

Marvell® QLogic® 8300 Series

Dual-Personality 16Gb Fibre Channel/10GbE to PCIe Converge Network Controllers

- 10GbE per-port maximum throughput for high bandwidth converged storage (SAN) and networking traffic, as well as support for linerate native 16Gb Fibre Channel traffic on both ports.
- Over 500,000 Fibre Channel/FCoE IOPS per port reduce latency in high transaction intensive applications and virtualized environments.
- Reduced hardware, cabling, and management costs by enabling simultaneous TCP/IP, FCoE, and iSCSI on one controller. The same controller can also support native 16Gb Fibre Channel with full backward compatibility.
- Decreased power and cooling costs by using the fewest PCI Express® lanes in PCIe® 3.0 environments.
- OPD to ensure a high level of reliability as data moves to and from the PCI bus.
- Complete investment protection for legacy 8Gb and 4Gb Fibre Channel infrastructure.
- Flexible network port configurations with a rich mix of 16Gbps Fibre Channel and 10GbE options.

The 8300 Series Controllers are QLogic's fourth generation of Converged Network Controllers. They boast industry-leading native Fibre Channel performance—achieving dual-port, line-rate, 16-gigabit Fibre Channel throughput—at extremely low CPU utilization with full hardware offloads. In addition, the controllers support simultaneous LAN (TCP/IP) and SAN (Fibre Channel over Ethernet (FCoE) and iSCSI) traffic at line rate, 10Gbps Ethernet (GbE) speeds. This extreme performance eliminates potential I/O bottlenecks in today's powerful multiprocessor, multicore servers.

QLogic's end-to-end data integrity with overlapping protection domain (OPD) and support for the T10 data integrity field (DIF) makes the 8300 Series Controllers ideal for file- and block-based storage controller applications. The ability to support either 16Gb Fibre Channel or 10GbE and multiple protocols simultaneously on the same hardware offers multitenancy flexibility, which is ideal for private and public cloud environments.

Unmatched Expertise

QLogic is the undisputed leader in Fibre Channel and Converged Network Adapters, with over 15 years of experience and more than 11 million Fibre Channel and FCoE ports deployed. QLogic's Fibre Channel and Converged Network Controller products have been qualified by all major storage OEMs to provide native Fibre Channel, iSCSI, and FCoE connectivity from storage to fabric. QLogic is the only vendor with proven Ethernet, Fibre Channel, FCoE, and iSCSI software.

Superior Performance

The QLogic 8300 Series of Converged Network Controllers, powered by QLogic FlexOff-load™ technology, use minimal CPU resources to drive Fibre Channel, FCoE, and iSCSI storage traffic at line rate across all ports. With support for over 500,000 IOPS per port, QLogic controllers deliver the best-in-class application performance.

Power Optimized

The 8300 Series Controllers use QLogic's StarPower™ technology to provide maximum power efficiency. The adapters offer dynamic power management, which ensures that the PCIe host bus link uses the minimal number of PCIe lanes, regardless of whether the server supports PCIe 2.0 or 3.0, to meet the required bandwidth.

Support For Multiple Protocols Simultaneously

The QLogic 8300 Series Controllers reduce data center costs by converging FCoE, TCP/IP, and iSCSI traffic simultaneously on the same hardware. In addition, the same hardware can be programmed to support native 16Gb Fibre Channel, thereby minimizing disruptions to Enterprise data centers.

Investment Protection

The 8300 Series Controllers are also compatible with the same 10GbE networking, 1/10GbE iSCSI, 4/8Gb Fibre Channel, and 10GbE FCoE software API that is shipping today on QLogic's 4000, 2400/2500, and 8100/8200 Series Converged Network Controllers.

Host Bus Interface Specification

Bus Interface

- PCIe x4 3.0, PCIe x8 2.0, PCIe x8 1.0

Host Interrupts

- INTx and MSI-X

Compliance

- *PCIe Base Specification 3.0 (v1.0)*
- *PCIe Card Electromechanical Specification rev 2.0*
- *PCI Bus Power Management Interface Specification rev. 1.2*
- *PCI Hot Plug Specification rev. 1.1*

Ethernet Specification

Throughput

- 10Gbps full-duplex line rate per port

Ethernet Frame

- 1500 bytes or 9600 bytes (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

Board Management Controller (BMC) Support

- SMBus and RMII (network controller-side-band Interface (NC-SI))

Power Management

- Wake on LAN (WoL)
- Energy Efficient Ethernet (802.3az)

Compliance

- IEEE: 802.3ae (10Gb Ethernet),
- 802.1q (VLAN)
- 802.3ad (Link Aggregation)1
- 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)
- 802.1Qau (Congestion Notification)

Fibre Channel and 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 Specification

Compliance

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

Controller Specifications

Valid Port Configurations

- Two 16Gb Fibre Channel ports
- Two 10GbE ports
- One 16Gb Fibre Channel port
- One 10GbE port

Network Interfaces (XAUI, XFI, SFI)

- Optical: 16Gbps SFP+ SR/LR
- Optical: 10Gbps SFP+ SR/LR
- Copper: 10Gbps SFP+ Twinax
- Copper: 10Gbps and 1Gbps RJ-45 (external PHY required)
- Backplane: 10Gbps (KX4), 10Gbps (KR), and 1Gbps (KX)

Memory

- Integrated 2MB SRAM
- 16-bit, ECC-protected DDR3 interface to external DRAM
- Integrated 2MB SRAM for Fibre Channel applications

Temperature

- Operating: 105°C maximum junction temperature
- Storage: -45°C to 125°C

Airflow

- System-design dependent

iSCSI Specification

RoHS Compliance

- Green (RoHS 6 compliant and halogen free)

Packaging

- 29mm × 29mm; 784-ball (FCBGA) and 1.0mm ball pitch

Agency Approvals—Safety

US and Canada

- UL 60950-1
- CSA C22.2

Agency Approvals—EMI and EMC (Class A)

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

Ordering Information

EP8324

- Dual-port embedded controller for storage target applications
- Ships with minimum order of 144 devices (36 devices per tray × 4 trays)



To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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