

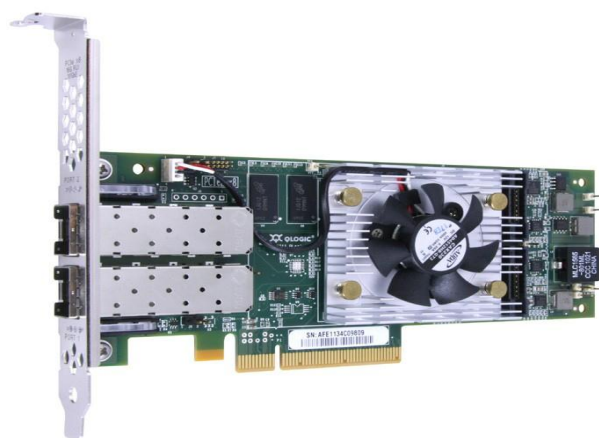
# 8300 Series

## 10Gbps Ethernet-to-PCIe Converged Network Adapters

### Overview

The 8300 Series adapters are QLogic's fourth generation of Converged Network adapters, supporting simultaneous LAN (TCP/IP) and SAN (Fibre Channel over Ethernet (FCoE), iSCSI) traffic at line-rate, 10Gbps Ethernet (GbE) speeds—at extremely low CPU utilization 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 make this adapter ideal for virtualized environments that need excellent I/O performance to service growing numbers of virtual machines (VMs). The ability to support multiple protocols simultaneously on the same hardware offers multi-tenancy flexibility, which is ideal for private and public cloud environments.



## Highlights

- 10GbE per port maximum throughput for high bandwidth storage and networking traffic.
- Over One million FCoE IOPS reduce latency in high transaction intensive applications and virtualized environments.
- Single root I/O virtualization (SR-IOV) support for faster performance in virtualized environments.
- Reduced hardware, cabling, and management costs by enabling more applications (virtual machines) 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

## Leadership, Confidence, and Trust

QLogic is the undisputed leader in Fibre Channel and Converged Network adapters, with over 15 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. SR-IOV can be utilized to allow enhanced I/O performance in virtualized environments and improved 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 deliver the best storage application performance in virtualized and non-virtualized environments.

## Support for Multiple Protocols Simultaneously

The QLogic 8300 Series adapters reduce data center costs by converging FCoE, TCP/IP, and iSCSI traffic simultaneously 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 the same 10GbE networking, 1/10GbE iSCSI, and Fibre Channel/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 new, 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 the end user 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, Gen2 x8 (x8 physical connector)

### Host Interrupts

- INTX and MSI-X

### I/O Virtualization

- SR-IOV
- NIC partitioning (NPAR)

### Compliance

- *PCI Express Base Specification*, rev. 3.0; *PCI Express Card Electromechanical Specification*, rev. 2.0; *PCI Bus Power Management Interface specification*, rev 1.2

## Ethernet Specifications

### Throughput

- 10Gbps full-duplex line rate per-port

### Ethernet Frame

- 1500 byte or 9600 byte (jumbo frame)

### Stateless Offload

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

### Compliance

- *IEEE: 802.3ae (10Gb Ethernet)*, *802.1q (VLAN)*, *802.3ad (Link Aggregation)*<sup>1</sup>, *802.1p (Priority Encoding)*, *802.3x (Flow Control)*, *IPv4 (RFC 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, SLP

## Tools and Utilities

### Management Tools and Device Utilities

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

### Boot Support

- PXE, FCoE, 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 x 2.54 inches)
- Custom form factors also available

## 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%

### Maximum Cable Distances (Optical)

Rate	Multi-Mode Optic			
	Cable and Distance (m)			
	OM1	OM2	OM3	OM4
10Gbps	33	82	300	550

## Agency Approvals

### Safety

- US, Canada, Europe

### EMI and EMC (Class A)

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

## Ordering Information

### QLE8362-CU-CSC-BK

#### (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](http://www.qlogic.com/Resources/Documents/LineCards/Copper_Cables_Support_Matrix_Line_Card.pdf)

1. Contact your QLogic sales representative regarding supported configurations.



[www.qlogic.com](http://www.qlogic.com)

Follow us:



Share:



**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

© 2010, 2011, 2013 QLogic Corporation. Specifications are subject to change without notice. All rights reserved worldwide. QLogic, the QLogic logo, FlexOffload, iOFlex, VMflex, and QConvergeConsole are trademarks or are registered trademarks of QLogic Corporation. PCIe and PCI express are registered trademarks of PCI-SIG. Microsoft is a registered trademark of Microsoft Corporation. VMware and vCenter are trademarks or registered trademarks of VMware, Inc. All other brand and product names are trademarks or registered trademarks of their respective owners. Information supplied by QLogic Corporation is believed to be accurate and reliable. QLogic Corporation assumes no responsibility for any errors in this brochure. QLogic Corporation reserves the right, without notice, to make changes in product design or specifications.