Fibre Channel, FCoE, and iSCSI stacks.

VIRTUALIZATION OPTIMIZED

The 8300 Series Adapters, powered by QLogic VMflex™ technology, support QLogic's switch-agnostic NIC partitioning (NPAR) technology as well as industry-standard I/O virtualization technologies. Single-root input/output virtualization (SR-IOV) enhances I/O performance in virtualized environments and improves VM scalability for increasing storage and networking workloads.

SUPERIOR APPLICATION PERFORMANCE

The QLogic 8300 Series of Converged Network Adapters, powered by QLogic FlexOffload® technology, consume the lowest CPU to drive FCoE and iSCSI storage traffic at line rate across all ports. With support for over 1.2 million I/O transactions per second, QLogic adapters reduce latency and deliver the best storage application performance in high-transaction intensive applications and both virtualized and nonvirtualized environments.

SIMULTANEOUS SUPPORT FOR MULTIPLE PROTOCOLS

The QLogic 8300 Series Adapters reduce data center costs by simultaneously converging FCoE, TCP/IP, and iSCSI traffic on the same hardware. This convergence results in buying fewer adapters, cables, and switches. In addition, convergence offers lower power consumption, reduced cooling, and easier LAN and SAN management.

INVESTMENT PROTECTION

The 8300 Series Adapters are also compatible with the same 10GbE networking, 1 and 10GbE iSCSI, and Fibre Channel and FCoE software driver stack that is shipping today on QLogic's 8100 and 8200 Series Converged Network Adapters. This driver stack has been tested and validated across all major hardware platforms, all major hypervisors and OSs, and has been battle-hardened in millions of previous installations.

SIMPLIFIED MANAGEMENT

QLogic's unified management application, QConvergeConsole® (QCC), provides single-pane-of-glass management for the company's broad product line of storage and networking adapters (Fibre Channel, converged networking, NIC, and iSCSI).

In addition, QLogic supports all major APIs, giving end users the flexibility to manage their QLogic Fibre Channel Adapter portfolio using third-party management tools, including a vCenter™ plug-in for VMware®.

FUTURE-PROOF DESIGN

The QLogic 8300 Series Adapters can convert from a 10GbE Converged Network Adapter to a 16Gb Fibre Channel Adapter. Based on QLogic I/OFlex™ technology, the adapter's flexibility simplifies and reduces cost for customers who want to deploy an Ethernet SAN today and migrate to a Fibre Channel SAN in the future.

Host Bus Interface Specifications

Bus Interface

- PCI Express Gen3 x4 and Gen2 x8 (x8 physical connector)

Host Interrupts

- INTx and MSI-X

I/O Virtualization

- SR-IOV
- NPAR

Compliance

- PCI Express Base Specification, rev. 3.0
- PCI Express Card Electromechanical Specification, rev. 3.0
- PCI Bus Power Management Interface Specification, rev. 1.2

Ethernet Specifications

Throughput

- 10Gbps line rate per port

Ethernet Frame

- 1,500 bytes or 9,600 bytes (jumbo frame)

Stateless Offload

- IP, TCP, and UDP checksum offloads
- Large and giant send offload (LSO and GSO)
- Large receive offload (LRO)
- Receive side scaling (RSS)
- Interrupt coalescing
- VMware NetQueue™ and Microsoft® VMQ

Compliance

- IEEE: 802.3-2012 Clause 52 (10Gb Ethernet)
- SFF8431 Annex E (10Gb/s Direct Attach Copper)
- 802.1q (VLAN)
- 802.3ad (Link Aggregation)
- 802.1p (Priority Encoding)
- 802.3x (Flow Control)
- IPv4 (RFQ 791)
- IPv6 (RFC 2460)
- 802.1Qbb (Priority-Based Flow Control)
- 802.1Qaz (DCBX/Enhanced Transmission Selection)

FCoE Specifications

Logins

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

Port Virtualization

- N_Port ID virtualization (NPIV)

Compliance

- SCSI-3 Fibre Channel Protocol (SCSI-FCP)
- 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)
- FCoE & FIP (FC-BB-5)

iSCSI Specifications

Compliance

- RFC 3720 (iSCSI)
- RFC 3347 (iSCSI Requirements and Design Considerations)
- CHAP, iSNS, and SLP

Tools and Utilities

Management Tools and Device Utilities

- QConvergeConsole: a unified management tool (GUI and CLI) for Fibre Channel, FCoE, iSCSI, and networking
- Native OS management tools for networking

Boot Support

- Pre-execution environment (PXE), FCoE, and iSCSI boot

APIs

- SNIA HBA API V2
- SMI-S

Operating Systems

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

Physical Specifications

Ports

- QLE8360: single 10Gbps Ethernet
- QLE8362: dual 10Gbps Ethernet

Form Factor

- Low-profile PCIe card: 6.6 inches × 2.54 inches
- Custom form factors also available

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

- Relative (noncondensing): 10% to 90%
- Storage: 5% to 95%

Maximum Cable Distances (Optical)

- Multimode Optic:

Rate	Cable and Distance (m)			
	OM1	OM2	OM3	OM4
10Gbps	33	82	300	400

Agency Approvals

Safety

- US, Canada, and Europe

EMI and EMC (Class A)

- US, Canada, Europe, Australia, New Zealand, Japan, and Korea

Ordering Information

QLE8360-CU (single port)

QLE8362-CU (dual port)

- Ships without transceivers
 - Intended for use with copper cables (not included)
 - A list of approved copper cables is posted at http://www.qlogic.com/Resources/Documents/LineCards/Copper_Cables_Support_Matrix_Line_Card.pdf
- Ships with standard-size bracket installed
- Ships with spare low-profile bracket (-CK and -SP models only)

QLE8360-SR (single port)

QLE8362-SR (dual port)

- Ships with SR optical transceivers and standard-size bracket installed
- Ships with spare low-profile bracket (-CK and -SP models only)

DISCLAIMER

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