

ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter

Product Guide

The ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter is a high-performance dual-port 200Gb Ethernet adapter with a PCIe 5.0 x16 host interface that is designed to build highly scalable, feature-rich networking solutions in servers for AI/ML, cloud, high-performance computing, and storage applications.

The adapter uses the Broadcom BCM57608 400GbE MAC controller. Incorporating industry-leading PHY technology, the adapter provides highly efficient network connectivity using 8 lanes of built-in SerDes, each supporting 100/50G PAM-4 and 25G NRZ. The adapter supports fourth-generation, standards-based RDMA over Converged Ethernet (RoCE) with hardware-based congestion control.

The 57608 Ethernet adapter offers two 200Gb Ethernet ports but can also be configured as a 1-port 400Gb adapter with port 1 active and port 2 disabled.



Figure 1. ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter

Did you know?

With its market-leading hardware acceleration technologies, the 57608 Ethernet adapter addresses the performance and service demands of mega-scale data center networks with high throughput and advanced flow processing. 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).

Part number information

The ordering information is listed in the following table.

Table 1. Ordering information

Part number	Feature code	Vendor part	Description
4XC7A95572	C4GA	P2200G	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter

The adapter, when shipped as a stand-alone option part number, include the following items:

- One Broadcom adapter
- An attached full-height (3U) bracket, and a low-profile (2U) bracket that can be substituted if needed
- Documentation flyer

Supported transceivers and cables

The adapter has two empty QSFP112 cages for connectivity.

The following table lists the supported transceivers.

Table 2. Transceivers

Part number	Feature code	Description
200Gb Transceivers		
4TC7A81831	BQJZ	ThinkSystem NDR/NDR200 QSFP112 IB Multi Mode Solo-Transceiver

The following table lists the supported fiber optic cables and Active Optical Cables.

Table 3. Optical cables

Part number	Feature code	Description
Mellanox NDR Multi Mode Fibre Optical Cables		
4X97A81748	BQJN	Lenovo 3m NVIDIA NDR Multi Mode Optical Cable
4X97A81749	BQJP	Lenovo 5m NVIDIA NDR Multi Mode Optical Cable
4X97A81750	BQJQ	Lenovo 7m NVIDIA NDR Multi Mode MPO12 APC Optical Cable
4X97A81751	BQJR	Lenovo 10m NVIDIA NDR Multi Mode Optical Cable
4X97A81752	BQJS	Lenovo 20m NVIDIA NDR Multi Mode Optical Cable
4X97A85349	BSN6	Lenovo 30m NVIDIA NDR Multi Mode MPO12 APC Optical Cable

Features

The ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter has the following features:

- Standards-compliant PCIe 5.0 QSFP112 PCIe NIC with line-rate, full-duplex throughput
 - Single-port 400/200/100/50/25G
 - Dual-port 200/100/50/25G
- High-speed SerDes capable of 100/50G PAM4 and 25G NRZ
- Large-scale RoCE deployment with Switch Aware Rate Adjustment (SARA) and Drop Congestion Notification (DCN)

- Optimized performance with StrataXGS® and StrataDNX™ switches
- Inline encryption engine enables CPU offload and improves application performance
- Peer memory direct for low-latency inter-GPU communication
- On-chip tunneling protocol processing for Geneve, VXLAN, and NVGRE
- Industry's most secure PCIe NIC solution provides unparalleled platform security via silicon Root-of-Trust
- TruFlow™ engine line-rate offload for virtual switch processing
- TruManage™ enhances server manageability and security for data center deployments
- NIC partitioning supporting 16 physical functions (PFs)
- Seamless integration with Broadcom's PCIe Gen 5 PCIe switches for GPU-based AI/ML servers

Specifications

The 57608 Ethernet adapter has the following technical specifications:

- Based on the Broadcom BCM57608-P2200G 2-port controller
- Network Interface:
 - 8 SerDes capable of 100/50G PAM4 and 25G NRZ
 - Support for up to 2 ports
 - QSFP112 support
 - 1x 400GbE
 - 2x 200/100/50/25GbE
 - 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)
- Networking/Virtualizations and Accelerations:
 - RoCEv2
 - 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
- Network Traffic Hairpin
- RoCEv2:
 - Standards-based
 - DCQCN
 - Peer Memory Direct
 - Smart Congestion Control: DCN and SARA
 - Automated Configuration
- 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
- Network Boot:
 - UEFI PXE boot
 - UEFI L2 iSCSI boot
 - UEFI support for x86

Server support

The following tables list the ThinkSystem servers that are compatible.

Table 4. Server support (Part 1 of 4)

Part Number	Description	AMD V3				2S Intel V3/V4				4S 8S Intel V3				Multi Node V3/V4				GPU Rich			
		SR635 V3 (7D9H / 7D9G)	SR655 V3 (7D9F / 7D9E)	SR645 V3 (7D9D / 7D9C)	SR665 V3 (7D9B / 7D9A)	ST650 V3 (7D7B / 7D7A)	SR630 V3 (7D72 / 7D73)	SR650 V3 (7D75 / 7D76)	SR630 V4 (7DG8 / 7DG9)	SR850 V3 (7D97 / 7D96)	SR860 V3 (7D94 / 7D93)	SR950 V3 (7DC5 / 7DC4)	SD535 V3 (7DD8 / 7DD1)	SD530 V3 (7DDA / 7DD3)	SD550 V3 (7DD9 / 7DD2)	SD520 V4 (7DFZ / 7DFY)	SR670 V2 (7Z22 / 7Z23)	SR675 V3 (7D9Q / 7D9R)	SR680a V3 (7DHE)	SR685a V3 (7DHC)	SR780a V3 (7DJ5)
4XC7A95572	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	N	N	

Table 5. Server support (Part 2 of 4)

Part Number	Description	1S V3			Edge				Super Computing			1S Intel V2		2S Intel V2					
		ST50 V3 (7DF4 / 7DF3)	ST250 V3 (7DCF / 7DCE)	SR250 V3 (7DCM / 7DCL)	SE350 (7Z46 / 7D1X)	SE350 V2 (7DA9)	SE360 V2 (7DAM)	SE450 (7D8T)	SE455 V3 (7DBY)	SD665 V3 (7D9P)	SD665-N V3 (7DAZ)	SD650 V3 (7D7M)	SD650-I V3 (7D7L)	SD650-N V3 (7D7N)	ST50 V2 (7D8K / 7D8J)	ST250 V2 (7D8G / 7D8F)	SR250 V2 (7D7R / 7D7Q)	ST650 V2 (7Z75 / 7Z74)	SR630 V2 (7Z70 / 7Z71)
4XC7A95572	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 6. Server support (Part 3 of 4)

Part Number	Description	AMD V1				Dense V2			4S V2	8S	4S V1		1S Intel V1							
		SR635 (7Y98 / 7Y99)	SR655 (7Y00 / 7Z01)	SR655 Client OS	SR645 (7D2Y / 7D2X)	SR665 (7D2W / 7D2V)	SD630 V2 (7D1K)	SD650 V2 (7D1M)	SD650-N V2 (7D1N)	SN550 V2 (7Z69)	SR850 V2 (7D31 / 7D32)	SR860 V2 (7Z59 / 7Z60)	SR950 (7X11 / 7X12)	SR850 (7X18 / 7X19)	SR850P (7D2F / 2D2G)	SR860 (7X69 / 7X70)	ST50 (7Y48 / 7Y50)	ST250 (7Y45 / 7Y46)	SR150 (7Y54)	SR250 (7Y52 / 7Y51)
4XC7A95572	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Table 7. Server support (Part 4 of 4)

Part Number	Description	2S Intel V1							Dense V1			
		ST550 (7X09 / 7X10)	SR530 (7X07 / 7X08)	SR550 (7X03 / 7X04)	SR570 (7Y02 / 7Y03)	SR590 (7X98 / 7X99)	SR630 (7X01 / 7X02)	SR650 (7X05 / 7X06)	SR670 (7Y36 / 7Y37)	SD530 (7X21)	SD650 (7X58)	SN550 (7X16)
4XC7A95572	ThinkSystem Broadcom 57608 2x200/1x400GbE QSFP112 PCIe Ethernet Adapter	N	N	N	N	N	N	N	N	N	N	N

Physical specifications

The PCIe adapter has the following dimensions:

- Length: 167 mm (6.6 in.)
- Height: 64 mm (2.5 in)

Warranty

One-year limited warranty. When installed in a supported server, these adapters assume the server's base warranty and any warranty upgrade.

Agency approvals

The adapter conforms to the following standards:

- Safety Approvals:
 - CB Scheme
 - UL 1977 (connector safety)
 - UL 796 (PCB wiring safety)
 - UL 94 (flammability of parts)
 - CSA C22.2 No. 62368-1-19, 3rd Ed
- EMC approvals:
 - EN 55032:2015 +AC:2016, Class A
 - EN 55024:2010 +A1:2015
 - EN 55035
 - EN 61000-3-2:2014
 - EN 61000-3-3:2013
 - CFR47 Part 15 Subpart B Class A
 - ICES-003 Class A
 - AS/NZS CISPR 32:2015, Class A
 - CNS 15936:2016
 - CNS 15663
 - KN32 Class A
 - KN35
 - VCCI-CISP 32:2016

Related publications

For more information, see the following resources:

- Networking Options for ThinkSystem Servers
<https://lenovopress.com/lp0765-networking-options-for-thinksystem-servers>
- Lenovo ServerProven compatibility information:
<http://serverproven.lenovo.com>
- Broadcom product web page:
<https://www.broadcom.com/products/ethernet-connectivity/network-adapters/p2200g>

Related product families

Product families related to this document are the following:

- [Ethernet Adapters](#)

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