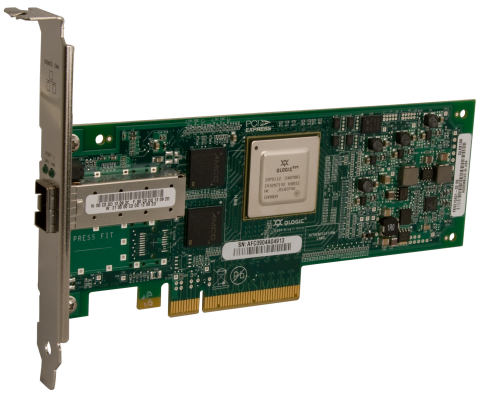
QLOGIC®
The Ultimate in Performance

# QLE8150

## Single Port 10Gbps Enhanced Ethernet to PCIe Converged Network Adapter



### High Performance

- 10Gbps maximum throughput for high bandwidth storage (SAN) and networking (LAN) traffic
- Full hardware offload for FCoE protocol processing
- 250,000 IOPS deliver high I/O transfer rates for storage applications
- Full support for TCP/IP and Ethernet performance enhancements such as priority-based flow control (802.1Qbb), jumbo frames, checksum offloads, and segmentation offloads

### Lower Total Cost of Ownership (TCO)

- Reduced hardware, cabling, power, cooling, and management costs through convergence of data and storage networking
- Preservation of familiar data and storage concepts resulting in lower training and administrative costs

### Investment Protection

- Works seamlessly with existing Fibre Channel (FC) storage
- Communicates via Ethernet, the most common networking technology in the world
- Compatible with existing FC drivers and management applications that have been deployed in millions of existing systems

Fibre Channel over Ethernet (FCoE) Technology. FCoE provides an opportunity to reduce data center costs by converging data and storage networking. Standard TCP/IP and Fibre Channel traffic can both run on the same high speed 10Gbps Ethernet wire, resulting in cost savings through reduced adapter, switch, cabling, power, cooling, and management requirements. FCoE has gained rapid market traction because it delivers excellent performance, reduces data center TCO, and protects current data center investment.

iSCSI. The QLE8150 even supports iSCSI storage protocol using iSCSI software initiators, which are available with all major operating systems.

High Performance. The QLE8150 boosts system performance with 10Gbps speed and full hardware offload for FCoE protocol processing. Cutting edge 10Gbps bandwidth eliminates performance bottlenecks in the I/O path with a 10X data rate improvement versus existing 1Gbps Ethernet solutions. Additionally, full hardware offload for FCoE protocol processing reduces system CPU utilization for I/O operations, which leads to faster application performance and higher levels of consolidation in virtualized systems.

Lower TCO. The QLE8150 reduces data center costs through convergence. Now, one converged network adapter can do the work of a discrete FC host bus adapter and Ethernet NIC. This convergence also means fewer cables, fewer switches, less power consumption, reduced cooling, and easier LAN and SAN management.

Investment Protection. The QLE8150 and FCoE are designed to preserve existing investment in Fibre Channel storage and core Ethernet switches and routers for data networking. The QLE8150 leverages the same identical software driver stacks that have been deployed and battle-hardened in millions of previous installations, and preserves familiar FC concepts such as WWNs, FC-IDs, LUN masking, and zoning.

Unmatched Expertise. QLogic has an unparalleled advantage in delivering this new converged network adapter technology. QLogic is the undisputed leader in both FC and iSCSI adapters, with years of experience providing FC and Ethernet based products.

## Host Bus Interface Specifications

### Bus interface
- PCI Express Gen1 x8 or PCI Express Gen2 x4

### Hardware platforms
- IA32 (x86); Intel64, AMD64 (x64), IA64, SPARC®, PowerPC®

### 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

## Ethernet Specifications

### Throughput
- 10Gbps full duplex line rate

### Topology
- Any 10Gb Ethernet Network

### Ethernet Frame
- 1500 byte or 9000 byte (Jumbo Frame)

### Stateless offload
- IP, TCP, and UDP checksum offloads
- Large and Giant Send Offload (LSO, GSO)
- Receive Side Scaling (RSS)
- Header-data split
- Interrupt coalescing
- NetQueue

### Enhanced Ethernet
- Priority-based flow control (802.1Qbb rev. 0)
- Enhanced transmission selection (802.1Qaz rev. 0)
- DCBX protocol (802.1Qaz rev. 0)

### Compliance
- *IEEE: 802.3ae (10Gb Ethernet), 802.1q (VLAN), 802.3ad (Link Aggregation), 802.1p (Priority Encoding), 802.3x (Flow Control), 802.3ap (KX/KX4), 802.3ak (CX4), IEEE 1149.1 (JTAG), IPv4 Specification (RFC 791), IPv6 Specification (RFC 2460), TCP/UDP Specification (RFC 793/768), ARP Specification (RFC 826)*

## FCoE Specifications

### Performance
- 250,000 IOPS

### Logins
- Support for 2048 concurrent logins and 2048 active exchanges

### Class of service
- Class 3

### Protocols
- FCP (SCSI-FCP), FC-TAPE (FCP-2)

### 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)*

## Tools and Utilities

### Management tools and device utilities
- SANsurfer® (GUI and CLI) for FCoE
- SANsurfer (CLI) and OS-based management tools for NIC
- Utilities for programming boot code; Linux® scripting tools

### Boot support
- LAN and SAN boot (PXE, BIOS, UEFI, FCode)

### APIs
- SNIA HBA API V2, SMI-S, and FDMI
- NDIS 5.*x*, NDIS 6.*x*, and WMI

### Operating systems
- Windows Server® 2003, 2008, 2008 R2 (targeted); Red Hat® RHEL AP 5.*x;* Novell® SLES 10.*x*, 11; VMware® ESX/ESXi 3.5, 4.0 (targeted); Solaris 10, OpenSolaris™ (targeted)

## Physical Specifications

### Ports
- Single 10Gbps Ethernet (SFP+)

### Form factor
- Low profile PCI Express card: (6.6 in. × 2.54 in.)

## Environment and Equipment Specifications

### Airflow
- 100 LFM

### 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%

### Power dissipation
- 6.9 watts (typical)

## Agency Approvals—Product Safety

### US/Canada
- UL60950-1; CSA C22.2 60950-1

### Europe
- EN60950-1:2006+A11; EN60825-1:1994+A1+A2; EN60825-2:2004

## Agency Approvals—EMI and EMC

### US/Canada
- FCC CFR Title 47, Part 15, Subpart B:2007 Class A; ICES-003:2004 Class A

### Europe
- EN55022:2006 Class A; EN55024:1998; EN61000-3-2:2006; EN61000-3-3:1995+A1+A2

### Asia/Pacific
- VCCI:2008-04 Class A (Japan); KCC-RRL KN22 KN24 Class A (Korea); AS/NZS CISPR 22:2006 Class A (Australia/NZ); BSMI CNS 13438:2006 Class A (Taiwan)

## Ordering Information

### QLE8150-CU-CK, QLE8150-CU-BK
- Ships without a transceiver. Intended for use with copper cables (sold separately). A list of approved copper cables is posted at www.qlogic.com/Products/CU_Cables.aspx

All -CK parts ship in an individually packed box with a standard size bracket, a spare low-profile bracket, and a Quick Start Guide.

All -BK parts ship in a bulk box in quantities of 20 or 50 with standard size brackets.

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Corporate Headquarters QLogic Corporation 26650 Aliso Viejo Parkway Aliso Viejo, CA 92656 949.389.6000 www.qlogic.com

Europe Headquarters QLogic (UK) LTD. Quatro House Lyon Way, Frimley Camberley Surrey, GU16 7ER UK +44 (0) 1276 804 670

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