

8200 Series

Multi-Port 1Gbps and 10Gbps Ethernet-to-PCIe Converged Network Controllers

Overview

The 8200 Series controllers represent QLogic's second generation of Converged Network Controllers, supporting simultaneous LAN (TCP/IP) and SAN (Fibre Channel over Ethernet (FCoE), iSCSI) traffic at line-rate, 10Gbps Ethernet speed. This convergence of networking traffic lowers data center costs by eliminating the need for separate LAN and SAN infrastructure. Data centers now need fewer adapters, cables, and switches, which also means reduced power and cooling costs. In addition, these controllers are fully compatible with existing Fibre Channel and iSCSI storage, providing investment protection for existing infrastructure.



Highlights

- Dual-port, line-rate 10Gbps throughput for moving large amounts of data and eliminating server I/O bottlenecks
- Full hardware offload for FCoE and iSCSI for faster application performance and denser server virtualization
- Stateless offloads for TCP/IP traffic for faster networking performance
- Support for switch agnostic I/O virtualization (NIC partitioning)
- Integrated PHYs shrink the footprint on the circuit board and reduce design complexity
- Converged SAN and LAN traffic for reduced data center capital and operating expenses
- Compatible with existing Fibre Channel and iSCSI storage infrastructure
- Battle-hardened QLogic Fibre Channel and iSCSI driver stacks ensure the highest level of SAN reliability and uptime

Design Flexibility

The 8200 Series of Converged Network Controllers includes three models intended for LAN on motherboard (LOM) solutions: cLOM8214, cLOM8214-KR (with integrated 10GBase-KR PHY), and cLOM8214-RJ (with integrated 10GBase-T PHY). This series also includes the EP8214, intended for embedded storage target applications.

Superior Performance

The 8200 Series controllers support full hardware offload for FCoE and iSCSI protocol processing. QLogic's FlexOffload® features free up the server CPU to perform other tasks. Consequently, server applications can run faster and virtualized servers can support more virtual machines (VMs). Very few controllers in today's market truly support full hardware offload; most rely on the server CPU for FCoE and iSCSI protocol processing.

Lower Data Center Costs

The 8200 Series controllers reduce data center costs by converging data and storage networking. 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.

Simplified Management

Networking, FCoE, and iSCSI management is easy with QLogic's new, unified management application, QConvergeConsole® (QCC). QCC provides single pane-of-glass management for QLogic's broad product line of storage and networking adapters and controllers. The 8200 Series also has API support so that it can be managed by other popular third-party management tools, including native operating system (OS) management tools for networking.

Virtualization Optimized

With QLogic's new NIC partitioning (NPAR) technology, one Converged Network Controller is viewed by the server OS as a flexible mix (up to four per physical port) of standalone NICs, FCoE adapters, and iSCSI adapters, with the ability to allocate guaranteed bandwidth to each virtual adapter. This unique feature is switch agnostic—it is not necessary to pair an 8200 Series controller with any specific 10GbE switch model to enable partitioning.

Proven Reliability

The 8200 Series cLOM8214, cLOM8214-KR, and cLOM8214-RJ controllers are compatible with the same Fibre Channel and iSCSI software driver stacks that have been deployed and battle-hardened in millions of previous installations. These drivers are common across QLogic's lineup of Fibre Channel and iSCSI adapters, simplifying revision management in heterogeneous environments.

Investment Protection

The EP8214 shares compatible APIs with QLogic's 3100 Series adapters (networking), 8100 Series adapters (FCoE), and 4000 Series adapters (iSCSI), making it easy to leverage existing initiator and target mode drivers when developing similar drivers for the EP8214.

Host Bus Interface Specifications

Bus Interface

- PCI Express® Gen2 x8

Host Interrupts

- INTx, MSI, and MSI-X

I/O Virtualization (VMflex™)

- NIC partitioning (NPAR)

Compliance

- PCI Express Base 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
- Microsoft® VMQ

Baseboard Management Controller (BMC) Support

- SMBus
- RMII (NC-SI)

Wake on LAN

- Supported, including magic packet recognition

Compliance

- IEEE: 802.3ae (10Gb Ethernet), 802.1q (VLAN), 802.3ad¹ (Link Aggregation), 802.1p (Priority Encoding), 802.3x (Flow Control), IPv4 (RFQ 791), IPv6 (RFC 2460), 802.1Qbb (Priority-Based Flow Control), 802.1Qaz (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 (EP8214 excluded)

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

- PXE, FCoE, and iSCSI boot

APIs

- SNIA HBA API V2, SMI-S

Operating Systems

- Microsoft Windows Server®, Red Hat® Linux®, Novell® SLES®, VMware ESX®/ESXi, Citrix® XenServer®

Controller Specifications

Typical Port Configurations

- Four 1GbE ports (two 1GbE ports for cLOM8214-RJ)
- Two 10GbE ports
- Two 10GbE ports + two 1GbE ports

Memory

- Integrated 1MB SRAM
- 16-bit ECC-protected DDR3 interface to external DRAM

Input Voltages

- cLOM8214, EP8214: 0.96V core, 2.5V I/O, 1.5V DDR3
- cLOM8214-KR: 0.96V, 1.2V core; 1.8V, 2.5V I/O; 1.5V DDR3
- cLOM8214-RJ: 0.8V, 0.96V core; 1.2V, 2.5V I/O, 1.5V DDR3

Temperature

- Operating: 100°C maximum junction temperature
- Storage: -65°C to 150°C

Airflow

- System-design dependent

Packaging

- cLOM8214, EP8214: 27mm x 27mm, 672 ball
- cLOM8214-KR: 29mm x 29mm, 783 ball
- cLOM8214-RJ: 31mm x 31mm, 900 ball
- Ball pitch: 1.0mm

Ordering Information

cLOM8214

- LOM device with XAUI interface
- Ships with minimum order of 160 devices (40 devices per tray x 4 trays); increments in multiples of 40

cLOM8214-KR

- LOM device with integrated 10GBase-KR/SFI PHY
- Ships with minimum order of 144 devices (36 devices per tray x 4 trays); increments in multiples of 36

cLOM8214-RJ

- LOM device with integrated 10GBase-T PHY
- Ships with minimum order of 108 devices (27 devices per tray x 4 trays); increments in multiples of 27

EP8214

- Embedded controller for storage target applications
- Ships with minimum order of 160 devices (40 devices per tray x 4 trays); increments in multiples of 40

¹ Contact your QLogic sales representative regarding supported configurations.



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