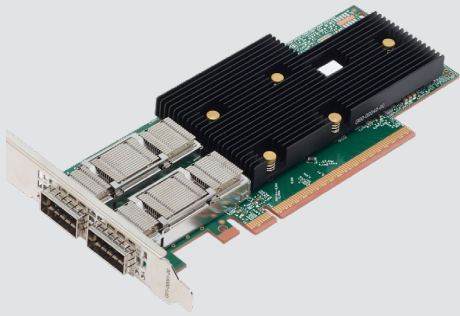


Product Brief



Key Features

- Single/Dual/Quad-port 400Gb/s aggregate throughput
- 25 Gb/s to 400 Gb/s throughput
- 8x SerDes (25G, 50G, or 100G)
- PCIe Gen 5.0 x16 host interface
- Multi-host up to four hosts
- RoCEv2
- kTLS/QUIC inline encryption
- Transmit pacing
- TruFlow™ 400G flow offload
- Secure boot and attestation
- Silicon root of trust
- Peer memory direct
- Standards-based system management
- Embedded PCIe analyzer

Applications

- GPU server networking (scale-out and front-end)
- Artificial Intelligence (AI) and Machine Learning (ML)
- High-performance computing (HPC) Cloud and enterprise data center servers
- Network Function Virtualization
- NVMe storage disaggregation
- Storage servers

BCM57608 Ethernet NIC Adapters

400Gb/s Ethernet NIC with Gen5 PCIe and 100G PAM-4 SerDes

Overview

Based on Broadcom's scalable 400G Ethernet controller architecture, the BCM57608 400G NIC adapters are designed to build large scale, feature-rich networking solutions in servers for AI/ML, cloud, high-performance computing, and storage applications.

The BCM57608 NIC adapters build upon the success of the widely deployed Broadcom architecture by combining a high-bandwidth Ethernet controller with a unique set of highly optimized hardware acceleration engines to enhance network performance and improve server efficiency.

The adapters support fourth-generation, standards-based RDMA over Converged Ethernet (RoCE) with hardware-based congestion control. Broadcom's RoCE congestion control delivers the lowest latency in real-life scenarios and dramatically reduces the complexity of RoCE deployment at scale.

The BCM57608 400G NIC adapters address the performance requirements of mega-scale data center networks with high throughput and advanced flow processing offloads. Features such as TruFlow™ increase virtual machine density by freeing up CPU cycles. The adapter supports technology-leading security enabling the Industry's most secure server platform with secure boot and attestation anchored in Broadcom's silicon root of trust (RoT).

Benefits

- Lowers data center total cost of ownership (TCO) with the industry's lowest-power, 400G NIC.
- Best-in-class 100G SerDes increases DAC cable reach to 5 meters and reduces optics power with Linear Pluggable Optics (LPO) support.
- Enables large-scale RoCE deployment with state-of-the-art congestion control and load balancing.
- Inline encryption support to offload CPU and improve system and application performance.
- Precision timing features with sub-ns accuracy.
- Improves network reliability and real-time control with in-band telemetry.
- Accelerates applications with kernel-bypass: RDMA, DPDK, and SR-IOV.
- Improves CPU efficiency for I/O with comprehensive stateless offloads.

Features

• Network Interface:

- 8 Network SerDes
- 100/50G PAM4 and 25G NRZ
- Single/Dual/Quad-port
- 400/200/100/50/25G
- 400Gb/s total bandwidth
- Auto-negotiation with auto-detect
- IEEE-1588v2

• Host Interface:

- 16 lanes of PCI Express 5.0
- Link rates: 32, 16, 8, 5, 2.5 GT/s
- Lane configuration: x16, x8, x4, x2, and x1
- MSI-X support

• Platform Security:

- HW Secure Boot (RoT)
- Attestation (SPDM)
- OCP Secure Recovery
- Secure Wipe and Restore
- OCP Silver Security Badge (Cert Pending)

• Design Specification:

- Conforms to PCI-SIG CEM / OCP 3.0

• RoCEv2:

- Enhanced DCQCN Congestion Control
- Adaptive routing/Dynamic load balancing
- Programmable Congestion Control
- Peer Memory Direct
- Automated Configuration

• Network Boot:

- UEFI PXE boot
- UEFI L2 iSCSI boot
- UEFI support for x86

• Networking/Virtualizations and Accelerations:

- Multi-Queue, NetQueue, and VMQ
- Single Root I/O Virtualization
- VF isolation and protection
- VXLAN, GRE, NVGRE, Geneve, and IP-in-IP
- Tunnel-aware stateless off-loads
- Edge Virtual Bridging (EVB)
- Stateless TCP offloads: IP/TCP/UDP checksum, LSO, LRO, GRO, TSS, RSS, aRFS, Interrupt coalescing
- kTLS hardware offload encryption/decryption support
- QUIC hardware offload encryption/decryption support

• TruFlow Flow Processing:

- Flexible matching key
- NAT and NAPT
- Tunnel encap/decap
- Custom tunnel processing
- Connection tracking
- Flow aging
- Sampling and mirroring
- Rate-limiting and metering
- Flow-based statistics and aging
- Sampling and mirroring
- Rate-limiting and metering
- Flow-based statistics

• Manageability:

- Network Controller Sideband Interface (NC-SI)
- Management Component Transport Protocol (MCTP)
- MCTP over SMBus/I2C
- MCTP over PCIe VDM
- NC-SI over MCTP
- Platform Level Data Model (PLDM): Base, Monitoring/Control & FW update
- PLDM over MCTP
- I2C support for device control and configuration

Product Portfolio and Ordering Information

NIC Adapter	Form Factor	Default/Max Bandwidth per Port	Host Interface	Network Interface	MPN/Ordering
P1400GD	HHHL PCIe	400G	PCIe Gen5x16	QSFP112-DD	BCM957608-P1400GDF00
P2200G	HHHL PCIe	200/400G	PCIe Gen5x16	2x QSFP112	BCM957608-P2200GQF00
P2200G-PTP (Precision Timing)	HHHL PCIe	200/400G	PCIe Gen5x16	2x QSFP112	BCM957608-P2200GQF10
N1400GD	OCP 3.0	400G	PCIe Gen5x16	QSFP112-DD	BCM957608-N1400GDP00
N2200G	OCP 3.0	200/400G	PCIe Gen5x16	2x QSFP112	BCM957608-N2200GQP00