

# Sun Netra™ X4250 Server

## Just the Facts

SunWIN token #520066

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# Positioning



**Four Hard Disk Version with no DVD**



**Two Hard Disk Version with DVD**

## Introduction

Server spending in the telecommunications industry is growing at a faster rate than overall server market spending. IDC expects telecom server spending to increase at a 5.4% compound annual growth rate (CAGR) from almost \$7.2 billion in 2006 to nearly \$9.4 billion in 2011. This growth rate is more than double the 2.2% CAGR IDC expects for the server market as a whole. This telecom server spending represents 12.9% of total server market revenue in 2006, growing to 15% by 2011. Network equipment providers (NEPs) are expected to purchase servers in support of their own IT operations at a rate slightly higher than some other industries. Server spending in this segment is expected to increase at a 9.9% CAGR through 2011. Server spending by network service providers (NSPs) will grow at almost twice the rate of the overall market, with internal IT growing close to typical market rates.

Growth opportunities are being created in a number of distinct network equipment segmentations. The largest opportunities will be in routing and switching, as well as fiber access and video infrastructure. Overall, broadband and wireless will continue to proliferate rapidly in the developing world. Progress in the demand for content, maturation of critical IPTV applications, and proven network scalability could drive carriers to accelerate deployments. Many countries still have extremely low overall penetration rates for broadband and wireless, and some of the least developed countries have relatively low penetration for voice telephony services on any platform. Key markets with huge short-term growth potential include China, India, Brazil, and Russia.



The Sun Netra X4250 server combines cutting-edge performance with the ruggedness and reliability of the Netra server family. This carrier-grade system can expand up to a 8-way configuration with quad core Intel® Xeon® processors, all in a compact 20-inch deep 2U-footprint, making it ideal to meet the ever increasing demands of next generation networks.

This energy-efficient ruggedized server offers a choice of multiple operating systems, 16 memory slots, 4 internal disk drives, and 6 PCI slots. This server also integrates four Gigabit Ethernet ports to provide connectivity for high-speed, high-bandwidth networking. System uptime is enhanced by redundant hot-swappable AC/DC power supplies and hot-pluggable hard disk drives. Additionally, the Sun Netra X4250 server comes with Integrated Lights Out Management (ILOM) enabling simple remote monitoring and management from anywhere on the network.

As with other Netra servers, the Netra X4250 is a NEBS Level 3 certified and ETSI compliant server making it ideal for the most demanding applications in the toughest environments. In addition to supporting the Solaris™ Operating System, the Sun Netra X4250 server also provides support for Linux and Windows operating systems offering customers flexibility, efficiency, and investment protection.

## **Key Messages:**

- **Performance...do more with less**
  - Run a broad range of applications more efficiently and quickly
- **Expandability and Density..... headroom to grow your business**
  - Up to 16 memory slots and 4 internal disk drives in a 2RU 20-inch deep carrier-grade package. It has 2 PCI-X Slots (1x FL/FH, 1 HL/FH ) and 4 PCIe Slots (1x FL/FH, 3x MD2 low profile, note one slot occupied by SAS host bus adapter (HBA))
- **Energy-efficient.....save power and cooling costs**
  - Customers can save on energy consumption, cooling cost and the environment
  - Customers get the additional power efficiency of the L5408 40W Intel Xeon Quad-Core processor
- **Manage and Monitor the System.....locally or remotely**
  - Integrated Lights Out Manager allows full remote KVM functionality with video and media redirection
- **Maximize Uptime**
  - Ruggedized packaging provides a high level of system reliability which helps ensure that the Sun Netra X4250 servers continue to operate under the extremes of environmental conditions.
  - Hot-swappable disk drives and power supplies make drive replacement fast and easy
  - SAS host bus adapters offer RAID choices to meet the customer's requirements



• **Multi-platform.....less complexity**

- Runs Solaris, Linux, and Windows operating systems.
- Standardize on one hardware platform for all major operating systems in the network infrastructure
- Supports full-height and full-length PCI-X and PCIe cards allowing the use of legacy telecommunication cards.
- Netra based servers are used around the globe in a variety of locations including telecommunications, central offices and wireless base stations, Internet data centers, metropolitan area networks, POPs, and enterprise service provider infrastructures. The Netra X4250 reaffirms Sun's commitment to customers who invested in the Netra product line by offering a product that delivers enhanced performance/throughput, consistent form, fit, and function.

## Key Product Features, Functions, and Benefits

### Sun Netra X4250 Server Key Features, Functions, and Benefits

Feature	Function	Benefit
Intel Xeon Processors	<ul style="list-style-type: none"> <li>• Supports the latest embedded Quad-Core Intel Xeon processors, placing up to 8 CPU cores in a single form factor</li> </ul>	<ul style="list-style-type: none"> <li>• Nearly doubles computing resources with minimal power and cooling increases</li> </ul>
Up to 64 GB of memory with ECC and ChipKill.	<ul style="list-style-type: none"> <li>• Support memory-intensive applications</li> <li>• ECC provides automatic single-bit error correction</li> <li>• ChipKill allows a single DRAM chip to fail and the system will continue to run</li> </ul>	<ul style="list-style-type: none"> <li>• Improve application performance</li> <li>• ECC helps to ensure data integrity</li> <li>• improving availability</li> <li>• ChipKill improves system availability</li> </ul>
Four onboard 10/100/1000-Mbps Ethernet ports	<ul style="list-style-type: none"> <li>• Exceptional I/O performance and increased network reliability by providing redundancy</li> </ul>	<ul style="list-style-type: none"> <li>• Increases network efficiency, flexibility, and availability</li> </ul>
6 PCI Slots: 3x PCIe slots for MD2 low profile cards – one of these slots is used for the SAS controller 1x PCIe slots for full-height, full-length cards 1x PCI-X slots for full-height, full-length cards 1x PCI-X slots for full-height, half-length cards	<ul style="list-style-type: none"> <li>• Allows connectivity to additional network or storage while supporting full CPU path bandwidth.</li> </ul>	<ul style="list-style-type: none"> <li>• Enables flexibility to meet evolving business and application requirements.</li> <li>• Full height/full length slots allow the use of legacy telecommunication cards</li> </ul>



Feature	Function	Benefit
Redundant AC/DC power supplies with separate power cords	<ul style="list-style-type: none"> <li>A fully configured system can run on one power supply; the second power supply is for redundancy and load sharing</li> </ul>	<ul style="list-style-type: none"> <li>Increase availability and helps ensure uptime of critical applications.</li> </ul>
NEBS Level-3 certification	<ul style="list-style-type: none"> <li>Enables continuous operation in earthquake Zone 4 environments: complies with regulatory regulations for deployment in central office environments</li> </ul>	<ul style="list-style-type: none"> <li>Maximizes availability and decreases downtime due to environmental conditions</li> </ul>
Ruggedized enclosure	<ul style="list-style-type: none"> <li>Provides the highest levels of protection from temperature fluctuations, humidity, vibration, pollutants, or other air contaminants such as dust; resist/retard fire or other electrical hazards</li> </ul>	<ul style="list-style-type: none"> <li>Increases reliability and availability. Minimizes downtime due to environmental conditions</li> </ul>
Hot-swappable HDDs	<ul style="list-style-type: none"> <li>Performance for I/O-bound applications and redundancy for mission-critical data</li> </ul>	<ul style="list-style-type: none"> <li>Increase performance and availability</li> </ul>
Integrated DVD RW	<ul style="list-style-type: none"> <li>Ability to read and write to a removable media access device</li> </ul>	<ul style="list-style-type: none"> <li>Enables customers to store data on a removable media access device without external storage or hard drive requirements</li> </ul>
Runs applications on: Solaris 10 Linux (RHEL and SLES) Windows Server 2003/2008 VMware	<ul style="list-style-type: none"> <li>Run applications on industry standard platform running OS of choice</li> </ul>	<ul style="list-style-type: none"> <li>Maximize application performance with best OS</li> <li>Ease transition to 64-bit computing</li> <li>Maximize IT investment by standardizing hardware to reduce required training and spares</li> </ul>
Dry Contact Alarms	<ul style="list-style-type: none"> <li>Four programmable alarms : Critical, Major, Minor, and User. Critical, Major, and Minor alarms are to be used to denote corresponding system states while User alarm is user-definable</li> </ul>	<ul style="list-style-type: none"> <li>Enables Telco operators to use a relay to signal fault conditions to a rack or control room panel as well as an alarm monitoring system</li> </ul>



Feature	Function	Benefit
Integrated Lights-out Remote Management	<ul style="list-style-type: none"> <li>Remote management with full Keyboard, Mouse, Video, Storage (KVMs)</li> <li>Remote media capability (floppy, CD etc.)</li> <li>Full DMTF CLI</li> <li>Browser UI for control of the system through a graphical interface.</li> <li>IPMI 2.0 compliant for management and control</li> <li>SNMP v1, v2c, v3 for system monitoring</li> <li>Monitor and report system and component status on all FRUs</li> </ul>	<ul style="list-style-type: none"> <li>All management which does not require physically touching the system can be performed remotely</li> <li>Easily integrates into customer's existing management environment by supporting industry standards</li> <li>ILOM is a core part of system, there is no additional charge for this functionality as with the competition</li> </ul>
Sun Customer Ready Systems (CRS) program	<ul style="list-style-type: none"> <li>For factory-configured, pre-racked, custom Sun Netra X4250 servers, refer to the CRS program website: <a href="http://www.sun.com/crs">http://www.sun.com/crs</a></li> </ul>	<ul style="list-style-type: none"> <li>Simplification and speed of system deployment</li> </ul>

## Product Family Placement

This product is a new entry in the Netra 2U product line.

- The Sun Netra X4250 server is one of Sun's first Netra 2RU server to incorporate the latest embedded Quad-Core Intel Xeon processors, placing up to 8 CPU cores in a compact form factor.
- It is applicable for those customers that have standardized on the X86 architecture and require support for multiple operating systems.

## Feature Comparison of Netra X4250 and Sun Fire™ X4150/X4250 Servers

Feature	Sun Netra X4250	Sun Fire X4150/X4250
<b>CPU type</b>	Embedded Quad-core Intel Xeon	Quad-core or Dual Core Intel Xeon
<b>Processor speed</b>	2.13 GHz, 40W (L5408)	2-3 GHz, 50-80W
<b>Level 2 Cache</b>	2x 6MB	2x 3MB or 2x 6MB
<b>Max FSB</b>	1066 MT/s	1333 MT/s
<b>Memory Type</b>	PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMMs	PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMMs



Feature	Sun Netra X4250	Sun Fire X4150/X4250
Max. memory	Up to 64 GB	Up to 64GB
Max. internal disk drives	4x2.5" SAS with no DVD-R/W or 2x2.5" SAS with DVD-R/W SSD (coming soon)	8x2.5" SAS or 6x2.5" SATA/ 16x2.5" SAS SSD
Removable media	DVD-R/W	DVD-R/W
PCI-E Slots	4 (one used for SAS HBA) One of these is FL/FH	3 (one used for SAS HBA)/ 6 (one used for SAS HBA)
PCI-X Slots	2	None
Service Processor	Integrated LOM	Integrated LOM
Power Supplies	2 x 650W AC or DC	2 x 650W AC/ 2x1050W AC
Form factor	2RU/ 20.71"	1RU/2RU/28"

## Feature Comparison with Other Netra Rack Servers

Feature	Netra X4250	Netra X4200	Netra T2000	Netra T5220
<b>CPUs</b>	Intel Xeon quad core embedded processor	AMD Opteron dual and quad core embedded processor	Up to 8 core UltraSPARC T1	Up to 8 core UltraSPARC T2
<b>Threads</b>	N/A	N/A	32 max.	64 max.
<b>Max. memory</b>	64 GB	32 GB	64 GB	64 GB (128GB with 8GB DIMMS)
<b>Max. internal disk drives</b>	Up to two 146/300-GB (w/ DVD ) or four 146/300-GB (w/o DVD ) 2.5" SAS HDDs SSD (coming soon)	Up to two 146/300-GB (w/ DVD ) or four 146/300-GB (w/o DVD ) 2.5" SAS HDDs	Up to two 146/300-GB (w/ DVD ) or four 146/300-GB (w/o DVD ) 2.5" SAS HDDs	Up to two 146-/300GB (w/ DVD ) or four 146/300-GB (w/o DVD ) 2.5" SAS HDDs SSD (coming soon)
<b>Removable media</b>	DVD-R/W	DVD-R/W	DVD-R/W	DVD-R/W
<b>Interfaces</b>	Dual USB 2.0 ports, 1 x 10MB/s Ethernet & serial mgmt, one video	Dual USB 2.0 ports, 1 x 10MB/s Ethernet & serial mgmt, one video	Dual USB 1.1 ports, 1 x 10MB/s Ethernet & serial mgmt, one serial	Dual USB 2.0 ports, 1 x 10MB/s Ethernet & serial mgmt, one serial
<b>PCI slots</b>	2x PCI-X Slots (1x FL/FH, 1 HL/FH) and 4x PCIe Slots (1x FL/FH, 3x MD2 low profile, note one slot occupied by SAS HBA)	3x PCI-X FH 133MHz slots, 2x FL, 1x HL 1x PCIe slot, MD2 low profile	3x PCI-X FH 133MHz slots, 2x FL, 1x HL 1x PCIe slot, MD2 low profile	2x PCI-X Slots (1x FL/FH, 1 HL/FH) and 4x PCIe Slots (1x FL/FH, 3x MD2 low profile, note two slots shared with XAUI ports)
<b>Ethernet</b>	Four on-board Gigabit ports	Four on-board Gigabit ports	Four on-board Gigabit ports	Four on-board Gigabit ports
<b>Form factor</b>	2U/ 20.71"	2U/ 20"	2U/ 20"	2U/ 20.71"



Feature	Netra X4250	Netra X4200	Netra T2000	Netra T5220
<b>Solaris OS version</b>	Solaris 10 for x86, Red Hat and SuSE Linux, Windows, VMware	Solaris 10 for x86, Red Hat and SuSE Linux, Windows	Solaris 10	Solaris 10

## Target Users

Target users are found in the following market areas:

- Network equipment providers, including wireless and wireline telecommunications infrastructures
- Service providers deploying data centers, POPs, or metropolitan area networks
- Government and military installations
- Manufacturing / Utilities

## Target Applications

The Netra X4250 delivers extreme performance and flexibility with optimum power and space efficiency for the below targeted applications.

- Unified Messaging
- SoIP (Services over IP)
- Call Control
- Media and Signalling Gateways
- Operational System Support
- Digital Media
- Application Server
- Defense/Military /Intelligence applications include shipboard command and control, mobile weapons control and remote intelligence access servers



# Selling Highlights

## Market Value Proposition

The Netra X4250, a two-socket x64 carrier-grade server is Ideal for next generation networks. Its compact 2U design supports high-performance, low power Quad-Core Intel Xeon processors.

**Do More With Less:** High performing carrier-grade server helps to maximize Return On Investment.

**More Headroom to Grow:** More expandable in memory, storage and networking connectivity.

**Cut IT operating expenses:** More power efficient that results in power consumption and cooling cost.

**Improve Service Levels:** High availability features such as hot swappable and redundant power supplies and disks lead to higher uptime. Ruggedized packaging provides a high level of system reliability which helps ensure that the Sun Netra X4250 servers continue to operate under the extremes of environmental conditions.

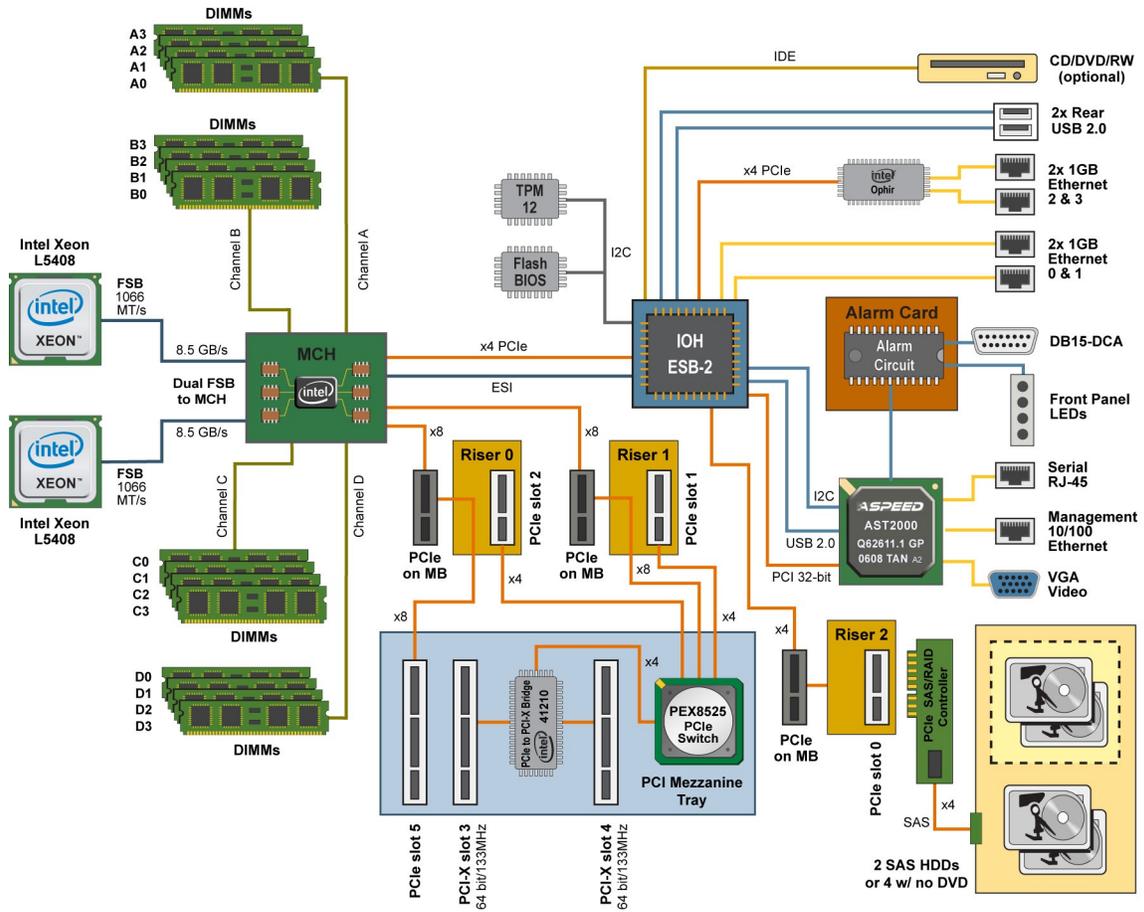
**Investment Protection:** Standardize on one hardware platform for all major operating systems in the network infrastructure. Support for full-height and full-length PCI-X and PCIe cards allowing the use of legacy telecommunication cards. Reaffirms Sun's commitment to customers who invested in the Netra product line by offering a product that delivers enhanced performance/throughput, consistent form, fit, and function.

## Availability

The Netra X4250 server is now shipping



# Enabling Technology



Sun Netra™ X4250 server block diagram



## Technology Overview

The Sun Netra X4250 Server is a high-density, x64-based, rack-optimized server which has the following system architectural features:

- Dual socket Quad-Core Intel® Xeon® processor L5408 (embedded version)
- 16 memory slots that support commodity 2, and 4 Gigabyte FBDIMM modules (maximum capacity of 64 Gigabytes of system memory).
- 2 PCI-X Slots (1x FL/FH, 1 HL/FH ) and 4 PCIe Slots (1x FL/FH, 3x MD2 low profile, note one slot occupied by SAS HBA)
- Four 10/100/1000 Ethernet RJ45 based ports through 2 independent Intel controllers
- Two USB 2.0 ports (2 rear facing)
- Four available disk drives supporting 2.5" SFF SAS NEBS drives each with no DVD support or up to two with DVD-R/W. (SSD support coming soon)
- One slot loading DVD-R/W drive located in the front of the chassis available with 2 hard drive version only.
- Integrated Lights Out Manager (ILOM) Service Processor
- One Telco Alarm Port
- 2x Hotplug 1+1 redundant, high efficiency (92%+) AC/DC 650 watt power supplies.

## Quad-Core Intel Xeon processor 5400 Series

The Quad-Core Intel Xeon Processor 5400 series is a 64-bit server/workstation processor utilizing four Intel Core microarchitecture cores. This processor is based on Intel's 45 nanometer process technology combining high performance with the power efficiencies of low-power Intel Core microarchitecture cores.

The Quad-Core Intel Xeon Processor 5400 series consists of two die, each containing two processor cores. Some key features include on-die, primary 32 kB instruction data cache and 32 kB write-back data cache in each core and 12 MB (2x6MB) Level 2 cache with Intel Advanced Smart Cache Architecture. The extended lifecycle / high efficiency L5408 Embedded Xeon processor used in the Netra X4250 will support a 1066 MT/s Front Side Bus (FSB) based on a 266 MHz system clock for an 8.5 GBytes per second data transfer rate.

The Quad-Core Intel Xeon Processor 5400 Series features include Wide Dynamic Execution, enhanced floating point and multi-media units, Streaming SIMD Extensions 2 (SSE2) Streaming SIMD Extensions 3 (SSE3), Streaming SIMD Extensions 4.1 (SSE4.1), and Intel 64 architecture as an enhancement to Intel's IA-32 architecture. This enhancement allows the processor to execute operating systems and applications written to take advantage of the 64-bit extension technology.

The Quad-Core Intel Xeon Processor 5400 Series supports Intel® Virtualization Technology for hardware-assisted virtualization within the processor. Intel Virtualization Technology is a set of hardware enhancements that can improve virtualization solutions. Intel Virtualization Technology is used in conjunction with Virtual Machine Monitor software enabling multiple, independent software environments inside a single platform.



## Ultra High Density Chassis Design

Density is the cornerstone of the Sun Netra X4250 server design. The Netra X4250 is a 2U system that can house up to 8 processor cores, 64GB of memory, 4 internal disk drives with 4 GigE ports and ILOM onboard.

## Remote Manageability With ILOM

Sun Integrated Lights-out Manager is driven by an integrated system service processor that follows x86 standards. It provides for full remote KVMs (Keyboard, Video, Mouse, Storage) support together with remote media functionality. Lights-out management (LOM) is achieved using a new on-board, independently powered AST2000 service processor with its own robust, security hardened OS. ILOM provides remote administration via an intuitive browser-based GUI, DTMF CLI, remote console, SNMP V1, v2c, v3 or IPMI v2.0 protocols using the out-of-band management Ethernet, or using in-band communication through the server's operating system. With out-of-band management, the system administrator can remotely control power of the system, monitor system FRU status, and load system firmware. With in-band management, the system administrator can monitor system status and control system power down.

The Service Processor (SP) provides the following functions:

- Capability to remotely manage the server through remote keyboard, video, mouse, and storage redirection
- Extensive control and reporting over environmentals, power, hardware and BIOS/OS features
- Remote flash upgrades of system BIOS and service processor software
- Remote diagnosis of failed components allows for rapid correction
- User configurable serial console accessible via a physical port or re-directed through the management network

## ILOM Watchdog Timer

ILOM features a watchdog mechanism to detect and respond to system hang, should one ever occur. The ILOM watchdog is a timer that is continually reset by a user application as long as the operating system and user application are running. In the event of a system hang, the user application is no longer able to reset the timer. The timer will then expire and will perform an action set by the user, eliminating the need for operator intervention.

One of the benefits of the Netra X4250 Watchdog Timer functionality is the end-to-end coverage, from power-on-reset, through BIOS and OS boot, to user application execution. If enabled in the BIOS setup menus (default operation is disabled), the ILOM WDT will be set by initial BIOS code execution to a configurable timeout threshold. If this time limit expires before the OS can boot, start critical services, and the application begins to reset the timer, the ILOM can be configured to reset or power-off the host server, generating an alert for remote management. Standardized IPMI management interfaces will be provided to the user application to configure and reset the ILOM watchdog function (final implementation plan is TBD).



# System Architecture

## Overview

The Sun Netra X4250 server is based on the Intel Bensley platform which features up to 2 Quad-Core Intel Xeon Processor L5408. The chipset is comprised of the Northbridge (MCH 5000P) and the Southbridge (ESB-2).

## Front Side Bus

Each processor is interconnected to the Intel 5000P Northbridge through two independent Front Side Buses (FSB) operating at 1066 MT/s.

## Northbridge

The Intel 5000P, also known as Memory Controller Hub or MCH, controls up to 16 DIMM slots organized in 4 channels of 4 DIMMs each. The supported DIMM type is PC2-5300 DDR2-667 ECC FB-DIMMs and they must be populated by pair of identical DIMMs. The 5000P offers a total of 24 PCIe lanes,

## Southbridge

The ESB-2 Southbridge is interconnected to the MCH using one ESI link and one 4-lane PCIe link. The ESB-2 provides two built-in gigabit Ethernet NICs going to external NIC ports 0 and 1. One Dual gigabit Intel Ophir 82571 is connected to the ESB-2 using a 4-lane PCIe link to provide two additional GigE NICs, port 2 and 3. From the ESB-2 two USB ports go to the rear of the system, one USB port is available inside the chassis for internal boot/storage USB-based devices (note: this port has not been NEB certified so is currently not supported) . SAS configurations have the disk backplane connected to a PCIe HBA inserted in PCIe expansion slot 0.

## AST2000

The Aspeed AST2000 combines the graphics controller and the Service Processor (SP or BMC) in one single chip, saving space and power. It is integrated on the motherboard and is powered via stand-by power to operate independently from the main system's power state. The AST2000 is connected to the ESB-2 using 2 USB ports for virtual devices and one 32-bit 33 Mhz PCI bus for data. The AST2000 provides one 10/100 MB/s Ethernet NIC and one SVGA Video port.

## Design Approach

Close collaboration with design teams for follow-on SPARC and x86 based programs have resulted in the creation of system components that can readily be used either directly or as highly leveraged components by other platforms.



## Expansion Slots

The Sun Netra X4250 server is well equipped with both legacy PCI-X slots, and the more current PCIe high-speed slots. The PCI slots are supported via a PCI mezzanine board which is designed on the top of the Netra X4250 server motherboard.

- PCIe Slots

PCIe is a high speed, point-to-point dual simplex chip interconnect. It is designed as the next-generation system bus interconnect, replacing the aging PCI bus. The Netra X4250 support 4 PCIe slots with the following configurations:

- 1 x8 electrical/x16 mechanical supporting x1, x2, x4 and x8 full-height, full-length cards
- 1 x8 electrical/x8 mechanical and 2 x4 electrical/x8 mechanical supporting x1, x2, x4 and x8 MD2 low profile cards. One of these slots is dedicated for the SAS PCIe HBA

- PCI-X Slots

2 PCI-X full height and 1x full length and 1x half length 64-bit/133MHz slots are provided on the Netra X4250 server to allow customers who need older PCI or PCI-X I/O cards to continue using the older generation of cards. They were designed to be able to support legacy telco PCI cards that are still full height and full length.

## Internal Hard Disk I/O Subsystem

The Sun Netra X4250 server supports up to four hard disk drives with no DVD-R/W support or two hard disk drives with DVD-R/W support.

Disks are NEBS Certified SAS disks, 2.5-inch small form factor server grade, and are certified for 24x7 operation. Due to the small physical size of these drives and the high spindle speeds, access times to disk are extremely good. All disks are hot-pluggable.

A benefit of using small disks is that they allow designers to maximize the air intake area at the front of the server to improve airflow, further increasing environmental margins and server reliability.

Hardware RAID is supported on the Sun Netra X4250 server via SAS host bus adapters. The Sun Netra X4250 server currently supports two SAS HBA.

- 8-port SAS host bus adapter supports RAID 0, 1, 0+1. (shipped with each standard configuration)
- 8-port SAS SRL RAID host bus adapter has 256MB of DDR2 memory and battery-backed write cache for 72 hour backup, in addition to supporting RAID 0, 1, 10, 1E, 5, 50, 5EE, 6, 60 (available as an x-option or XATO).

SSD support coming soon.



## Telco Alarm Port

A DB15 connector is provide Telco alarm access to the system. The telco alarm function and connector pinouts are same as Netra 210, Netra 240, Netra 440, Netra T2000, Netra T5220, Netra X4450 and Netra T5440 systems.

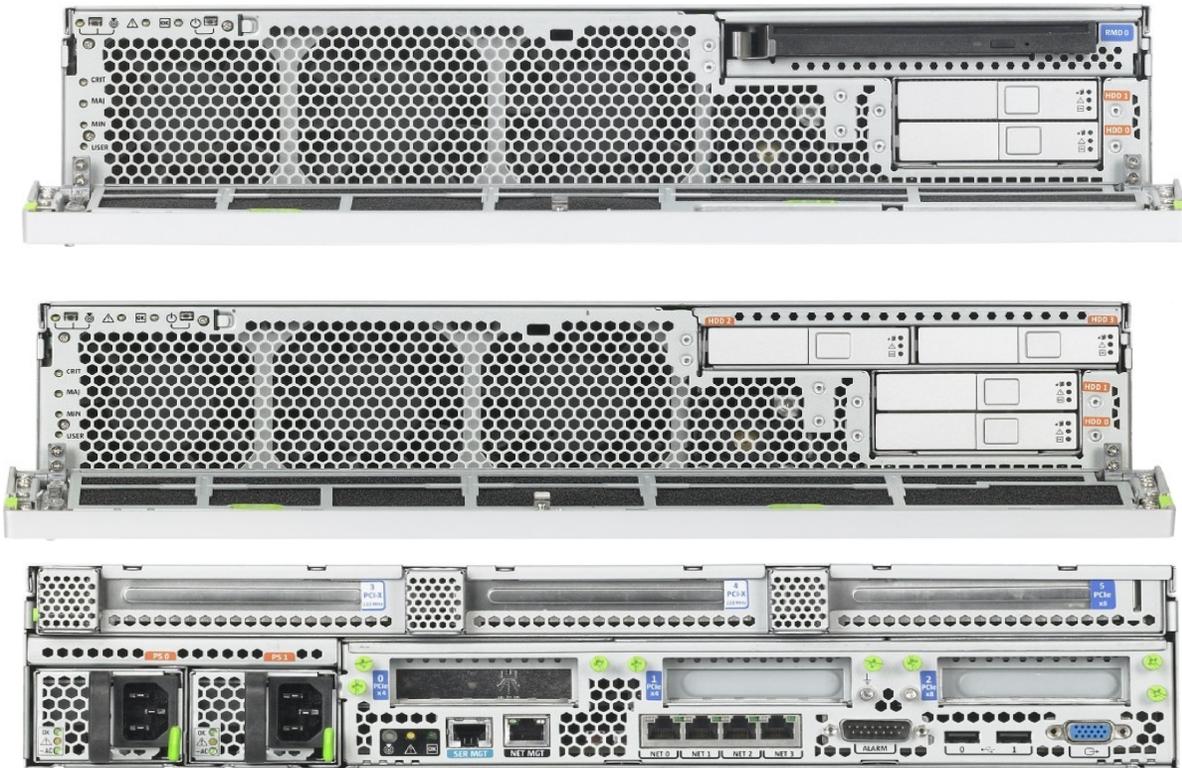
## Power Supplies

The Sun Netra X4250 server is equipped with a two 1+1 redundant hot-swappable power supply system. One power supply is sufficient to run a fully populated server, however for maximum protection against power supply failures, Sun recommends that all two power supplies be installed in the system at all times.

The power supplies are rated at 650 watts each. In normal operation, the power supplies share the power demands of the system equally.

Refer to the Specifications section for more information on power ratings.

## Front and Back Panel Views



# Operating System

## Sun Netra X4250 Server Operating Systems

A world-class performance platform, the 64-bit Sun Netra X4250 servers allow customers to run the operating system that best fits their needs. With a multitude of operating systems fully supported and/or certified, the Sun Netra X4250 servers provide customers with more choices, within the same hardware architecture, than competing servers in its class.

Operating Systems		Quad Core Support	Factory Installed	Sold by Sun	Supported by Sun
Solaris 10 08/07	32-bit/ 64-bit	Yes	Yes	Yes	Yes
Windows Server 2003 Standard and Enterprise Edition	32-bit/ 64-bit	Yes	No	No	Yes
Red Hat Enterprise Linux 5	32-bit/ 64-bit	Yes	No	Yes	Yes
Red Hat Enterprise Linux 4 U8	32-bit/ 64-bit	Yes	No	Yes	Yes
SUSE Linux Enterprise Server 10	64-bit	Yes	No	Yes	Yes
SUSE Linux Enterprise Server 9	64-bit	Yes	No	Yes	Yes
Vmware ESX 3.0.2	64-bit	Yes	No	Yes	Yes
Windows Server 2008 Standard and Enterprise Edition	32-bit/ 64-bit	coming soon	No	No	Yes

## Latest OS Information

For more information on the latest OS support for the Sun Netra X4250 Server , see <http://www.sun.com/servers/netra/x4250/os.html>

## Solaris 10 OS – The most advanced operating system on the planet

### Key Messaging

The Solaris 10 Operating System is a significant leap forward from the Solaris 9 OS, establishing it in a class by itself when compared to competing operating systems. It offers many innovative technologies that fundamentally change the equation for organizations needing to reduce costs, reduce complexity, and minimize risk. The new features in the Solaris 10 OS bring mainframe-quality software to even the smallest single-processor servers and provide a stepping stone into tomorrow's data center.



For CIOs and Line of Business Managers who are dissatisfied with high infrastructure costs and security vulnerabilities in their workgroup server environments, the Solaris 10 OS on x64 brings a proven, enterprise-class OS at 1/11<sup>th</sup> the cost of Microsoft and 20-60% off the cost of Red Hat over three years. The Solaris 10 OS is designed to help organizations optimize system utilization levels, deliver extreme performance and provide virtually unparalleled security – all with relentless, around-the-clock availability.

- **Optimal Utilization** of computing systems is a priority for IT managers where server consolidation is a common approach and is improved in the Solaris environment by:
  - **Solaris Containers** enable as much a 4x increase in system utilization by helping to efficiently and securely support thousands of applications per system. Highly configurable, Solaris Containers can dynamically adjust system resources to business goals within and across Containers with the added benefit of isolating applications from each other and from system faults, so a problem in one application cannot affect the system or other applications.
  - **Solaris ZFS File System** (zetabyte file system) integrates devices, storage, and file systems structures into a single structure, simplifying file system management and providing a reliable and flexible solution that can help reduce cost, complexity, and risk.
- **Extreme Performance** is delivered with optimization for the latest UltraSPARC(R), AMD Opteron and Intel Xeon processors as well as:
  - **Dynamic Tracing (DTrace)**, designed for use live use in production situations, is a powerful tool for analyzing and diagnosing elusive problems and increasing system performance. It is non-invasive and has no system overhead when not in use, but with its pervasive coverage, root cause for intermittent system problems can be found quickly and performance gains in real-world applications have been optimized to run as much as 30 times faster.
  - **A Unified TCP/IP Stack** where the TCP and IP layers are partially merged, delivers a 30- to 50-percent improvement in network throughput with a 10- to 15-percent lower CPU load than previous Solaris OS versions.
- **Unparalleled Security** continues to be a focus as Solaris 10 OS adds significant features that can help defend against attacks by preventing unauthorized access to data and applications with:
  - **Process Rights Management** replaces the traditional UNIX(R) platform's "all or nothing" root mechanism with a fine-grained set of privileges for control over the resources and objects that processes can manipulate.
  - **Solaris Cryptographic Framework** library secures data flows by providing a set of programming interfaces for application-level and kernel-level cryptographic operations, allowing developers to utilize highly optimized cryptographic algorithms and providing transparent access to the same hardware encryption acceleration devices used by the operating system kernel.
- **Relentless Availability** – Expected in a Solaris OS environment, predictive self-healing technologies provide new levels of application availability with:



- **Solaris Fault Manager** proactively handles system problems by removing components before failure. CPU, memory and I/O problems are diagnosed and corrected – before they can cause downtime.
- **Solaris Service Manager** manages application software running on the system, monitoring applications and restarting entire application trees if necessary.

## Compatibility

- **Same OS—Low-End to High-End Systems.** The Solaris OS is built from a single source base and optimized to run on multiple platforms, providing customers with the same best of breed OS on SPARC, Opteron AMD64 64-bit, and x86 32-bit processor-platforms.
- **Solaris Application Guarantee Program.** This program guarantees binary compatibility between versions of Solaris OS on each platform and has been extended to include source code compatibility as well.
- **Linux Compatibility.** With unwavering support for interoperability and open standards, and a commitment to delivering customer choice, Sun has made Linux interoperability a high priority.
  - **Six Key Linux Libraries included in Solaris OS are:** Glib, Gtk+, JPEG, PNG, TIFF, and XML2
  - **Hundreds of Linux applications and libraries** are provided with the Solaris OS including the GNOME desktop.
  - **Linux Compatibility Assurance Toolkit (LinCat)** helps to simplify the process of porting Linux applications to run natively on the Solaris OS.

## Pricing/Support

Solaris 10 OS is free to end-users upon registration and is available via free download. Media kits are available for purchase. Support is available at an additional charge.

## Linux - Complementing Sun's Solaris OS Strategy

### Key Messaging

Sun, the #1 systems provider, brings a Comprehensive Systems Approach to Linux—providing customers with a full Linux solution of hardware, OS choice with Sun's value added Sun Java(TM) Enterprise System, Sun Java Desktop System, tools, and services. Sun enhances standard Linux distributions with an integrated systems offering that includes fully supported OS, x64 rack-mount servers, and the Sun Java Enterprise System that simplifies platform support for customers and partners. Sun brings added value to the system offering with faster, low-cost hardware which is the primary concern for most Linux customers seeking cost-sensitive server alternatives.

- **Choice and Platform Neutrality – “The right tool for the right job”**  
Customers can choose the OS platform to best meet their server to desktop computing needs.
  - With the Sun Java Enterprise System for Linux, customers can standardize on a set of Java technology-based network services across their heterogeneous infrastructure of



volume x86 systems based on the Solaris OS or standard Linux to large SMP systems from Sun on x64 or SPARC processor based systems.

- A growing line of Sun and third-party Intel Xeon and AMD Opteron processor-based servers allows Linux customers to scale to 64-bit computing
- **Systems Approach - Simplified Operations - One-Stop Linux Support**

Sun brings a complete systems approach to Linux: a value-added web services stack for the entire system, hardware, OS, tools, and applications backed by Sun's global support infrastructure.

  - Delivering Linux--from leading vendors (Red Hat and SUSE Linux)--with front-line support and training worldwide from Sun on x64 (Xeon and Opteron processors) hardware platforms from Sun and third parties.
  - Selling the simplest and most comprehensive middleware & web services offering with Sun Java Enterprise System.
- **Optimized Java Technology – Java Everywhere – Broaden the reach of Java technology investments**
  - Sun is focused on maximizing Java technology performance benefits and stretching customers' application investments by creating a common application engine.
  - Linux and Java platform integration - Alliances with Red Hat and SUSE Linux to distribute Sun's latest Java Virtual Machine (JVM(TM) machine) included as part of the OS distributions. (The JVM software technology allows the Java 2 Software to host applications on any computer or operating system without rewrite or recompile).

## Pricing/Support

Sun resells subscriptions for Red Hat Enterprise Linux (RHEL) & SUSE Linux Enterprise Server/Desktop (SLES/D). Support includes access to either Red Hat Network or Novell Customer Center. During the support period, if any new versions of SLES/D or RHEL for Intel Xeon are made available, users with current support entitlements have access to those new versions from the maintenance sites of Red Hat and SUSE. Please see the "Services" section for more details.

## Windows OS

The Sun Netra X4250 Server is certified to run the Microsoft Windows Server 2003 Enterprise and Standard Edition operating systems and soon Windows 2008. Sun System Service Plans will be available from Sun Microsystems at an additional charge. Please see the "Services" section for more details.

## VMware OS

The Sun Netra X4250 Server will soon be certified to run VMware ESX 3.0.2 operating system. Sun System Service Plans will be available from Sun Microsystems at an additional charge. Please see the "Services" section for more details.



# Reliability, Availability, and Serviceability (RAS)

Reliability, availability, and serviceability (RAS) are aspects of a system's design that affect its ability to operate continuously and to minimize the time necessary to service the system. Reliability refers to a system's ability to operate continuously without failures and to maintain data integrity. System availability refers to the ability of a system to recover to an operational state after a failure, with minimal impact. Serviceability relates to the time it takes to restore a system to service following a system failure. Together, reliability, availability, and serviceability features provide for near continuous system operation.

## Reliability

- 8-port SAS host bus adapter supports RAID 0, 1, 0+1.
- 8-port SAS SRL RAID host bus adapter has 128 MB of DDR2 memory and battery-backed write cache for 72 hour backup, in addition to supporting RAID 0, 1, 10, 1E, 5, 50, 5EE, 6, 60.
- ECC memory with ChipKill supported.
- Additional system design fundamentals and validation including certification to extreme carrier-grade NEBS and ETSI standards

## Availability

- High CPU density available with quad core combined with the small form factor of the Sun Netra X4250 servers allow redundant deployment in a compact space to increase overall service availability.
- Redundant hot-swappable power supplies allow for system service without downtime.
- Built-in quad Gigabit Ethernet ports provide redundancy.
- The system is certified to withstand single fan failure at max ambient operating conditions without degradation or loss of service. This single-fan-fail is part of the latest issue 4 of the GR-63 specs

## Serviceability

- Front-accessible, hot-swappable disk drives.
- Front-accessible DVD-R/W drive can be easily removed without opening the top cover of the chassis.
- Identical Indicator LEDs on the front and back of the chassis allow problems to be detected and isolated easily.
- A fault indicator LED stays on following a fault even if the system has been powered off (but still connected to the power source).
- Diagnostic LEDs are included on the motherboard.
- Front power switch (toggles between standby and power-on) provides easy access.
- Single-step power supply removal: Power-supplies can be serviced without sliding the servers out of the rack.



# Specifications

## Processor Options

Processor	Quad-Core Intel® Xeon® processor L5408 (2x6MB L2, 2.13GHz, 1066 Mhz FSB, 40W)
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## Main Memory

16 DIMM slots total for PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMMs
System configurations up to 64GB of memory

## Standard/Integrated Interfaces

Network	Four 10/100/1000Base-T Ethernet ports
Network management	One 10/100Base-T Ethernet port
Serial management	One TIA/EIA-232-F asynchronous RJ45 Serial Management Port
SAS	Four channel SAS interface, internal access only.
USB	Two USB 2.0 ports (Rear)
Video	One rear VGA connector (HD-15) for local video monitoring
Expansion bus	2 PCI-X Slots 64-bit 133 MHz (1x FL/FH, 1 HL/FH ) 4 PCIe Slots (1x FL/FH, 3x MD2 low profile - one slot occupied by SAS controller)
Alarms	Four fail-safe, dry contact alarms (critical, major, minor and user) (DB-15)

## Mass Storage and Media

Hot-swappable, 2.5" SAS Internal disk	Up to two SAS 2.5" HDDs w/ DVD-R/W , Up to four SAS 2.5" HDDs w/o DVD, two different chassis, not field upgradable from one config to the other. SSD support coming soon.
Removable Media	One Slimline DVD-R/W
External disk	Since the Netra X4250 leverages the external storage qualification from the Sun Fire X4150 please see <a href="http://www.sun.com/servers/x64/x4450/storage.jsp">http://www.sun.com/servers/x64/x4450/storage.jsp</a> for more information. However, note that not all of the PCI cards listed on the website have been NEBS tested. Please see the Options section of the JTF for information on the PCI cards.



## Software

Operating environment	Solaris 10 Operating System on x64, 64-bit Red Hat Enterprise Linux SUSE Linux Windows Server 2003 VMware coming soon: Windows 2008 See <a href="http://www.sun.com/servers/netra/x4250/os.html">http://www.sun.com/servers/netra/x4250/os.html</a>
Sun Java Enterprise System 4	Solaris 10 on X64 Operating System Standard Linux distributions
Languages	C/C++, FORTRAN, Java programming language, all other standard Sun-supported languages
Networking Software	ONC™, ONC+(TM), NFS(TM), WebNFS(TM), TCP/IP, SunLink™, OSI, MHS, IPX™/SPX, SMB technologies, and XML
Management	ILOM: Local and remote KVM, remote media (DVD, CD, floppy, USB) capability, browser GUI, DMTF style, CLI (in-band and out-of-band), IPMI 2.0 (in-band and out-of-band), SNMP (out-of-band only)

## Physical Specifications

Description	U.S.	International
Height	3.43 inches (2 RU)	87.1mm
Width (including bezel)	17.52 inches	445mm
Depth (maximum to PSU handles) Depth (to rear I/O)	20.71 inches 19.72 inches	526 mm 501 mm
Weight (fully configured without PCI cards)	38.5lbs	17.5 kgs

## Power Source Requirements

The Sun Netra X4250 server has two autoranging AC or DC power supplies. To ensure redundant operation of the power supplies, the two power inputs should be connected to separate power sources.

These are the electrical limits and ranges for the Sun Netra X4250 server utilizing 650W power supplies.

Description	AC Specification	DC Specification
Operating input voltage range	100 to 240 VAC, 50 to 60 Hz	-48VDC or -60VDC (nominal) -40VDC to -75VDC (range)
Maximum operating input current for the PSU only	7.56A at 100 VAC (full output load 658W assuming min- efficiency at full load 87%)	18.75A at -40VDC (full output load 660W assuming min- efficiency at full load 88%)



Description	AC Specification	DC Specification
Maximum heat dissipation	2581 BTU/hr.	2581 BTU/hr.

Description	Idle Power	100% Util Peak Power	50% Util Peak Power
Total Power of System (Watts) See configuration below	305W	359W	332W
Total Power of System (BTU/hr.) See configuration below	1040.7 BTU/hr.	1225.0 BTU/hr.	1132.8 BTU/hr.

Note the above power calculations assumed the following Netra X4250 configuration (2x Quad Core L5408 processors , 16x 4GB, 4x 146GB 10K RPM 2.5" SAS drive, 8-port internal SAS Host Bus Adapter, 2x AC PSUs.)

For more information please refer to the Power Calculator at <http://www.sun.com/servers/netra/x4250/calc/index.jsp>

## Environment Specifications

These are the environmental specifications for the Sun Netra X4250 server.

Specification	Operating	Non-Operating
<b>Temperature</b>	5°C to 40°C, (41°F to 104°F) Short Term -5°C to 55°C (23°F to 131°F)	-40°C to 70°C (-40°F to 158°F)
<b>Relative Humidity</b>	5% to 85%, noncondensing Short term: 5% to 90%, noncondensing, but not to exceed 0.024 kg water/kg dry air (0.053 lbs. water/2.205 lb. dry air)	Up to 93%, noncondensing, 40°C (104°F)
<b>Altitude</b>	Up to 3000 meters (9,850 feet) @40°C	Up to 12,000 meters (40,000 feet)

<b>ETSI</b>	EN 300 019-2-1,2,3, Class 1.2, 2.3, 3.1E - Except condensing humidity - Except rain
<b>NEBS</b>	NEBS Level 3 Certified by Telcordia
<b>Seismic</b>	GR-63-CORE requirements for earthquake zone 4



## Acoustic Noise Emissions

These are the acoustic noise emissions of a Sun Netra X4250 server. Declared noise emissions are in accordance with ISO 9296 standards.

Description	Mode	Specification
LwAd (1 B = 10 dB)	Operating acoustic noise Idling acoustic noise	7.3 B 7.3 B

## Agency Compliance Specifications

The Sun Netra X4250 server complies with the following specifications.

Category	Relevant Standards
Safety	UL/CSA-60950-1, EN60950-1, IEC60950-1 CB Scheme with all national differences, IEC825-1, 2, and CFR21 part 1040
RFI/EMC	EN55022/CISPR22 Class A, FCC CFR47 Part 15 Class A
Immunity	EN55024/CISPR24, EN61000-3-2, EN61000-3-3
Telecommunications	EN300-386
Regulatory Markings	CE, FCC, ICES-003, C-tick, VCCI, GOST-R, MIC, UL/cUL, S-mark, BSMI, CCC
Other	Restriction of Hazardous Substances (RoHS) labeled, per WEEE (Waste Electrical and Electronics Equipment) directive (2002/95/EC)



# System Requirements, Configuration and Management

## System Requirements

The Sun Netra X4250 servers run the Solaris 10, standard Linux distributions, Microsoft Windows Server 2003, Vmware, and soon Windows 2008. For a list of supported OS versions, please refer to section “Netra X4250 Server Operating Systems Support”

## System Configuration

The Sun Netra X4250 servers have the following standard components:

- Up to two Intel Quad Core Xeon Processors L5408
- Sixteen memory slots supporting PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMMs – Up to 64 GB of main memory
- Four SAS hard disk drives with no DVD-R/W support or Two SAS hard disk drives with DVD-R/W support
- Four 10/100/1000Base-T Ethernet ports
- Two USB 2.0 ports: two rear
- 2 PCI-X Slots (1x FL/FH, 1 HL/FH ) and 4 PCIe Slots (1x FL/FH, 3x MD2 low profile, note one slot occupied by SAS controller)
- 650 Watt AC or DC power supply (hot-swappable in a 1+1 redundant configuration)
- Integrated Lights Out Manager
- One 19-inch 4 post rack-mount kit

## Licensing/Usage

The Sun Netra X4250 servers is shipped with the Solaris 10 and Sun Java Enterprise Server pre-installed. Solaris 10 RTU is given when the system is registered with Sun.

## MTBF Information

The MTBF (Mean Time Between Failure) for the Netra X4250 servers vary depending upon configuration. For more specific information, please refer to MTBF Tool at <http://ram-server.eng>

## Sun Cluster Support

The Sun Netra X4250 servers are supported by Sun Cluster

For the latest information, please go to: <http://suncluster.sfbay.sun.com>



## Origin Statement

The Sun Netra X4250 servers have components from various countries of origin. Sub assembly manufacturing is in China and final system assembly, test, and manufacturing is in the US & UK.

## Hardware Global compliance

Hardware Global compliance for this product complies with the guidelines as specified for hardware at: <http://global.eng/compliance/i18n/10nbigrules.html>

The localized documents will be located at:

<http://www.sun.com/products-n-solutions/hardware/docs/Servers/>



# Ordering Information

## Standard Configurations – Preconfigured Systems

The Sun Netra X4250 server run the Solaris 10 Operating System on x64 as well as standard Linux distributions, Microsoft Windows Server 2003, Enterprise and Standard Editions, VMware and soon Windows 2008.

The Sun Netra X4250 server can be ordered using the configuration part numbers listed in this section. All servers ship with one to two Quad-Core Intel® Xeon® processor L5408. The processor used in the Netra X4250 runs at 2.13 GHz with 2x6MB L2 cache.

Power cords for the AC version specific to the environment or geography must be ordered as a separate line item.

### All base configurations include:

<ul style="list-style-type: none"><li>• 2 RU packaging and ship kits</li></ul>	<ul style="list-style-type: none"><li>• 4 PCIe Slots (1x FL/FH, 3x MD2 low profile, note one slot occupied by SAS HBA)</li></ul>
<ul style="list-style-type: none"><li>• Quad-Core Intel® Xeon® processor L5408</li></ul>	<ul style="list-style-type: none"><li>• Two PCI-X FH slots (1x FL, 1x HL)</li></ul>
<ul style="list-style-type: none"><li>• Sixteen memory slots supporting registered Fully Buffered DDR2/667 MHz ECC DIMMs</li></ul>	<ul style="list-style-type: none"><li>• Integrated lights out manager (ILOM) with dedicated 100BASE-T Ethernet port and RJ45 serial port</li></ul>
<ul style="list-style-type: none"><li>• Support for Four SAS Hard Disk Drives with no DVD-R/W</li><li>• Support for Two SAS Hard Disk Drives with DVD-R/W</li></ul>	<ul style="list-style-type: none"><li>• One 19 inch 4 post rackmount kit</li></ul>
<ul style="list-style-type: none"><li>• Four onboard Gigabit Ethernet ports</li></ul>	<ul style="list-style-type: none"><li>• Two 650W (1+1) hot-swappable DC or AC power supplies</li></ul>
<ul style="list-style-type: none"><li>• The standard configurations include the LSI SAS HBA (SG-XPCIE2SAS-I-Z)</li></ul>	<ul style="list-style-type: none"><li>• Two USB 2.0 port (rear) and one VGA port (HD-15)</li></ul>



## Standard Configuration Part Numbers

Part Number	Standard Configuration Description
NX425-14213-22AD-A	1x2.13GHz 2x6MB L2 QC L5408, 2x2GB FB-DIMM, 1x146GB, DVD-RW, internal SAS card, 2x AC PSUs - EOL
NX425-14213-22AD-D	1x2.13GHz 2x6MB L2 QC L5408, 2x2GB FB-DIMM, 1x146GB, DVD-RW, internal SAS card, 2x DC PSUs - EOL
NX425-24213-44BD-A	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 2x146GB, DVD-RW, 2x AC PSUs - EOL
NX425-24213-44BD-D	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 2x146GB, DVD-RW, internal SAS card ,2x DC PSUs -EOL
NX425-24213-44C-A	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 4x146GB, no DVD-RW, internal SAS card ,2x AC PSUs -EOL
NX425-24213-44C-D	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 4x146GB, no DVD-RW, internal SAS card, 2x DC PSUs - EOL
NX425-14213-22AE-A	1x2.13GHz 2x6MB L2 QC L5408, 2x2GB FB-DIMM, 1x146GB, SATA DVD-RW, internal SAS card, 2x AC PSUs -EOL
NX425-14213-22AE-D	1x2.13GHz 2x6MB L2 QC L5408, 2x2GB FB-DIMM, 1x146GB, SATA DVD-RW, internal SAS card, 2x DC PSUs
NX425-24213-44BE-A	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 2x146GB, SATA DVD-RW, 2x AC PSUs
NX425-24213-44BE-D	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 2x146GB, SATA DVD-RW, internal SAS card ,2x DC PSUs
NX425-24213-44CF-A	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 4x146GB, no SATA DVD-RW, internal SAS card ,2x AC PSUs
NX425-24213-44CF-D	2x2.13GHz 2x6MB L2 QC L5408, 4x4GB FB-DIMM, 4x146GB, no SATA DVD-RW, internal SAS card, 2x DC PSUs

\* Please Note: All EOL'd std configs will only support the PATA DVD and all NEW std configs will only support the SATA DVD. There is no backwards/forwards compatibility with the DVD drives.

## Power Cord Kits

The Sun Netra X4250 server comes standard with two power supplies. A no-charge power cord kit option must be ordered for each AC power supply. Available power cord kits include:

Part Number	Description
X311L	AC power cord U.S./Brazil. Asia (except China) AC power cord
X312L	AC power cord Continental Europe
X312E	AC power cord China
X386L	AC power cord Australia



Part Number	Description
X312F	AC power cord Argentina
X317L	AC power cord U.K
X386L	Australian Power cord kit,RoHS
X312L	Continental Europe Power cord kit,RoHS
X383L	Danish Power cord kit,RoHS
X384L	Italian Power cord kit,RoHS
X311L	North American/Asian Power cord kit,RoHS
X314L	Swiss Power cord kit,RoHS
X317L	UK Power cord kit,RoHS
X312E	China Power cord kit,RoHS
X312F	Argentina Power cord kit,RoHS
X332A	Taiwan Localized power cord kit, RoHS
X312G	Korea Power cord kit. RoHS
X333A-25-10-IL	Power cord, Israel, 2.5m, SI-32, 10A, C13
X333A-25-15-JP	Power cord, Japan, 2.5m, PSE 5-15, 15A, C13
X333F-25-15-JP	Power cord, Japan, 2.5m, PSE 6-15, 15A, C13
X333A-25-15-TW	Power cord, Taiwan, 2.5m, CNS10917, 15A, C13
X320A	N. America/Asia 220V power cord kit
X340L	Localized power cord kit for N. America/Asia220V

## Assemble-to-Order Configurations (ATO)

Assemble-to-Order (ATO) configurations are not available now.

The listed configurations and upgrades greatly reduce the need for custom configurations.

## Sun Netra X4250 Server XATO Chassis Options:

Part Number	Description	Availability
NX4250-AA-BD	Netra X4250 AC base chassis supporting 2 HDDs and DVD	EOL
NX4250-AD-BD	Netra X4250 DC base chassis supporting 2 HDDs and DVD	EOL
NX4250-AA-C	Netra X4250 AC base chassis supporting 4 HDDs no DVD	EOL
NX4250-AD-C	Netra X4250 DC base chassis supporting 4 HDDs no DVD	EOL
NX4250-AA-BF	Netra X4250 AC base chassis supporting 2 HDDs and no SATA DVD	9/29/09



Part Number	Description	Availability
NX4250-AD-BF	Netra X4250 DC base chassis supporting 2 HDDs and no SATA DVD	09/29/09
NX4250-AA-CF	Netra X4250 AC base chassis supporting 4 HDDs no SATA DVD	09/29/09
NX4250-AD-CF	Netra X4250 DC base chassis supporting 4 HDDs no SATA DVD	09/29/09



# Options

The following options are supported by the Sun Netra X4250 server. Options that include an (X) in the part number indicate that the part can be ordered as a field-installable part or for factory integration. For example, X5178A is the field installable option, while part number 5178A, with the (X) removed, is used only when the part will be installed at the factory (ie Assemble-to-Order). For information on the drivers for the PCI cards please visit <http://www.sun.com/servers/x64/x4150/optioncards.jsp>

Part Number	Option Description	Maximum Number Supported	Comments
<b>Intel L5408 processor</b> (X)5178A	1x Quad-Core Intel Xeon L5408 processor (2x6MB L2, 2.13GHz, 1066 MHz FSB, 40W)	2	
<b>Memory</b> (X)6381A	4-GB PC2-5300 667MHz ECC FB-DIMM kit (2 x 2GB)	8	
(X)6382A	8-GB PC2-5300 667MHz ECC FB-DIMM kit (2 x4 GB)	8	
<b>Internal Storage Devices</b> (X)RA-SS2ND-146G10KZ	146-GB, 10000-rpm, 2.5-inch SAS disk drive	4	EOL
(X)RB-SS2ND-146G10K	146-GB, 10000-rpm, 2.5-inch SAS disk drive	4	
(X)RA-SS2ND-300G10K	300-GB, 10000-rpm, 2.5-inch SAS disk drive	4	
4354A-Z (same # used for the Netra X4200 M2)	Disk bay filler panel		
<b>Internal Media Devices</b> X4356A-Z	Slimline DVD RW for Two Hard Disk Drive systems only	1	EOL
(X)4358A-Z	Slimline SATA DVD RW for Two Hard Disk Drive systems only	1	
* Please Note: All EOL'd std configs will only support the PATA DVD and all NEW std configs will only support the SATA DVD. There is no backwards/forwards compatibility with the DVD drives.			
<b>Racks</b>			
<b>Rack Kits</b> X7901A-4	19-inch 2 post rackmount kit		



Part Number	Option Description	Maximum Number Supported	Comments
X7902A-4	23-inch 2 post rackmount kit		
X7904A-4	600mmx600mm rackmount kit		
X8099A-4	19-inch 4 post slide mount kit		
X7109A-4	Cable management Arm for X8099A-4		
<b>Miscellaneous options</b>			
X949A-4	Wago DC plug connectors, 10-pack		
X4234A-Z	Air Filter, 10-pack for 2 HDD version		
X4353A-Z	Air Filter, 10-pack for 4 HDD version		
<b>PCIe Cards: Networking Interfaces</b>			
X4447A-Z	(Atlas): Quad GbE (Neptune) Copper	3	NEBS Tested FULLY Supported
X7280A-2	(Northstar): Dual GbE (Intel) Copper	3	NEBS Tested FULLY Supported
X7281A-2	Dual GbE (Intel) Fiber	3	NEBS Tested FULLY Supported
X4446A-Z	(Northstar QGE): Quad GbE (Intel Ophir) Copper	3	NEBS Tested FULLY Supported
X1027A-Z	Dual 10GbE (Neptune) Fiber	2	NEBS Tested FULLY Supported
X1107A-Z	Dual Intel 10GbE (Oplin)	2	NEBS Tested FULLY Supported
X1106A-Z	Single Intel 10GbE (Oplin)	2	TBD
X1236A-4	Dual 4x IB HCA (Mellanox)	2	WILL NOT BE SUPPORTED
<b>PCIe Cards: Security</b>			
X6000A / X6099A	Sun Crypto Accelerator	1	NEBS Tested FULLY Supported
<b>PCI-X Cards: Storage Interfaces</b>			
SG-XPCI2FC-QF4	(Pyramid): Dual-port 4Gb/s FC – Qlogic	2	NEBS Tested FULLY Supported
SGXPCI2SCSILM320-Z	(Jasper320) : Dual-port U320 SCSI	2	NEBS Tested FULLY Supported
SG-XPCI2FC-EM4-Z	(Pyramid-E) : Dual-port 4Gb/s FC – Emulex	2	NEBS Tested FULLY Supported
<b>PCIe Cards: Storage Interfaces</b>			
SG-XPCIE8SAS-I-Z SG-PCIE8SAS-I-Z	(Pandora-8i): 8-Port LSI1068e SAS Internal	1	Ships with standard configurations, Required/Optional for XATO, NEBS Tested FULLY Supported
SGXPCIESAS-R-INT-Z SG-PCIESAS-R-INT-Z	(Cougar): 8-Port Intel Internal SRL SAS	1	Required/Optional for XATO. NEBS Tested FULLY Supported



Part Number	Option Description	Maximum Number Supported	Comments
(X)8224A	Netra X4250 SAS Cable Kit	1	Need to order SAS cable kit for all XATO orders using the internal SAS HBA cards
SG-XPCIE8SAS-E-Z	(Pandora): 8-Port LSI1068e SAS	3	NEBS Tested FULLY Supported
SGXPCIESAS-R-EXT-Z	(Prometheus): 8-Port Intel SRL SAS	1	NEBS Tested FULLY Supported
SG-XPCIE2FC-EM4	(Summit-E): Dual-port 4Gb/s FC – Emulex	3	NEBS Tested FULLY Supported
SG-XPCIE2SCSIU320Z	(Rhea):Dual-port U320 SCSI	3	NEBS Tested FULLY Supported
SG-XPCIE2FC-QF4	(Summit): Dual-port 4Gb/s FC – Qlogic	3	NEBS Tested FULLY Supported
SG-XPCIE2FC-QF8-Z	(Palene): Dual port 8G b/s - Qlogic	3	NEBS Tested FULLY Supported
SG-XPCIE2FC-EM8-Z	(Palene): Dual port 8G b/s - Emulex	3	NEBS Tested FULLY Supported
<b>PCI-X Cards:Networking</b> X4445A	Quad GigaSwift PCI-X Ethernet UTP Adapter.	1	This card is only supported in NON-NEBS environments. No NEBS testing has been done on this card with the Netra X4250

Please note that the above mentioned X-Option PCI cards have been NEBS tested or will be NEBS tested. As more cards undergo NEBS testing, they will be added to the list.

### General Configuration Notes:

1. Single processor systems can be expanded with one more processor of the identical model/speed only, e.g. 1x Quad-Core Intel Xeon L5408 processor based system can only add one more Quad-Core Intel Xeon L5408 processor. Mixing with a different processor is not supported.
2. Memory must be installed in pairs. Pairs of different densities may be mixed, e.g. 2x2GB and 2x4GB can be used in the same system chassis.
3. If RAID 1 mirroring is going to be used, the drives to be mirrored must be identical in size.
4. There are two Internal SAS host bus adapter options for the Sun Netra X4250 server. The 8-port SAS host bus adapter supports RAID 0, 1, 0+1. This card ships pre-installed with each standard configuration. The 8-port SAS SRL RAID host bus adapter has 256MB of DDR2 memory and battery-backed write cache for 72 hour backup, and also supports RAID 0, 1, 10, 1E, 5, 5EE, 6, 60 – this card is optional and can be ordered as an x-option.

### XATO Configuration Notes:



1. XATO allows the configuration of systems to exact customer requirements. This provides the customer with a fully tested and configured system that requires little, if any, additional configuration prior to deployment. All XATO orders require a working configuration.
2. A minimum of one processor is required. Single processor systems can be expanded with one more processor of the identical model/speed only, e.g. 1x Quad-Core Intel Xeon L5408 processor based system can only add one more Quad-Core Intel Xeon L5408 processor. Mixing with different processor is not supported.
3. Memory must be installed in pairs. Pairs of different densities may be mixed, e.g. 2x2GB and 2x4GB and can be used in the same system chassis. There is no memory to processor ratio requirement - all memory slots can be populated in a one processor system or a two processor system.
4. A disk filler panel is required for any HDD slot not filled.
5. There are two Internal SAS host bus adapter options for the Sun Netra X4250 server. The 8-port SAS host bus adapter supports RAID 0, 1, 0+1. The 8-port SAS SRL RAID host bus adapter has 256MB of DDR2 memory and battery-backed write cache for 72 hour backup, and also supports RAID 0, 1, 10, 1E, 5, 50, 5EE, 6, 60. You must order one of these cards with each system. Note these cards require one internal cable from HBA to expander so a SAS cable kit must also be ordered.
6. The two hard disk drive base chassis ships with a DVD so one does not need to be configured.



# Upgrades

## Upgrade Paths

Sun Netra™ X4250 servers are eligible for the Sun™ Upgrade Advantage Program (UAP). Through this program customers can trade-up their current Sun or non-Sun servers for a new Sun Netra X4250 server and receive a trade-in allowance that is applied as a percentage off of the list price on the new the Sun Netra X4250 server. Customers can trade-in their old systems in on a 1 for 1 server basis or consolidate many servers. . For a complete list of eligible trade-in products you can go to [.http://ibb.eng/](http://ibb.eng/)



# Service and Support

## Warranty Support

The Sun Netra X4250 server has a three year, next business day warranty.

Duration:	3 years Next Business Day
HW Coverage Hours:	Business Hours
HW Response Times:	Next Business Day
Delivery Method:	Parts Exchange or Onsite
HW Phone Coverage:	Business Hours
HW Phone Response Time:	8 hours

## Sun Service Plan

Sun Global Customer Services offers a full range of services to assist customers who deploy the Sun Netra X4250 servers. Whether it is architecture services, implementation services, or services to help customers manage the servers once released to production, Sun has the right services during every phase of the project's life cycle.

Sun provides a service plan to meet every customer's needs: the SunSpectrum<sup>SM</sup> Service Plan for full system support ranging from basic to mission critical service levels and the Sun Software Service Plan.

- SunSpectrum Service Plans: Get integrated hardware and software support.
- Sun Software Service Plans: For fundamental software services such as technical phone or web-based support and software maintenance (updates and upgrades), Sun offers two levels of service for production system software.

## Why the Warranty Isn't Enough

While computer system warranties provide business customers with some assurance of product quality, they do not provide many essential system services or operating system support. In addition, warranties provide default repair times and coverage hours which may not suit customer needs. It's just that a warranty and a Service Plan are two very different things with two very different objectives. Break/fix is no way to live - make sure your customers have service plan coverage on all their active Sun systems. For more information go to <http://www.sun.com/comparewarranty>.

## SunSpectrum Service Plans

SunSpectrum service plans provide integrated hardware and Solaris<sup>TM</sup> Operating System support for Sun systems as well as comprehensive storage system support. For each Sun system, customers can choose the service plan that best fits their needs. Customers benefit from lower SunSpectrum Instant Upgrade (SIU) pricing when purchasing support at time of system sale.

More information is available at <http://www.sun.com/service/support/sunspectrum>.



SunSpectrum service plan highlights include:

- Integrated whole-system support
- All the essentials for one great price
- Priority service
- No “per incident” limits
- Includes Solaris™ Operating System releases and updates
- Resources for proactive system management
- A choice of four simple plans
- Proven return on investment<sup>1</sup>

## SunSpectrum Service Plans

Features	Platinum Service Plan Mission-critical Systems	Gold Service Plan Business-critical Systems	Silver Service Plan Basic System Support	Bronze Service Plan Self-Maintenance Support
Telephone and Online Technical Support	24/7 Live transfer	24/7 Live transfer	8-8, M-F Live transfer	8-5, M-F 4hr response
One-stop Interoperability Assistance	Yes	Yes	No	No
Hardware Service Coverage	24/7 2hr On-site Service	8-8, M-F 4hr On-site Service	8-5, M-F 4hr On-site Service	Replacement parts 2nd business day
Solaris™ Releases	Yes	Yes	Yes	Yes
On-demand Solaris™ Updates	Yes	Yes	Yes	Yes
Online System Admin Resources	Yes	Yes	Yes	Yes
Support Notification Services	Yes	Yes	Yes	Yes
SunSpectrum™ eLearning Library	Yes	Yes	Yes	Yes
System Health Check Subscription	Yes	No	No	No
<b>Additional Services for Qualifying Sites</b>	Customer sites meeting an annual SunSpectrum contract minimum (approximately \$160,000 USD) can receive additional services including the creation of a personalized support plan, periodic support reviews, patch assessments and educational services. For local qualification criteria, visit <a href="http://sun.com/service/support/localinfo.html">sun.com/service/support/localinfo.html</a>			

- Availability of specific features, coverage hours and response times may vary by location or product.
- Response times are determined by customer-defined priority. The response times shown are for service requests designated by the customer as “Priority 1.”
- To receive the best support, Sun recommends that customers install Sun Net Connect software on SPARC®-based systems. This software creates a secure, customer-controlled link to the Sun Solution Center which helps enable expedited Solaris OS troubleshooting, remote diagnostics, and a number of customer-enabled alerting and reporting functions.

<sup>1</sup>Based on Total Economic Impact Study by Forrester Research. This study is available at: [sun.com/service/support/sunspectrum](http://sun.com/service/support/sunspectrum)



## Warranty Upgrade to SunSpectrum Service

The following table includes the part numbers and descriptions for the warranty upgrades to SunSpectrum programs for the Sun Netra X4250 servers.

Part Number	Description
IWU-NX4250-1S	Netra X4250 server upgrade to 1 year of Silver support
IWU-NX4250-1G	Netra X4250 server upgrade to 1 year of Gold support
IWU-NX4250-24-1G	Netra X4250 server upgrade to Gold support + 7X24 On-Site support for 1 year
IWU-NX4250-1P	Netra X4250 server upgrade to 1 year of Platinum support
IWU-NX4250-24-2G	Netra X4250 server upgrade to Gold support + 7X24 On-Site support for 2 years
IWU-NX4250-24-3G	Netra X4250 server upgrade to Gold support + 7X24 On-Site support for 3 years
IWU-NX4250-2G	Netra X4250 server upgrade to 2 years of Gold support
IWU-NX4250-2P	Netra X4250 server upgrade to 2 years of Platinum support
IWU-NX4250-2S	Netra X4250 server upgrade to 2 years of Silver support
IWU-NX4250-3G	Netra X4250 server upgrade to 3 years of Gold support
IWU-NX4250-3P	Netra X4250 server upgrade to 3 years of Platinum support
IWU-NX4250-3S	Netra X4250 server upgrade to 3 years of Silver support

## Sun<sup>sm</sup> System Service Plans for Windows OS

The Sun<sup>sm</sup> System Service Plans for Windows OS are designed to be flexible enough to cover most customers requirements for support:

Highlights:

- Integrated whole-system support for Sun's X64 systems running Microsoft Windows
- All the essentials for one great price
- Priority service
- No "per incident" limits

## Warranty Upgrade to Sun<sup>sm</sup> System Service Plans for Windows OS for the Sun Netra X4250 Server

The following are part numbers and descriptions for the warranty upgrade to Sun<sup>sm</sup> System Service Plans for Windows OS



Part Number	Description
IWU-NX4250W-1S	Netra X4250 Server with Windows Operating System Upgrade to 1 year of Silver support
IWU-NX4250W-1G	Netra X4250 Server with Windows Operating System upgrade to 1 year of Gold support
IWU-NX4250W-1P	Netra X4250 Server with Windows Operating System Upgrade to 1 year of Platinum support
IWU-NX4250W-2S	Netra X4250 Server with Windows Operating System Upgrade to 2 years of Silver support
IWU-NX4250W-2G	Netra X4250 Server with Windows Operating System Upgrade to 2 years of Gold support
IWU-NX4250W-2P	Netra X4250 Server with Windows Operating System Upgrade to 2 years of Platinum support
IWU-NX4250W-3S	Netra X4250 Server with Windows Operating System Upgrade to 3 years of Silver support
IWU-NX4250W-3G	Netra X4250 Server with Windows Operating System Upgrade to 3 years of Gold support
IWU-NX4250W-3P	Netra X4250 Server with Windows Operating System Upgrade to 3 years of Platinum support

### Warranty Upgrade to Sun HW Only Service for Sun Netra X4250 Server

Part Number	Description
IWU-NX4250-22-1H	Netra X4250 server upgrade to 1 year of 7x24 hardware only support with 2 hour response
IWU-NX4250-22-2H	Netra X4250 server upgrade to 2 years of 7x24 hardware only support with 2 hour response
IWU-NX4250-22-3H	Netra X4250 server upgrade to 3 years of 7x24 hardware only support with 2 hour response
IWU-NX4250-24-1H	Netra X4250 server upgrade to 1 year of 7x24 hardware only support
IWU-NX4250-24-2H	Netra X4250 server upgrade to 2 years of 7x24 hardware only support
IWU-NX4250-24-3H	Netra X4250 server upgrade to 3 years of 7x24 hardware only support
IWU-NX4250-SD-1H	Netra X4250 server upgrade to 1 year of same day hardware only support
IWU-NX4250-SD-2H	Netra X4250 server upgrade to 2 years of same day hardware only support
IWU-NX4250-SD-3H	Netra X4250 server upgrade to 3 years of same day hardware only support

### Installation Service for the Sun Netra X4250 Server

Sun's exceptional support for server installation is also available for the Sun Netra X4250 server. This service can be purchased at the time of the server sale. Use the following part numbers to order the installation service.



## Installation of one Sun Server, During Business Hours

Part Number	Description
EIS-2WAYWGS-E	Install 1 or 2-way Workgroup Server
EIS-2WAYWGS-5-E	Install 5 1 or 2-way Workgroup Servers
EIS-2WAYWGS-10-E	Install 10 1 or 2-way Workgroup Servers

## Installation of one Sun Server, After Business Hours

Part Number	Description
EIS-2WAYWGS-E-AH	Install 1 or 2-way Workgroup Server-AH
EIS-2WAYWGS-5-E-AH	Install 5 1 or 2-way Workgroup Servers-AH
EIS-2WAYWGS-10-E-AH	Install 10 1 or 2-way Workgroup Servers - AH

For additional information about the server installation service see:

<http://www.sun.com/service/support/install/entrylevel-server.html>

**Services for OEM partners** include plans that cover hardware only, software only, and hardware + OS. Sun also offers the Production Service Plan for OEM partners who need support for production software, and Integrated Development & Production Support, which offers both development and production software support for one annual fee. Since one of the primary causes of system failure is incorrect installation and configuration, Sun also offers OEM partners free membership in its Enterprise Installation Service program. Members receive all up-to-date builds, the latest technical and product information, alert notices and access to documentation and best practices information to ensure they can do "Sun-standard" installations. OEM partners can earn education credits equal to 2% of contract value for up to 50K per year by taking advantage of workshops and training courses available through Sun Learning Services.

### HPC Quickstart Services

If you're running an HPC solution, you can accelerate its design and implementation and mitigate risk while reducing deployment time by up to 80%. Key HPC Implementation Services include:

- Application Readiness Service to prepares your HPC infrastructure for application and business readiness, and,
- Installation services for the Sun Grid Rack System with CRS Architected Solutions to gives you a solid foundation for enhanced stability and improved performance.
- Professional services for your specific implementation, configuration and migration needs.

Key optimization services include:

- Managed services to support HPC clusters and 3rd party components,
- Proactive and continued monitoring of infrastructure to mitigate risk, resolve issues and sustain desired performance levels,
- Incident response services,



- Performance analysis and fine-tuning tools,
- Control Tower Appliance with every Sun Grid Rack to facilitate installation and monitoring, and,
- Professional services to help you meet your business objectives and service level agreements.

### **Virtualization Services**

Conquer datacenter power and space constraints while improving server utilization and system performance. By virtualizing and consolidating to the Sun platform, customers have reduced IT costs by as much as \$2M/year, achieved 99.99+% availability, and more than doubled application performance. Sun Virtualization Services include:

- **Virtualization Workshop** - Assess your business needs, define milestones and resource requirements, and identify potential project risks and roadblocks,
- **Virtualization Architecture** – Identify the virtualization technology that best meets your business goals. Then, optimize your IT infrastructure and increase server utilization by performing a Performance Analysis and Capacity Planning assessment to be sure your system meets your present and future requirements.
- **Virtualization Implementaiton** – Factory integration followed by coordination of integration process by a certified Project Manager. Includes testing, cut-over process for production, knowledge transfer and recommendations for on-going management and support.

### **Eco Services Suite**

Optimize energy usage, cooling and general datacenter environmental conditions that can impact your operational costs and your ability to deliver services reliably with eco assessment, optimization and management services. Sun Eco Service Suite offerings include:

- **Eco Assessment for Data Centers** – Assessment of existing facility conditions to identify areas in need of improvement and provide a plan for optimizing energy usage, space utilization, cooling and general environmental conditions.
- **Eco Cooling Efficiency Service for Datacenters** – Identifies misused capacity so it can be redirected to improve hardware and cooling capacity, and to increase redundancy.
- **Eco Optimization for Datacenters** - Provides periodic site assessments, cooling optimization support and remote technical support to help you plan for long-term changes to your datacenter infrastructure while keeping you up-to-date with industry changes and new energy-efficient technologies.



# Glossary

1U or RU	One rack unit as defined by the Electronic Industries Alliances (EIA). A vertical measurement equal to 1.75 inches.
ATA	AT-Attachment. A type of hardware interface widely used to connect hard disks, CD-ROMs and tape drives to a PC.
Carrier grade	Ruggedized, rack-mountable systems with features including remote alarm capabilities, front-back cooling, front accessibility of media, rear cabling, and rugged NEBS-compliant packaging.
Chipkill	A technology developed by IBM for situations that demand high availability. It allows a system (usually CPU or motherboard) to detect problems with the computer's memory and selectively disable the problematic DIMMS.
EIDE	See ATA
Ethernet 10/100/1000Base-T	The most widely used LAN access method defined by the IEEE 802.3 standard; uses standard RJ-45 connectors and telephone wire. 100Base-T is also referred to as Fast Ethernet. And 1000Base-T is also referred to as Gigabit Ethernet.
ECC	Error Correcting Code. A type of memory that corrects errors on the fly.
FRU	Field Replaceable Unit
Hot-pluggable	A feature that allows an administrator to add or remove a device such as a disk drive without affecting hardware system integrity.
Hot-swappable	A feature that allows an administrator to remove and/or replace a device without affecting software integrity. This means that, while the system does not need to be rebooted, the new component is not automatically recognized by the system.
IKE	Internet Key Exchange. A method for establishing a security association that authenticates users, negotiates the encryption method and exchanges the secret key. IKE is used in the IPSec protocol.
I/O	Input/output. Transferring data between the CPU and any peripherals.
IPSec	IP Security. A security protocol from the IETF (Internet Engineering Task Force) that provides authentication and encryption over the Internet. Unlike SSL, which provides services at layer 4 and secures two applications, IPSec works at layer 3 and secures everything in the network.
IPMI	Intelligent Platform Management Interface. System management architecture for providing an industry-standard interface and methodology for system management.



L2 cache	Also referred to as Ecache or External Cache. A memory cache external to the CPU chip.
MTBF	Mean Time Between Failures. The average time a component works without failure.
NEBS	Network Equipment Building Standard. A stringent standard for durability, grounding cables, and hardware interfaces specified by Telcordia Technologies (formerly Bellcore) for equipment used in Telco central offices.
PCIe	Peripheral Component Interconnect Express. Formerly known as third-generation I/O, this implementation of the PCI computer bus that uses existing PCI programming concepts and communication standards, but bases it on a much faster serial communications system.
PCI-X	Peripheral Component Interconnect Extended. A computer bus technology that increases the speed that data can move within a computer from 66 MHz to 133 MHz.
SNMP	Simple Network Management Protocol. A set of protocols for managing complex networks. The first versions of SNMP were developed in the early 80s. SNMP works by sending messages, called protocol data units (PDUs), to different parts of a network. SNMP-compliant devices, called agents, store data about themselves in Management Information Bases (MIBs) and return this data to the SNMP requesters.
SCSI	Small Computer Systems Interface. Pronounced "scuzzy." An ANSI standard hardware interface that allows the connection of up to 15 peripheral devices to a single Bus
SAS	Serial Attached SCSI. The successor to the original SCSI technology with the ability to address up to 16,256 devices per port. It also has a more reliable point-to-point serial connection at speeds of up to 3 Gbps.
X86	Refers to the Intel 8086 family of microprocessor chips as well as compatible microprocessor chips made by Intel and others.



# Materials Abstract

All materials will be available on SunWIN except where noted otherwise.

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
<b>Product Literature</b>				
– <i>Sun Netra X4250 Server, Just the Facts</i>	Reference Guide (this document)	Training Sales Tool	SunWIN, Reseller Web	520066
– <i>Sun Netra X4250 Server Data Sheet</i>	Data Sheet	Sales Tool	SunWIN, Reseller Web,	520067
– <i>Sun Netra X4250 Server Customer Presentation</i>	Customer Presentation	Sales Tool	SunWIN	520068
– <i>Sun Netra X4250 Server Technical Presentation</i>	Technical Presentation	Training Sales Tool	SunWIN	520069
<b>White Papers</b>				
– <i>Sun Netra X4250 Server Architecture</i>	White Paper	Sales Tool	SunWIN	520070
<b>External Web Sites</b>				
– <i>General information on the Sun Netra X4250 Server</i>	<a href="http://sun.com/servers/netra/x4250">http://sun.com/servers/netra/x4250</a>			



# Competitive Information

## Elevator Pitch

The Sun Netra X4250 server combines cutting-edge performance with the ruggedness and reliability of the Netra server family. This carrier-grade system can expand up to a 8-way configuration, all in a compact 20-inch deep 2U-footprint.

## Value Proposition

- Runs a broad range of applications on Solaris, Linux, and Windows efficiently and quickly
- Customers can save on space, energy consumption, cooling cost and the environment with an energy- efficient design that supports low power processors, up to 16 memory slots and 4 internal disk drives in a 2RU 20-inch deep carrier-grade package.
- Netra X4250 comes standard with Integrated Lights Out Manager for system management and monitoring at no extra cost. It also has redundant and hot-swappable components, such as power supplies and disk drives, that makes component swap-out fast, easy and effortless.
- Ruggedized packaging provides a high level of system reliability which helps ensure that the Netra X4250 servers continue to operate under the extremes of environmental conditions.

## Key Differentiators

- Expandability and density: Up to 16 memory slots and 4 internal disk drives in a 2RU 20-inch deep carrier-grade package. It has 2 PCI-X Slots (1x FL/FH, 1 HL/FH ) and 4 PCIe Slots (1x FL/FH, 3x MD2 low profile, note one slot occupied by SAS HBA)
- The Netra X4250 supports full-height and full-length PCI-X and PCIe cards allowing the use of legacy telecommunication cards.
- Integrated Lights Out Manager comes standard at no extra cost



## Competitive Positioning

### HP competitive offerings

<b>HPQ DL385</b>	<p>The Netra X4250 has multiple strengths.. its memory capacity can reach up to 64GB. It can support a depth of 20-inches in a 2-RU form factor and can support both PICE and PCI-X slots. The Netra X4250 supports full-height and full-length PCI-X and PCIe cards allowing the use of legacy telecommunication cards. Also, the Netra X4250 uses low wattage power supplies.</p> <p>However, the current HP carrier-grade server only offer up to 32GB of memory max and 4 PCIe slots. In addition, the HP server is based on the Opteron processor and has a depth of 26-inches.</p>
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HP has upgrade their 2U carrier-grade offering to the new Intel Nehalem processors. A carrier-grade version of the HPQ DL 380 G6. However, the server is 26" deep.

HP is also offering to NEBS certify their commercial servers if there is a business case

### IBM competitive offerings

<b>IBM X3650T</b>	<p>The Netra X4250 has multiple strengths.. its memory capacity can reach up to 64GB today. It can support up to 548GB of total disk capacity in a 2-RU form factor. It has 4 Gbe ports on the system and can support both PICE and PCI-X slots. The Netra X4250 supports full-height and full-length PCI-X and PCIe cards allowing the use of legacy telecommunication cards.</p> <p>However, the current IBM carrier-grade server only offer up to 16GB of memory max with only a max storage capacity of 292GB . Likewise, it only offers 2 GbE ports on-board and 0 PCIe slots within the system.</p>
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It is anticipated that IBM may upgrade their 2U carrier-grade offering to the Intel Nehalem processors. Perhaps a carrier-grade version of the IBM X3650 M2. The current IBM X3650T is 3 years old.,

### Kontron competitive offerings (previously Intel servers)

<b>Kontron TIGW1U</b>	<p>The Netra X4250 has multiple strengths.. its memory capacity can reach up to 64GB today. It can support up to 548GB of total disk capacity in a 2-RU form factor. It has 4 Gbe ports on the system and can support both PICE and PCI-X slots. The Netra X4250 supports full-height and full-length PCI-X and PCIe cards allowing the use of legacy telecommunication cards.</p> <p>However, the current Intel carrier-grade server only offer up to 24GB of memory max with only a max storage capacity of 438GB in 1-RU footprint . Likewise, it only 1 PCIe or PCI-X within the system.</p>
<b>Kontron TIGH2U</b>	<p>The Netra X4250 has multiple strengths.. its memory capacity can reach up to 64GB today. It has 4 Gbe ports on the system.</p> <p>However, the current Intel carrier-grade server also has many strengths. It has higher disk capacity.. 6 HDDs with DVD support but can only support a maximum of 32GB of memory.</p>

It is anticipated that Kontron will upgrade their 2U carrier-grade offering to the new Intel Nehalem processors.



<b>Products → Features ↓</b>	<b>Sun Netra X4250</b>	<b>Kontron TIGH2U</b>	<b>IBM X3650T</b>	<b>HPQ DL 385</b>	<b>Kontron TIGW1U</b>
Size R/U/BW	2U	2U	2U	2U	1U
Depth	20"	20"	20"	26"	20"
CPU Type	Xeon	Xeon	Xeon	Opteron	Xeon
Number of CPU	1 to 2	1 to 2	1 to 2	1 to 2	1 to 2
Total Number of cores/threads	8	8	2	8	4
Speed	2.13GHz	2.13GHz	3.2GHz	2.3GHz	2.33GHz
Level 2 Cache	2x6MB	2x6MB	2x2MB	4x512KB	4MB
Mem Type	FB-DIMM	FB-DIMM	DDR2 SDRAM	DDR2	FB-DIMM
Max Memory	64GB	32GB	16GB	32GB	24GB
Disk Drive size	146GB-300GB	146GB	146GB	146GB	146GB
Disk Drive Protocol	SAS/SSD (future)	SAS	Ultra320 SCSI	SAS/SATA	SAS
Disk count	4	6	2	8	3
Max Internal Disk	1200GB	876GB	292GB	1168GB	438GB
Hot pluggable Disk	Yes	Yes	No	Yes	Yes
Optical Media	DVDRW	DVDRW	CD/CDRW/DVD	DVDRW	DVDRW
Ethernet	Quad GbE	Dual GbE	Dual GbE	Quad GbE	Quad GbE
O/S support	Solaris 10, WS, Suse, RedHat, VMWare	WS, Linux, RedHat	WS, Suse, RedHat	WS, Linux, RedHat	WS, Linux, RedHat
PCI-X Slots	2	1	6	0	1 (PCI-X or PCI-E)
PCIe slots	4	4	NA	4	1
PCIe Lanes	2x8, 2x4	4x4 or 2x4, 1x8	NA	NA	1
Max # PSU	2	2	2	2	2
Max PSU Power/PSU	650W	600W	600W	800W	450W
NEBS Level 3 Certified	Yes	Yes	Compliant	Yes	Yes

### How to Beat Your Competition:

Visit <http://competitive.central> (or MySales > Systems > Competitive) for a broad range of tools available to counter competitive claims. Engage the SSC War room for competitive deal support, [sscwarrom@sun.com](mailto:sscwarrom@sun.com), x86484

