

# QLogic BCM57800S

## Dual-Port 1GbE and Dual Port 10GbE Converged Network Controller



- Delivers full line-rate 10GbE performance across all 10G ports
- Provides 1GbE and 10GbE connectivity options for greater deployment flexibility
- Consolidates network storage traffic over converged 10GbE connections
- Enables provisioning of 10GbE ports for greater deployment flexibility through QLogic Switch Independent NIC Partitioning (NPAR)
- Boosts host CPU efficiency with hardware offload for storage (FCoE and iSCSI) data traffic
- Streamlines administrative tasks with management application and integration into QCS and CCM utilities
- Interoperable with 100Mbps, 1000Mbps, and 10Gbps

### OVERVIEW

QLogic® offers a quad-port Converged Network Controller that provides two 1-gigabit Ethernet (GbE) and two 10GbE connectivity ports for servers. The BCM57800S controller leverages QLogic's long-standing industry leadership in Ethernet, providing the highest levels of performance, efficiency, and scalability for the enterprise data center.

For more effective utilization of the 10GbE bandwidth, the QLogic BCM57800S Converged Network Controller offers QLogic Switch Independent NIC Partitioning, which enables the segmentation of a single 10GbE port into two virtual ports with flexible allocation of bandwidth to each port. The segmentation allows IT organizations to improve resource utilization while lowering infrastructure and operational costs.

Virtualization, cloud computing, High-Performance Computing (HPC), convergence, and clustering initiatives are increasing workload demands. The QLogic BCM57800S Converged Network Controller is the solution of choice for workload-intensive computing environments, providing a reliable, high-performance 10GbE connectivity solution.

### FEATURES

- Quad-port connectivity (two 1GbE and two 10GbE) for servers
- x8 PCI Express® (PCIe®) V2.0 (5 GT/s) support
- Full line-rate performance across all ports
- Broad OS and hypervisor support
- Full iSCSI and Fibre Channel over Ethernet (FCoE) hardware offload
- Network boot support:
  - iSCSI remote boot
  - FCoE boot from SAN
  - Pre-execution environment (PXE) 2.0
- MSI and MSI-X support
- IPv4 and IPv6 offloads
- PCI-SIG® single root input/output virtualization (SR-IOV)
- Comprehensive stateless offloads
- Multi-tenant tunnel offloads
- RX/TX multiqueue
- Receive side scaling (RSS)

**FEATURES** *(continued)*

- Transmit side scaling (TSS)
- Support for jumbo frames up to 9,600 bytes
- Network teaming, failover, and load balancing:
  - Smart Load Balancing™ (SLB)
  - Link aggregation control protocol (LACP) and generic trunking
- Data center bridging (DCB)
- FCoE Converged Network Controller features provide support for:
  - FCoE initialization protocol (FIP) and FCoE Ethertypes
  - Fabric-provided MAC address (FPMA)
  - Boot from SAN
  - Large, concurrent port logins and exchanges (4,096 each)
  - Native OS storage failover and load balancing
  - N\_Port ID virtualization (NPIV)
  - Virtual Fibre Channel (vFC) on Windows Server® 2012 and 2012 R2 Hyper-V®

**BENEFITS****Accelerates Server Performance**

- Boosts network performance with full line-rate 10GbE performance across all ports
- Increases server performance with full hardware offload for storage traffic
- Maximizes server processing performance by reducing CPU overhead and lowering interrupt latency through the use of the MSI-X standard
- Boosts performance in Windows® and Linux® environments by directing interrupts to the server's CPU cores, leveraging TSS and RSS

**Includes Robust Virtualization Capabilities**

- Enhances server CPU scaling through full support of virtualization technologies such as VMware® NetQueue and Microsoft® virtual machine queue (VMQ)
- Enhances network management and efficiency with support for virtual LAN (VLAN) and VLAN tagging

**Streamlines Deployment and Management**

- Increases network flexibility, scalability, and capacity with QLogic Switch Independent NIC Partitioning, segmenting 10GbE ports, and reallocating their bandwidth and resources to address the application's performance requirements
- Unifies the NIC and storage management using the integrated Comprehensive Configuration Management (CCM) or QLogic Control Suite (QCS) management application
- Provides dual-port 10GbE and dual-port 1GbE connectivity for deployment flexibility

## Host Bus Interface Specifications

### Bus Interface

- PCI Express Gen2 x8 (x8 physical connector)

### Host Interrupts

- MSI-X supports independent queues

### I/O Virtualization

- Single-root input/output virtualization (SR-IOV)
  - Maximum virtual functions per device: 128
- QLogic Switch Independent NIC Partitioning
- Network Virtualization using Generic Routing Encapsulation (NVGRE) packet task offloads
- Virtual Extensible LAN (VXLAN) packet task offloads

### Compliance

- PCI Express Base Specification, rev. 2.0
- PCI Bus Power Management Interface Specification, rev 1.2
- Advanced Configuration and Power Interface (ACPI), v2.0
- SMBus 2.0

## Ethernet Specifications

### Throughput

- 10Gbps full-duplex line rate per port

### Ethernet Frame

- 1,500 bytes and larger (jumbo frames)

### Stateless Offload

- TCP segmentation offload (TSO)
- Large send offload (LSO)
- Large receive offload (LRO)
- Giant send offload (GSO)
- TCP and user datagram protocol (UDP) checksum offloads
- Receive segment coalescing (RSC)
- Hardware transparent packet aggregation (TPA)
- Interrupt coalescing

- RSS and TSS

- Maximum of 16 queues per any (1GbE or 10GbE) physical function (PF) in single function (SF) and QLogic Switch Independent NIC Partitioning modes

- VMware NetQueue and Microsoft virtual machine queue (VMQ)

### Compliance

- IEEE 802.3ae (10Gb Ethernet)
- IEEE 802.1q (VLAN)
- IEEE 802.3ad (Link Aggregation)
- IEEE 802.3x (Flow Control)
- IPv4 (RFC 791)
- IPv6 (RFC 2460)
- IEEE 802.1Qbb (Priority-Based Flow Control)
- IEEE 802.1Qaz (DCBX and Enhanced Transmission Selection)
- IEEE 802.1AS/1588 (Hardware Precision Time Protocol)

## Tools and Utilities

### Management Tools and Device Utilities

- QLogic Control Suite (QCS)
- QLogic Comprehensive Configuration Management (CCM)
- Native OS management tools for networking

### Boot Support

- iSCSI remote boot
- FCoE boot from SAN
- PXE 2.0

### Operating System Support

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

## Controller Specifications

### Ports

- Dual 1Gbps Ethernet and dual 10Gbps Ethernet

### Connectors

- 10GbE: two SFP+ ports or two RJ-45 ports (with external 10GBASE-T PHY)
- 1GbE: two RJ-45 ports (with external 1GBASE-T PHY)

### Certifications

- RoHS, FCC A, UL, CE, VCCI, BSMI, C-Tick, KCC, TUV, and ICES-003

### Temperature

- Storage: less than 86°F (less than 30°C)

### RoHS Compliance

- Green (RoHS 6 compliant and halogen free)

### Packaging

- 23mm × 23mm, 484-ball, flip-chip ball grid array with heat spreader (FCBGA-H); 1.0mm ball pitch

### BCM57800S, part number BCM57800SB0KF5BG

- Ships with a minimum order of 420 devices (60 devices per tray × 7 trays)

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