

Sun PCI Express Dual-Port Quad Data Rate InfiniBand Host Channel Adapters

Industry-leading bandwidth, latency,
and ease of deployment



Highlights

- Support three form factors: low-profile PCIe Express (PCIe) adapter, hot-pluggable PCIe ExpressModule (EM), and fabric expansion module (FEM) for Sun Fire and Sun Blade servers
- Create high-performance 10 Gb/sec, 20 Gb/sec, and 40 Gb/sec interconnected server clusters
- Use the full performance of Sun's PCIe servers and blades (up to 80 Gb/sec, full-duplex bandwidth)
- Optimize performance of your computing and database clusters
- Implement highly available clusters by connecting both ports of the two-port host channel adapters (HCAs)
- Offer the industry's lowest latency data link at data rates of up to 40 Gb/sec
- Provide field-upgradable firmware



The Sun family of PCIe Quad Data Rate (QDR) InfiniBand (IB) HCAs provides the ultimate price/performance for both throughput and low latency for servers with eight lanes of either low-profile PCIe or modular hot-pluggable PCIe EM form factors. The Sun Dual Data Rate (DDR) FEM HCA provides blade server modules with connectivity to in-chassis IB switches.

Low-latency, high-throughput computing-fabrics consolidation, power efficiency, and scalability

As an integral part of Sun's portfolio of high-density, low-latency fabric products, Sun PCIe IB HCAs support Message Passing Interface (MPI), IP over InfiniBand (IPoIB), Sockets Direct Protocol (SDP), SCSI RDMA Protocol (SRP), Reliable Datagram Service (RDS), NFS over RDMA, and User Direct Access Programming Library (uDAPL). Many of these protocols use Remote Direct Memory Access (RDMA) to support the most demanding high-performance computing and storage applications.

Sun PCIe IB HCAs are key building blocks for designing leading price/performance server and storage connectivity solutions for today and tomorrow. Service-oriented I/O ensures scalable and granular quality of service for a converged set of datacenter applications, in both native operating system and virtualized server environments. Multiple network and storage connectivity options on a single Sun PCIe Gen 2.0 IB HCA enhance the deployment options and time to solution. End users can use ConnectX, Mellanox's fourth-generation HCA chip solution for incremental and demand-based I/O growth and scaling.

Sun PCI Express Dual-Port Quad Data Rate InfiniBand Host Channel Adapters Specifications



Sun DDR IB FEM

Functional highlights

- TCP, UDP, IP stateless offload
- Large send offload
- Receive-side scaling
- Split header and payload processing
- Multiple send and receive queues
- Interrupt coalesce
- PCIe MSI/MSI-X
- Remote DMA
- Reliable and unreliable connected mode

Form factors

- Sun PCIe Dual-Port QDR IB HCA low-profile adapter
 - Standard low-profile adapter dimensions
- Sun PCIe Dual-Port QDR IB HCA EM adapter
 - Single-wide PCIe EM (108mm x 168.2mm)
- Sun IB Dual-Port DDR PCIe FEM
 - FEM for Sun Blade systems (139.7mm x 35mm)

OS and distribution support

- Solaris 10 OS SPARC Update 7 and higher
- Solaris 10 OS x86 Update 7 and higher
- Red Hat Enterprise Linux 4.7 or higher

- Red Hat Enterprise Linux 5.2 or higher
- SUSE Linux Enterprise Server 10 SP1 or higher
- Microsoft Windows Server 2003/2008
- Open Fabrics Enterprise Distribution (OFED)
- Open Fabrics Windows Distribution (WinOF)
- VMware 3.5 Update 2 or higher

Key applications

- IB grid architectures
- High-performance compute clusters
- Storage solutions
- Clustered database
- Unified datacenter fabrics

PCIe

- PCIe Base 2.0 compliant, 1.1 compatible
- 2.5 GT/sec or 5.0 GT/sec link rate x8 (40 Gb/sec or 80 Gb/sec bidirectional bandwidth)
- Bracket dimensions are PCI CEM compliant: 2.5 in. x 6.6 in.

IB

- IBTA v1.2-compatible design
- 10 Gb/sec, 20 Gb/sec, or 40 Gb/sec per port
- Nine virtual lanes: eight data plus one management
- MTU: 4,096 bytes
- Interoperates with IB switches

Protocol support

- MPI
- IPoIB, SDP, RDS
- SRP, NFS RDMA
- uDAPL

Learn More

To learn more about the Sun PCI Express Dual-Port QDR InfiniBand HCAs, go to: sun.com/products/networking/infiniband.jsp

Connections

The low-profile PCIe adapter and PCIe EM adapter support two 4x IB ports for connecting IB traffic (QSFP connectors); each 4x port supports 10 Gb/sec traffic on SDR, 20 Gb/sec traffic on DDR, and 40 Gb/sec on QDR.

The FEM supports two 4x IB connections to the blade chassis midplane; each 4x connection supports 10 Gb/sec traffic on SDR and 20 Gb/sec traffic on DDR.

Environmental

- Operating voltage: 12 V, 3.3 V
- Maximum power:
 - QDR low-profile PCIe adapter: 13.0 W with passive copper cable, 18.0 W with optical active cable
 - QDR PCIe EM adapter: 13.3 W with passive copper cable, 18.3 W with optical active cable
 - DDR FEM: 12.5 W
- Temperature: 0° C to 55° C

Regulations

Sun PCIe IB HCAs are components of the Sun server module in which they are installed. See the agency certifications of the applicable server module to determine the relevant agency approvals for the server module and HCA combination.