SUN QUAD PORT PCIE 2.0 GIGABIT ETHERNET NETWORKING CARDS

ADVANCED PCIE 2.0 NETWORKING FOR SUN BLADE AND RACK SERVERS

KEY FEATURES

- Choice of form factors: Low profile card and ExpressModule for Sun SPARC and x86 servers
- Available for copper and fiber cabling
- Industry standard PCIe 2.0 doubles the bus speed to 5 GT/sec
- Hardware-based granular server virtualization
- Scalable iSCSI performance for storage connectivity
- Support of Energy Efficient Ethernet (802.1az) and DMA Coalescing for power reduction
- Broad operating systems support

KEY BENEFITS

- 50% lower power consumption than previous generation
- Higher application performance and lower CPU utilization
- Improved virtualization performance with elimination of I/O bottlenecks between virtual machines
- Industry standard, cost effective connectivity to both LANs and iSCSI SANs

Oracle's Sun Quad Port PCIe 2.0 Gigabit Ethernet Networking Cards, incorporating the Intel® i350 Controller, offer high density mutli-port copper and fiber cards designed for Sun's rack and blade servers. These cards address the multi-port network connectivity needs of the changing data center environments. Ideal for slot-constrained servers, Sun Quad Port PCIe 2.0 Gigabit Ethernet Networking Cards provide a simplified low cost alternative to multiple 1 GbE server adapters for Oracle's Sun portfolio of SPARC and x86 servers.

Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP

Advanced networking features for Sun Rack and Blade Servers

Multi-core and virtualized server environments are driving the need for greater networking performance. By efficiently load balancing interrupts across CPU cores, the Sun Quad Port PCIe 2.0 Gigabit Ethernet Networking Cards relieve bottlenecks for various high-performance applications in the data center.

As data center compute needs grow, density increases, and many data centers are reaching their full capacity for powering and cooling sooner than expected. Sun Quad Port PCIe 2.0 Gigabit Ethernet Networking Cards reduce power by 50% over previous generation network adapters by using advanced power reduction technologies such as Energy Efficient Ethernet and DMA coalescing.

Built-in Intel virtualization technology

The Sun Quad Port PCIe 2.0 Gigabit Ethernet Networking Cards are a perfect choice for virtualization environments with the built-in Intel Technology for Virtualization (Intel-VT-c). Intel VT-c includes hardware optimization that helps reduce I/O bottlenecks and improve overall server performance.

In addition, servers deployed with SR-IOV enabled operating system provide direct access to networking hardware for 32 Virtual Machines (VMs) per quad port or 16 VMs per dual port networking card. Direct access to hardware from virtual machines environments increases performance and reduces the number of required adapters, cables and switch ports.

These networking cards also support advanced networking and virtualization capabilities incorporated in Oracle Solaris and Oracle VM for optimizing database and application

ORACLE®

performance

- Hardware classification for Oracle Solaris 11 network virtualization with Zones.

- Support of multiple TX and RX rings for improved scalability

- Dynamic polling in Oracle Solaris 11 to reduce the interrupt rate and improve system efficiency.

- Oracle Solaris Zones for Oracle x86/x64, SPARC T-Series Servers

- Oracle VM Server for SPARC 2.2

Oracle VM (OVM) 3.0.3 including

- Centralized, automated network configuration: Pool-level bridging, bonding, VLAN, multi-pathing.

- Ability to separate networks in order to isolate traffic and maintain a predictable quality of service, live migrate, and cluster heartbeat for virtual machine.

Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF	Sun Quad Port GbE PCIe 2.0 ExpressModule, UTP	Sun Quad Port GbE PCIe 2.0 ExpressModule, MMF

Sun Quad Port PCIe 2.0 Gigabit Ethernet Networking Cards Specifications

Hardware systems/platforms supported
Refer to host server I/O document for most updated list of servers supported
Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP
Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF
• SPARC T4-1 Server
• SPARC T4-2 Server
• Netra T4-1 Server
• Netra T4-2 Server
• Netra Server X3-2
• Sun Server X2-4
• Sun Server X3-2
• Sun Server X3-2L
Sun Quad Port GbE PCIe 2.0 ExpressModule, UTP
Sun Quad Port GbE PCIe 2.0 ExpressModule, MMF
• SPARC T4-4 Server
• SPARC T4-1B Server Module
• Sun Blade X3-2B Server Module

ORACLE®

- Netra SPARC T4-1B Server
- Sun Netra X6270 M2 Server

  Note: Netra servers are supported on N6000 Gen 2 Chassis

Operating Systems and Virtualization

Refer to the specific host server I/O document for most updated list of OS supported

- Oracle Solaris: 10 8/11, 11 11/11 and later
- Oracle Linux 6.2, 6.1, 5.8, 5.7 and with the Unbreakable Enterprise Kernel
- Oracle VM: 3.0.2, 3.0.3, 3.1.1
- Oracle VM Server for SPARC 2.2
- Red Hat Enterprise Linux: 6.2, 6.1, 5.8, 5.7
- Novell SUSE Enterprise Linux: SLES 10 SP3, SLES 11 SP1, SLES 11 SP2
- Microsoft Windows: W2008 R2SP1, W2008 SP2, W2008 R2SP2
- VMware: ESX 5.0, 5.0U1, 4.13, 4.03

Network Management

- Wired for Management (WfM) baseline v2.0 enabled for servers
- DMI 2.0 support, Windows Management Instrumentation (WMI) and SNMP Remote Installation Services (RIS)
- PXE 2.0 enabled through boot read-only memory (ROM)

Virtualization Ready

- PCI-SIG I/O SR-IOV support (Direct Assignment)
- Next Generation VMDq support (8 VMs)
- Support of up to 8 VMs per port (1 queue allocated to each VM)
- Queues per port: 8 TX and 8 RX queues

Performance Features

- TCP and UDP Transmit Segmentation offload (TSO)
- IPv6 support for IP/TCP and IP/UDP receive checksum offload
- MSI-X number of vectors: 25
- Receive Side Scaling (RSS) number of queues per port: 8
- TX and RX queues per port: 8 ea
- Low latency interrupts
- Jumbo Frames:9Kbytes

Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP

- Length: 13.54 cm (5.3 in)
- Width: 6.89 cm (2.71 in)
- Weight: 0.08 kg (0.18 lb)

Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF

- Length: 13.54 cm (5.3 in)
- Width: 6.89 cm (2.71 in)
- Weight: 0.08 kg (0.18 lb)

Sun Quad Port GbE PCIe 2.0 ExpressModule, UTP

- Length: 17 cm (6.69 in)
- Width: 11.2 cm (4.41 in)
- Weight 0.33 kg (0.72 lb)

Sun Quad Port GbE PCIe 2.0 ExpressModule, MMF

- Length: 17 cm (6.69 in)

ORACLE®

- Width: 11.2 cm (4.41 in)
- Weight 0.41 kg (0.9 lb)

Power Requirements

Typical Power Consumption

- Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP: 5.0 W
- Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF: 5.5 W
- Sun Quad Port GbE PCIe 2.0 ExpressModule, UTP: 5.8 W
- Sun Quad Port GbE PCIe 2.0 ExpressModule, MMF: 5.5 W

Environment

- Operating temperature: -5°C to 55°C, non-condensing
- Non-operating temperature: : -40°C to 55°C, non-condensing
- Operating Humidity: 10% to 90% RH, non-condensing, 27° C max wet bulb
- Non-Operating Humidity: 93% RH, non-condensing, 38° C max wet bulb
- Operating Altitude: 3,302m @ 35°C Ambient
- Non-operating Altitude: 12,000m

Network Interface and Data Rate

- 10/100/1000 BASE-T for Copper (UTP)
- 1000 BASE-SX Fiber (MMF)

Host Interface

- Bus type: PCI Express V2.0, 5.0 Gbit Transfer/sec
- Bus width: x4 lane PCI Express 2.0 operable in x4, x8 and x16 slots

Ethernet Standards Supported

- IEEE 802.3, 802.3u, 802.3ab
- IEEE 802.1Q VLAN
- IEEE 802.3az EEE
- IEEE 802.3ad link aggregation
- TCP/UDP/IP h/w checksum off-load

Certifications

- Hardware certifications: FCC, UL, ICES -003, CE, VCCI, BSMI, CTICK, KCC,

Marketing Part Numbers

7100477	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP
7100479	Sun Quad Port GbE PCIe 2.0 Low Profile Adapter, UTP (for factory installation)
7100481	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF
7100482	Sun Dual Port GbE PCIe 2.0 Low Profile Adapter, MMF (for factory installation)
7100483	Sun Quad Port GbE PCIe 2.0 ExpressModule, UTP
7100484	Sun Quad Port GbE PCIe 2.0 ExpressModule, UTP (for factory installation)
7100486	Sun Quad Port GbE PCIe 2.0 ExpressModule, MMF
7100487	Sun Quad Port GbE PCIe 2.0 ExpressModule, MMF. (for factory installation)

ORACLE®

Warranty

Visit oracle.com/sun/warranty for Oracle's global warranty support information on Sun products.

Services

Visit oracle.com/sun/services for information on Oracle's service program offerings for Sun products.

Contact Us

For more information about the Sun Quad Port PCIe 2.0 Gigabit Ethernet Networking Cards, please visit oracle.com/sun or call +1.800.786.0404 to speak to an Oracle representative.

Oracle is committed to developing practices and products that help protect the environment

Hardware and Software, Engineered to Work Together

ORACLE®