

SUN DUAL PORT 10GBASE-T ETHERNET NETWORKING CARDS

ADVANCED PCIE 2.0 10GBASE-T
ETHERNET NETWORKING FOR
SUN BLADE AND RACK SERVERS

KEY FEATURES

- Low profile adapter and ExpressModule form factors for Oracle servers
- Industry-standard PCIe 2.1 support doubles the bus speed to 5 GT/sec
- Auto-negotiates to 100 Mbps, 1 Gbps or 10 Gbps link speeds
- Advanced power management features
- Hardware-based network virtualization supporting up to 128 virtual functions
- Scalable iSCSI performance for storage connectivity
- Data Center Bridging (DCB) support: IEEE compliance to Enhanced Transmission Selection (ETS), Priority-based Flow Control (PFC), and Quantized Congestion Notification
- Broad operating systems support

KEY BENEFITS

- Higher application performance and lower CPU utilization
- Seamless migration from 1 GbE to 10 GbE with advanced power management
- 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 new dual port 10GBase-T Ethernet networking cards are backward compatible with existing 1GBase-T Gigabit Ethernet infrastructure providing seamless migration to 10 Gigabit Ethernet. These cards auto-negotiate link speeds of 10 Gbps, 1 Gbps, and 100 Mbps over existing Cat 6 cable infrastructure with RJ45 terminations. This enables the data center network to evolve by easing the introduction of next generation Ethernet connectivity that includes industry-leading enhancements for both virtualized and converged networking environments.

Advanced Networking Features for Sun Blade and Rack Servers

Multi-core and virtualized server environments are driving the need for greater networking performance. By efficiently load-balancing interrupts across CPU cores, these dual port 10 Gigabit Ethernet networking cards eliminate bottlenecks for high-performance applications in the data center. Implementation of Data Center Bridging standards for lossless and low latency Ethernet along with innovations in Oracle Solaris enables data centers to converge server-to-server, server-to-storage and server-to-LAN communications onto a single Ethernet fabric.

Built-in Virtualization Technology

Server virtualization may reduce the number of physical servers, but it increases the demands placed on the network requiring additional capacity, capabilities and devices. Virtual networking capabilities are becoming increasingly important with the growing use of virtual machines, distributed applications, and cloud infrastructures.

Oracle's new dual port 10GBase-T Ethernet networking cards enable virtual machines to be deployed with SR-IOV in order to gain direct access to networking hardware for up to 128 virtual machines per networking card. Direct access to hardware from virtual machine environments increases performance and reduces the number of required adapters, cables, and switch ports. Additional hardware-based capabilities deliver I/O virtualization and quality-of-service features that eliminate bottlenecks and improves overall application performance.

In addition, Oracle Solaris implements zero overhead server virtualization and Edge Virtual Bridging in order to improve both VM performance and improve traffic forwarding between VMs.

Advanced networking and virtualization capabilities incorporated in Oracle Solaris and Oracle VM optimize database and application performance. These capabilities include:

- Hardware classification for Oracle Solaris 11 network virtualization with zones

- Support for multiple Tx and Rx rings for improved scalability
- Dynamic polling in the Oracle Solaris 11 in order to reduce the interrupt rate and improve system efficiency
- Oracle Solaris Zones for Oracle x86/x64 or SPARC T-Series servers
- Edge Virtual Bridging for improving traffic forwarding between VMs
- Centralized, automated network configuration: pool-level bridging, bonding, VLAN, multi-pathing
- Oracle VM Server for x86 3.0.2: network separation isolates traffic for management, live migration, and cluster heartbeat, storage, and virtual machines

Sun Dual Port 10GBase-T Ethernet Networking Cards Specifications

Hardware Systems
<p>Sun Dual Port 10GBase-T Adapter</p> <ul style="list-style-type: none"> • SPARC T4-1 Server • SPARC T4-2 Server • Netra SPARC T4-1 • Netra SPARC T4-2 • Netra Server X3-2 • Sun Netra X4270 • Sun Server X2-4 • Sun Server X3-2 • Sun Server X3-2L <p>Sun Dual Port 10GBase-T ExpressModule</p> <ul style="list-style-type: none"> • SPARC T4-4 Server • SPARC T4-1B Server Module <p>Refer to host server's documentation for the latest hardware support list</p>
Operating Systems and Virtualization
<ul style="list-style-type: none"> • Oracle Solaris: 10 8/10 and 11 11/11 • 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 • 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 <p>Refer to the host server's documentation for the latest OS support list</p>
Network Management
<ul style="list-style-type: none"> • 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 and UEFI boot for x86 systems and OpenBoot for SPARC systems • iSCSI images can be downloaded
Virtualization Ready
<ul style="list-style-type: none"> • PCI-SIG SR-IOV support (direct assignment) • Support of up to 128 VMs (1 queue allocated to each VM) • Queues per port: 128 Tx and 128 Rx queues

Performance Features	
<ul style="list-style-type: none"> • TCP and UDP Transmit Segmentation Offload (TSO) • TSO Interleaving for reduced latency • IPv6 support for IP/TCP and IP/UDP receive checksum offload • TCP Receive Side Coalescing (RSC), number of flows per port: 32 • Tx and Rx queues per port: 128 each • Jumbo frames: 9 Kbytes 	
Cable Distance	
<ul style="list-style-type: none"> • 100 meter reach over Augmented Category 6 (Cat 6A) and Cat 7 • 55 meter reach over Category 6 (Cat 6) cabling 	
Sun Quad Port 10 GbE PCIe 2.0 ExpressModule, Base-T	
<ul style="list-style-type: none"> • Length: 16.7 cm (6.6 in) • Width: 13.54 cm (5.3 in) • Weight 0.404 kg (0.9 lb) 	
Power Requirements	
Typical Power Consumption <ul style="list-style-type: none"> • Sun Dual Port 10GBase-T Adapter: 14.32 W • Sun Dual Port 10Gbase-T ExpressModule: 14.32 W 	
Environment	
<ul style="list-style-type: none"> • 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: 3,302 m @ 35 °C ambient • Non-operating altitude: 12,000 m 	
Network Data Rate	
Auto-negotiate <ul style="list-style-type: none"> • 10 Gbps, 1 Gbps, 100 Mbps 	
Host Interface	
<ul style="list-style-type: none"> • Bus type: PCIe 2.1 (5.0 Gbps transfer rate) • Bus width: x8 lanes operable, x8 and x16 slots 	
Ethernet Standards Support	
<ul style="list-style-type: none"> • IEEE 802.3an (10 GBase-T, standard) • IEEE 802.1Q VLAN • IEEE 802.3ad link aggregation • TCP/UDP/IP hardware checksum off-load 	
Certifications	
<ul style="list-style-type: none"> • Hardware certifications: FCC, UL, WEEE, RoHS, ICES-003, CE, VCCI 	
Marketing Part Numbers	
7100488	Sun Dual Port 10GBase-T Adapter
7100563	Sun Dual Port 10GBase-T Adapter (for factory installation)
7100490	Sun Dual Port 10GBase-T ExpressModule
7100492	Sun Dual Port 10GBase-T ExpressModule (for factory installation)

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 Sun Dual Port PCIe 2.0 10 Gigabit Ethernet Networking Cards, visit oracle.com or call +1.800.ORACLE1 to speak to an Oracle representative.



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