Sun 10 Gigabit Ethernet Networking Cards with Fixed Transceivers

Next-generation 10 Gb performance with the Intel® 82598EB 10 Gigabit Ethernet Controller

Highlights

- Dual- and single-port 10 Gigabit Ethernet (GbE) networking cards for Sun x64 servers incorporating the Intel® 82598EB 10 Gigabit Ethernet Controller
- Receive-side scaling, advanced packet filtering, Direct Cache Access (DCA), TCP segmentation/large send off-loading (LSO): improves throughput, balances network loads across CPU cores, and lowers CPU utilization for multicore processors (dependency on the feature availability in the server operating system)
- Optimized for virtualized environments, supporting multiple queues and alleviating I/O bottlenecks between virtual machines
- Low-profile cards with integrated XFP SR transceivers (nonpluggable) for standard and low-profile PCIe slots in servers

Sun 10 Gigabit Ethernet (GbE) Networking Cards with Fixed Transceivers, which incorporate the Intel 82598EB 10 Gigabit Ethernet Controller, are designed to meet the throughput and latency requirements of bandwidth-hungry applications such as High Performance Computing, database clusters, and video on demand. In addition, these Sun 10 GbE cards offer advanced features for higher throughput, lower CPU utilization, and virtualization. Ideal for slot-constrained environments, Sun 10 Gigabit Ethernet Cards with Fixed Transceivers provide a simplified alternative to multiple 1 GbE server adapters for Sun's portfolio of x64 servers.

Performance-enhancing features for multi-core and virtualized environments

Today's multicore environments are driving the need for greater networking bandwidth in order to meet the throughput requirements for virtualized server environments, high-volume data transactions, and real-time technologies such as VoIP and video on demand. Offering advanced networking features for efficient distribution of Ethernet workloads across CPU cores, Sun 10 Gigabit Ethernet Networking Cards with Fixed Transceivers help to load-balance interrupts and relieve bottlenecks for various high-performance applications in the datacenter, including iSCSI implementation for Storage Area Networks (SANs).

Sun 10 Gigabit Ethernet Cards with Fixed Transceivers Specifications

Features

- Includes single and dual XFP SR transceivers (fixed to the card and nonpluggable) supporting multimode fiber 62.5/50µm
- Incorporates Intel 82598EB 10 Gigabit Ethernet Controller
- Compatible with x8 standard and low-profile PCIe slots
- Load balancing on multiple CPUs
- I/O acceleration technology — if supported by the operating system
  - Receive Side Coalescing (RSC)
  - Direct Cache Access (DCA) — enables the CPU to prefetch data and avoid cache misses
  - Quick Data Technology — moves data copy from the CPU to the chipset
  - MSI-X low-latency interrupts — load balancing I/O network interrupts
- Virtual Machine Device queues (VMDq) — if supported by the operating system (Linux and Windows)
- Interrupt levels: INTA, MSI, MSI-X support
- Low latency
- Optimized queues: 32 transmit (Tx) and 64 receive (Rx) per port
- Support for most network operating systems
- Remote management support
- RoHS compliant, 2 lead-free3 technology[1]

Physical characteristics — Low Profile Server Adapter

Dimensions

Length: 16.74cm (6.59 in.)
Width: 6.89cm (2.71 in.)
Height: PCI Express, standard: 12cm (4.725 in.)
PCI Express, low profile: 7.92cm (3.12 in.)

LEDs:

Two (on dual-port), one (on single-port), LINK (solid), and ACTIVITY (blinking)

Power requirements

Typical power consumption

Single-port 10.4 W (0.87 A @ 12 V);
dual-port 14 W (1.17 A @ 12 V)

Performance specifications

Maximum Ethernet transfer rate:
10 Gb/sec. for each single port;
16 Gb/sec. total for both ports

Host interface

Bus type: PCI Express 1.1
Bus width: x8 lane PCI Express 1.1 (operable in x8 slots)

Network interface: Optical XFP transceiver

10GBASE-SR (fixed transceivers — not pluggable)
IEEE 802.3ae 2002 compliant

Cabling distance

Fiber type	Minimum modal bandwidth @ 850nm (MHz x km)	Operating range
62.5µm MMF	160	2m to 26m
	200	2m to 33m
50µm MMF	400	2m to 66m
	500	2m to 82m
	2,000	2m to 300m

Ethernet-relevant standards supported

IEEE 802.ae, 2002 compliant
IEEE 802.1Q VLAN
IEEE 802.3ad link aggregation
TCP/UDP/IP h/w checksum off-load

Hardware systems/platforms supported

(refer to product Web pages for most current updates)

Sun Fire™ x4200 M2 server
Sun Fire X4600 M2 server
Sun Fire X4150 server
Sun Fire X4450 server
Sun Fire X4440 server
Sun Fire X4140 server

Operating systems (refer to product Web pages for most current updates)

Windows 2003 32-bit/64-bit Enterprise Edition

Red Hat Enterprise Linux 4 or later

- Red Hat Enterprise Linux 4.6 32-bit/64-bit
- Red Hat Enterprise Linux 5.1 32-bit/64-bit

Learn More

For more details about the Sun 10 Gigabit Ethernet Networking Cards with Fixed Transceivers, go to: sun.com/networking

SUSE Linux

- SUSE Linux Enterprise Server 10 SP1 64-bit
- SUSE Linux Enterprise Server 9 SP3 64-bit (only on Sun Fire X4600 M2 and X4200 M2 servers)

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)

Certifications

Hardware certifications: FCC B, UL, CE, VCCI, BSMI, CTICK, MIC

Ordering part numbers

- X1106A-z/1106A-z — Sun 10 GbE XFP SR PCI Express card includes one 10 GbE port with one fixed XFP SR transceiver (please note that the XFP transceiver is fixed to the card and not pluggable)
- X1107A-z/1107A-z — Sun Dual 10 GbE XFP 2 SR PCI Express card includes two 10 GbE ports with two fixed XFP SR transceivers (please note that the two XFP transceivers are fixed to the card and not pluggable)

[1]Lead and other materials banned in RoHS Directives are either: (1) below all applicable substance thresholds of the EU, or (2) subject to an approved/pending exemption. Lead has not been intentionally added but might still exist as an impurity below 1,000 ppm, or an approved RoHS exemption applies.

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