

Sun Fire™ X4150 Server

1-RU 2-Socket (8-way) x64 Rackmount Server

&

Sun Fire™ X4250 Server

2-RU 2-Socket (8-way) x64 Rackmount Server

Industry Leading Performance, Expandability and Power Efficiency

Just the Facts

SunWIN Token # 535336

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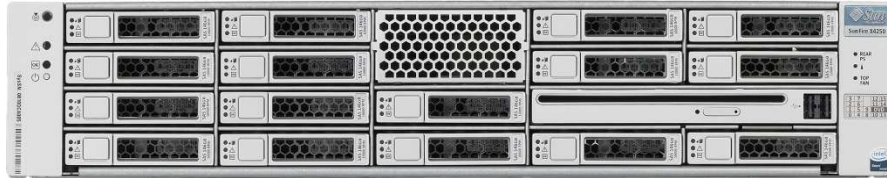


Sun Fire X4150 & Sun Fire X4250 Server Positioning

Sun Fire X4150 = Performance, Density, and Energy Efficiency



Sun Fire X4250 = Performance, Density, and Expandability



What's new

09/11/07: Announce Sun Fire X4150 RoHS Compliant Standard Configurations and XATO Options.

11/20/07: Announce Microsoft Windows Server 2003 pre-installed XATO options for Sun Fire X4150

12/04/07: Announce new Intel Xeon L5335, E5410, E5440, X5460 processor and 73GB 15K RPM SAS disk options for Sun Fire X4150

01/08/08: Announce new Intel Xeon X5260 processor option for Sun Fire X4150

05/13/08: Announce new Intel Xeon L5420, E5450 processor options for Sun Fire X4150

08/05/08: Announce Sun Fire X4250 RoHS Compliant Standard Configurations and XATO Options.

Introduction

The Sun Fire™ X4250 is Sun's newest addition to its x64 server family powered by the Intel Xeon processor. The Sun Fire X4250 is an 2-RU expanded version of the Sun Fire X4150, which is the best 1-RU 2-socket enterprise class x64 server in terms of performance, expandability and power efficiency that runs Solaris, Linux, Windows and VMware. This is another example of Sun's innovative engineering delivering two of the most compelling x64 (32-bit and 64-bit) solutions in the market, the Dual-core and Quad-Core Intel Xeon processor ready Sun Fire X4150 and Sun Fire X4250 servers delivering world-class 32-bit and 64-bit performance in rack-mountable 1U and 2U form factors with Sun's rock-solid, enterprise-class capabilities and quality.

Running Solaris(TM), Linux, Windows and VMware Operating systems, the Sun Fire X4150 and Sun Fire X4250 servers allow customers to run existing 32-bit applications on the same hardware as they migrate to their choice of next generation 64-bit applications. The Sun Fire X4150 and Sun Fire X4250 servers can help minimize required staff training and support as well as help reduce data center real estate and cooling needs.

The Sun Fire X4150 and Sun Fire X4250 are general-purpose servers designed for deployment in a wide

range of architectures:

- Scale-out architectures: With large memory capacity, internal storage, quad Gigabit Ethernet ports and high speed PCI-Express expansion slots that enable high speed system interconnects such as fibre channel and InfiniBand, these servers are able to solve complex computing problems that require intense compute resources.
- Scale-up architectures: With up to 8 cores available, these servers are well-suited for web, databases and infrastructure services.
- Scale-within: With their ability to run Solaris 10 Containers and VMware, Sun Fire X4150 and Sun Fire X4250 servers are ideal platforms for consolidating multiple applications on a single platform.

In addition, these servers help customers scale their computing resources without additional complexity. The Integrated Lights Out Manager (iLOM) comes standard on all systems without extra cost, enabling the system to be managed and monitored locally or remotely. (Please note that Sun Fire X4150 shipped prior to September 2008 had the embedded LOM that can be upgraded to iLOM.)

The Sun Fire X4150 and Sun Fire X4250 servers, when combined with Sun's rich portfolio of software, storage, service offerings, help reduce cost and complexity while accelerating time-to-revenue for data centers that run a broad range of applications including web, app, database and grid applications.

For more information on Sun Fire X4150 see: <http://www.sun.com/x4150>

For more information on Sun Fire X4250 see: <http://www.sun.com/x4250>

Features, Functions, and Benefits

Sun Fire X4150 and Sun Fire X4250 Server Key Features, Functions, and Benefits

Feature	Function	Benefit
Performance		
Highest Performance in class	<ul style="list-style-type: none"> • Sufficient power-envelope to support today's and tomorrow's fastest Intel Xeon processors • Delivers both 32- and 64-bit enterprise-class computing 	<ul style="list-style-type: none"> • Provides fastest performance in this class of servers • Increases performance while providing investment protection for existing 32-bit applications
Industry Leading Reliability and Expandability		
Hot-swappable HDDs	<ul style="list-style-type: none"> • Performance for I/O-bound applications and redundancy for mission-critical data 	<ul style="list-style-type: none"> • Increase performance and availability
Up to 64GB of memory with ECC and ChipKill	<ul style="list-style-type: none"> • Support memory-intensive applications • ECC provides automatic single-bit error correction • ChipKill allows a single DRAM chip to fail and the system will continue to run 	<ul style="list-style-type: none"> • Improve application performance • ECC helps to ensure data integrity • improving availability • ChipKill improves system availability
Integrated Quad Gigabit Ethernet	<ul style="list-style-type: none"> • Outstanding network I/O performance • Increased network availability when installed in failover configurations 	<ul style="list-style-type: none"> • Increases network efficiency, flexibility, and availability
64-bit PCI-Express Slots	<ul style="list-style-type: none"> • Allows connectivity to additional network or storage while supporting full CPU path bandwidth. 	<ul style="list-style-type: none"> • Enables flexibility to meet evolving business and application requirements.
Energy Efficiency		
Intel Xeon Processors	<ul style="list-style-type: none"> • Supports the latest Quad-Core Intel Xeon processors, placing up to 8 CPU cores in a compact form factor • Supports the 50W Quad-Core Intel Xeon processor for energy conscious customers 	<ul style="list-style-type: none"> • Nearly doubles computing resources with minimal power and cooling increases • Reduces the processor energy consumption by up to 60W per system

Feature	Function	Benefit
Operating System and Management Environment		
Integrated Lights Out Manager (ILOM) for Remote Management (Please note that Sun Fire X4150 systems shipped prior to September 2008 had embedded LOM that can be upgraded to ILOM.)	Integrated Lights Out Manager (ILOM): <ul style="list-style-type: none"> • Remote management with full Keyboard, Mouse, Video, Storage (KVMs) • Remote media capability (floppy, CD etc.) • Full DMTF CLI • Browser UI for control of the system through a graphical interface. • IPMI 2.0 compliant for management and control • SNMP v1, V2c, V3 for system monitoring • Monitor and report system and component status on all FRUs 	<ul style="list-style-type: none"> • All management which does not require physically touching the system can be performed remotely • Easily integrates into customer's existing management environment by supporting industry standards • ILOM is a core part of system, there is no additional charge for this functionality as with some of the competition
Runs applications on: <ul style="list-style-type: none"> • Solaris 10 • Linux (RHEL and SLES) • Microsoft Windows • VMware 	<ul style="list-style-type: none"> • Run applications on industry standard platform running OS of choice 	<ul style="list-style-type: none"> • Maximize application performance with best OS • Ease transition to 64-bit computing • Maximize IT investment by standardizing hardware to reduce required training and spares

Product Family Placement

The Sun Fire X4150 and X4250 server are Sun's 1-RU and 2-RU x64 servers based on the Intel Xeon processor. The Sun Fire X4140 and X4240 servers are for customers who prefer 2-socket servers based on the AMD Opteron processor.

X64 1-RU Server Family Comparison

The following table compares some features of the Sun Fire X2200 M2, Sun Fire X4140 and Sun Fire X4150 servers.

Features	Sun Fire X2200 M2 Server	Sun Fire X4140 Server	Sun Fire X4150 Server
Processor Architecture	AMD Opteron	AMD Opteron	Intel Xeon
Processor Type	Dual-Core and Quad-Core	Dual-Core or Quad-Core	Dual-Core or Quad-Core
Processor Speed	1.8 GHz to 3.0 GHz	1.8 GHz to 3.2 GHz	2.33 GHz to 3.3 GHz
Level 2 Cache	1MB	2x1MB for Dual-Core 4x512KB for Quad Core	6MB for Dual-Core 2x6MB for Quad-Core
CPU Interconnect	HyperTransport	HyperTransport	Front Side Bus
Memory Controller	Embedded in processor	Embedded in processor	Separate chip
Memory Type	667 MHz registered DDR2	667 MHz registered DDR2	667 MHz registered FB-DIMM
DIMM Slots	16	16	16
DIMMs per CPU	8	8	16
Max Memory	64 GB	64 GB	64 GB

Features	Sun Fire X2200 M2 Server	Sun Fire X4140 Server	Sun Fire X4150 Server
Internal Disk	2x 3.5" SATA	8x 2.5" SAS	8x 2.5" SAS
Onboard RAID	RAID 0, 1 for SAS	SW RAID 0, 1 for SATA	SW RAID 0, 1 for SATA
Add-on RAID	none	RAID 0, 1, 5, 6 with SAS RAID HBA	RAID 0, 1, 5, 6 with SAS RAID HBA
Removable Media	DVD-ROM, CD-RW/DVD	DVD+/-RW	DVD+/-RW
Onboard GigE	4 GigE	4 GigE	4 GigE
PCI-Express	2x PCI-Express	3x PCI-Express	3x PCI-Express
Service Processor	Embedded LOM	Integrated LOM	Integrated LOM (Embedded LOM prior to Sept 2008)
Redundant, Hot-Swap PSU	No	Yes	Yes
Redundant, Hot-Swap Fans	No	Yes	Yes
Depth	25 in. 633.7 mm	28 in. 711.2 mm	28.125 in. 714 mm

X64 2-RU Server Family Comparison

The following table compares some features of the Sun Fire X2200, Sun Fire X4240 and Sun Fire X4250 servers.

Features	Sun Fire X2200 M2 Server	Sun Fire X4240 Server	Sun Fire X4250 Server
Processor Architecture	AMD Opteron	AMD Opteron	Intel Xeon
Processor Type	Dual-Core or Quad-Core	Dual-Core or Quad-Core	Dual-Core or Quad-Core
Processor Speed	1.8 GHz to 3.0 GHz	1.8 GHz to 3.2 GHz	2.5 GHz to 3.3 GHz
Level 2 Cache	1MB	2x 1MB for Dual-Core 4x512KB for Quad-Core	6MB for Dual-Core 2x6MB for Quad-Core
CPU Interconnect	HyperTransport	HyperTransport	Front Side Bus
Memory Controller	Embedded in processor	Embedded in processor	Separate chip
Memory Type	667 MHz registered DDR2	667 MHz registered DDR2	667 MHz registered FB-DIMM
DIMM Slots	16	16	16
DIMMs per CPU	8	8	16
Max Memory	64 GB	64 GB	64 GB
Internal Disk	2x 3.5" SATA	16x 2.5" SAS	16x 2.5" SAS
Onboard RAID	RAID 0, 1 for SAS	RAID 0, 1 for SATA	N/A
Add-on RAID	none	RAID 0, 1, 5, 6 with SAS RAID HBA	RAID 0, 1, 5, 6 with SAS RAID HBA

Features	Sun Fire X2200 M2 Server	Sun Fire X4240 Server	Sun Fire X4250 Server
Removable Media	DVD-ROM, CD-RW/DVD	DVD+/-RW	DVD+/-RW
Onboard GigE	4 GigE	4 GigE	4 GigE
PCI-Express	2x PCI-Express	6x PCI-Express	6x PCI-Express
Service Processor	Embedded LOM	Integrated LOM	Integrated LOM
Redundant, Hot-Swap PSU	No	Yes	Yes
Redundant, Hot-Swap Fans	No	Yes	Yes
Depth	25 in. 633.7 mm	28 in. / 711.2mm 28.8 in. / 733.65 mm (inc PSU Handle)	28.125 in. / 714mm 28.8 in. / 733.65 mm (inc PSU Handle)

Key Messages

- Performance...do more with less
 - Run a broad range of applications more efficiently and quickly
- Expandability.... headroom to grow your business
 - Up to twice the memory, storage and networking connectivity of similar systems in their classes
- Energy-efficient.....save power and cooling costs
 - Customers can save on energy consumption, cooling cost and the environment
- Manage and Monitor the System.....locally or remotely
 - Integrated Lights Out Manager (integrated LOM) allows full remote KVM functionality with video and media redirection. (Please note that the Sun Fire X4150 shipped prior to September 2008 had the embedded LOM that can be upgraded to ILOM.)
- Maximize Uptime
 - Enterprise-class reliability through redundant and hot-swappable power supplies and fans
 - Hot-swappable disk drives make drive replacement fast and easy
 - SAS host bus adapters offer RAID choices to meet customer requirements
- Multi-platform.....less complexity
 - Runs Solaris, Linux, Windows and VMware operating systems
 - Standardize on one hardware platform for all major operating systems in the data center

Target Customers

The Sun Fire X4150 server is targeted at customers that want enterprise class x64 servers which are fast, expandable and energy efficient. The Sun Fire X4250 server is targeted at customers who require more disk capacity than the Sun Fire X4150 can provide.

Target Markets

- Financial Services
- Telco, SP, Media & Broadband
- Government
- Education
- Manufacturing (EDA, Oil & Gas)

Target Applications

- Web Server
- IT Infrastructure (security, DNS, proxy, caching, firewall, gateway)
- Virtualization and Consolidation
- Commercial HPC Grid Computing
- File/Print
- Messaging/Collaboration
- Video Streaming

Market Value Proposition

Sun Fire X4150 and Sun Fire X4250 servers are fast, expandable and energy-efficient enterprise class x64 servers that run Solaris™, Linux, Windows and VMware operating systems.

- Do More With Less: High performing 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 efficiency results in less power consumption and cooling cost.
- Improve Service Levels: High availability features such as hot swappable and redundant power supplies, fans and disks lead to higher uptime.

Availability

The Sun Fire X4150 is generally available worldwide.

The Sun Fire X4250 reached revenue release on July 11 2008, and general availability on July 30, 2008.

The Sun Fire X4250 will be internally announced on August 5, 2008 and publicly announced on August 19, 2008.

Enabling Technology

Technology Overview

The Sun Fire X4150 Server is a high-density, 1-RU, x64-based, rack-optimized server which has the following system architectural features:

- Dual-Core Intel® Xeon® processor 5200 series
- Quad-Core Intel® Xeon® processor 5400 series
- Common Ultra high density chassis design
- Integrated Lights Out Management with a dedicated Service Processor (Please note that Sun Fire X4150 servers shipped prior to Sept 2008 had embedded LOM that can be upgraded to ILOM.)

The Sun Fire X4250 Server is a high-density, 2-RU, x64-based, rack-optimized server which has the following system architectural features:

- Dual-Core Intel® Xeon® processor 5200 series
- Quad-Core Intel® Xeon® processor 5400 series
- Common Ultra high density chassis design
- Integrated Lights Out Management with a dedicated Service Processor

Quad-Core Intel Xeon processor 5400 series

The Quad-Core Intel Xeon Processor 5400 Series are 64-bit server/workstation processors utilizing four Intel Core microarchitecture cores. These processors are 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, 32 KB Level 1 instruction data caches per core and 6 MB shared Level 2 cache per die (12 MB Total Cache per processor). The processors support a Dual Independent Bus (DIB) architecture with one processor on each bus, up to two processor sockets in a system. The DIB architecture provides improved performance by allowing increased FSB speeds and bandwidth. The 1333 MT/s Front Side Bus (FSB) is a quad-pumped bus running off a 333 MHz system clock, which results in 10.6 GBytes per second data transfer.

The Quad-Core Intel Xeon Processor 5400 Series features include Advanced Dynamic Execution, enhanced floating point and multi-media units, Streaming SIMD Extensions 2 (SSE2) Streaming SIMD Extensions 3 (SSE3) 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.

Sun Integrated Lights-Out-Manager (ILOM)

Sun Integrated Lights-out Manager is driven by an integrated system service processor that follows x86 standards. It provides for full remote KVM (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 environmental, 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

System Architecture

Overview

The Sun Fire X4150 and Sun fire X4250 servers are based on the Intel Bensley platform. Both servers feature up to 2 Quad-Core Intel Xeon Processor 5400 series or 2 Dual-Core Intel Xeon Processor 5200 Series. 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 or 1333 MT/s depending on the chosen processor.

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 MCH offers a total of 24 PCIe lanes, sixteen of which are routed to the middle and leftmost PCIe risers (as viewed from the rear).

Southbridge

The ESB-2 Southbridge is interconnected to the MCH using one ESI link and one 4-lane PCIe link. It has one 8-lane PCIe link going to expansion slot 0. 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 to an internal USB hub for two front accessible USB ports and one USB port is available inside the chassis for internal boot/storage USB-based devices. For the Sun Fire X4150 only, SAS configurations have the disk backplane connected to a PCIe HBA inserted in PCIe expansion slot 1.

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.

Block Diagram – SATA

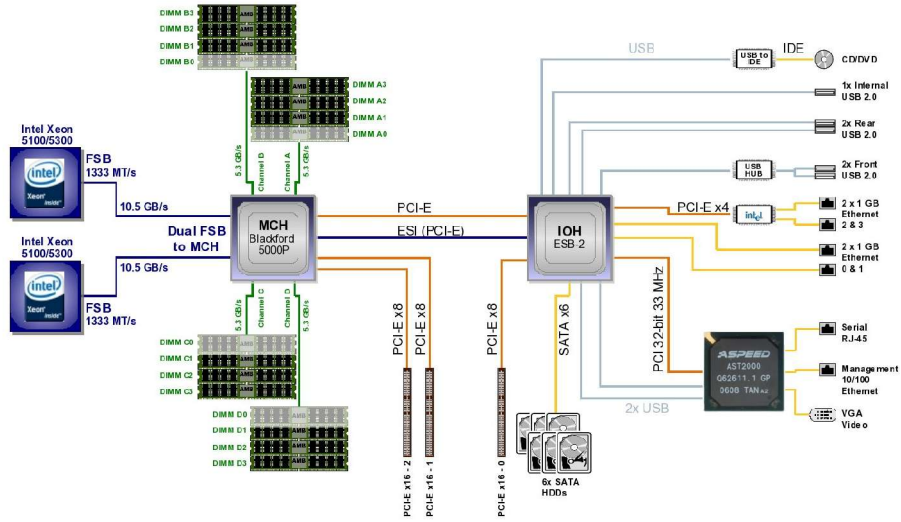


Figure 3. Sun Fire X4150 SATA Server Block Diagram

Block Diagram – SAS

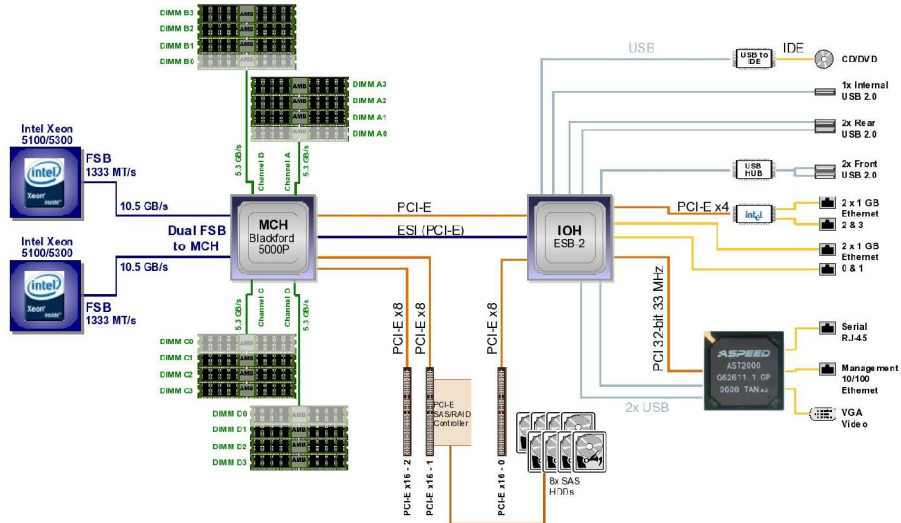


Figure 4. Sun Fire X4150 SAS Server Block Diagram

Sun Fire X4250 Block Diagram SAS

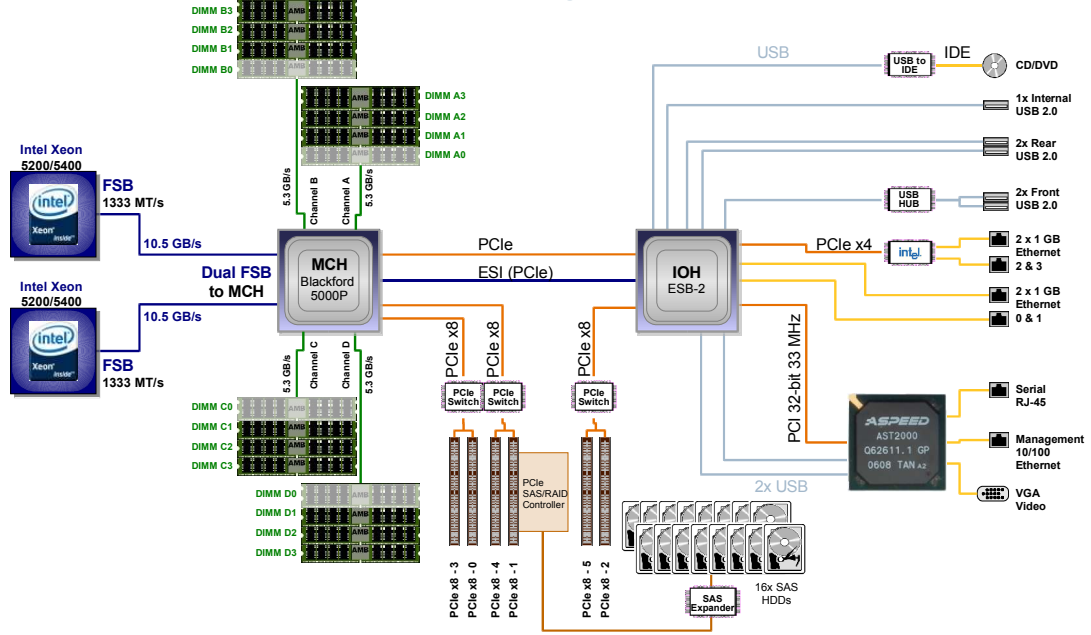


Figure 5. Sun Fire X4250 SAS Server Block Diagram

Reliability, Availability, and Serviceability (RAS)

Reliability

- 8-port SAS host bus adapter (LSI 3081e) supports RAID 0, 1, 0+1.
- 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.
- ECC memory supported.

Availability

- High CPU density available with quad core combined with the small form factor of the Sun Fire X4150 servers allow redundant deployment in a compact space to increase overall service availability.
- Redundant hot-swappable power supplies and fan modules allow for system service without downtime.
- Built-in quad Gigabit Ethernet ports provide redundancy.

Serviceability

- Front-accessible, hot-swappable disk drives.
- Front-accessible DVD+/-RW drive can be easily removed without opening the top cover of the chassis.
- Fan modules can be replaced without power down or complete removal of system from rack.
- 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.
- Rack mounting slide rails for easy installation and removal of a unit are available as x-options.
- Single-step power supply removal: Power-supplies can be serviced without sliding the servers out of the rack.

Operating System

Sun Fire X4150 & Sun Fire X4250 Server Operating Systems

As world-class performance platforms, the 64-bit Sun Fire X4150 and Sun Fire 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 Fire X4150 and Sun Fire X4250 servers provide customers with more choices, within the same hardware architecture, than competing servers in their respective classes.

Latest OS Information

For more information on the latest OS support for the Sun Fire X4150 Server , see <http://www.sun.com/servers/x64/x4150/os.jsp>

For more information on the latest OS support for the Sun Fire X4250 Server , see <http://www.sun.com/servers/x64/x4250/os.jsp>

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

Key Messaging

In a class by itself, the Solaris 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 1/11th 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, Intel Xeon, 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 Fire X4150 and Sun Fire X4250 Servers are certified to run the Microsoft Windows Server 2003 Enterprise and Standard Edition operating systems. Sun System Service Plans are available from Sun Microsystems at an additional charge. Please see the “Services” section for more details.

VMware OS

The Sun Fire X4150 and Sun Fire X4250 Servers are certified to run VMware ESX 3.0.2 operating system. Sun System Service Plans are available from Sun Microsystems at an additional charge. Please see the “Services” section for more details.

Installation Data

Sun Fire X4150 and Sun Fire X4250 Server Specifications

Processor Options

Sun Fire X4150	Sun Fire X4250
One or two Intel Xeon Processors; <ul style="list-style-type: none"> Dual-Core Intel Xeon X5260 (6MB L2, 3.33 GHz, 1333 MHz FSB, 80W) Quad-Core Intel Xeon L5420 (2x6MB L2, 2.5 GHz, 1066 MHz FSB, 50W) Quad-Core Intel Xeon E5410 (2x6MB L2, 2.33 GHz, 1066 MHz FSB, 80W) Quad-Core Intel Xeon E5440 (2x6MB L2, 2.83 GHz, 1333 MHz FSB, 80W) Quad-Core Intel Xeon E5450 (2x6MB L2, 3.0 GHz, 1333 MHz FSB, 80W) Quad-Core Intel Xeon X5460 (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W) 	One or two Intel Xeon Processors; <ul style="list-style-type: none"> Dual-Core Intel Xeon X5260 (6MB L2, 3.33 GHz, 1333 MHz FSB, 80W) Quad-Core Intel Xeon L5420 (2x6MB L2, 2.5 GHz, 1066 MHz FSB, 50W) Quad-Core Intel Xeon E5410 (2x6MB L2, 2.33 GHz, 1066 MHz FSB, 80W) Quad-Core Intel Xeon E5440 (2x6MB L2, 2.83 GHz, 1333 MHz FSB, 80W) Quad-Core Intel Xeon E5450 (2x6MB L2, 3.0 GHz, 1333 MHz FSB, 80W) Quad-Core Intel Xeon X5460 (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W)

Main Memory

Sun Fire X4150	Sun Fire X4250
16 DIMM slots total for PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMMs	
System configurations from 2 GB (2x1GB) to 64 GB (16x4GB) of memory	System configurations from 4 GB (2x2GB) to 64 GB (16x4GB) of memory

Standard/Integrated Interfaces

	Sun Fire X4150	Sun Fire X4250
Network	Four 10/100/1000Base-T Ethernet ports	
Network management	One dedicated 10/100Base-T Ethernet port	
Serial	One TIA/EIA-232-F asynchronous RJ45 Port	
SAS	Four channel SAS interface, internal access only.	
USB	Two USB 2.0 ports (Front), Two USB 2.0 ports (Rear), One USB 2.0 port (Internal)	
Expansion bus	Three internal MD2 Low Profile 8-lane PCI-Express slots (all with x16 mechanical connector)	Six internal MD2 Low Profile 8-lane PCI-Express slots (all with x8 mechanical connector)

Mass Storage and Media

	Sun Fire X4150	Sun Fire X4250
Hot-swappable, Internal disk	Up to eight SAS disk drives (SMART enabled) with add-on SAS Host Bus Adapter	Up to sixteen SAS disk drives (SMART enabled) with add-on SAS Host Bus Adapter
Removable Media	One EIDE DVD+/-RW drive	

External disk	http://www.sun.com/servers/x64/x4150/storage.jsp	http://www.sun.com/servers/x64/x4250/storage.jsp
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Software

	Sun Fire X4150 and Sun Fire X4250	
Operating environment	Solaris 10 Update Red Hat Enterprise Linux SUSE Linux Windows Server VMware ESX See http://www.sun.com/servers/x64/x4150/os.jsp See http://www.sun.com/servers/x64/x4250/os.jsp	
Sun Java Enterprise System 5	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	CLI (in-band and out-of-band), IPMI 2.0 (in-band and out-of-band), SNMP (out-of-band only)	

Power Supplies

	Sun Fire X4150	Sun Fire X4250
Power Supplies	Dual Redundant Hot Swappable	
UL Maximum (AC Input)	8.2 Amps RMS at 100 VAC	
Power Supply Rating (DC output)	650 W	1050 W
Earth Leakage	0.8mA max at 264V	0.8mA max at 264V
Inrush Current	<25A peak excluding X-Caps	<25A peak excluding X-Caps

Environment

	Sun Fire X4150 and Sun Fire X4250
AC power	90–264 V AC (47–63 Hz)
Operating temperature/humidity (single, non-rack system)	5 °C to 35 °C (41 °F to 95 °F), 10% to 90% relative humidity, non-condensing
Nonoperating temperature/humidity (single, non-rack system)	-40 °C to 70 °C (-40 °F to 158 °F), up to 93% relative humidity, non-condensing
Altitude (operating) (single, non-rack system)	Up to 3048 m, maximum ambient temperature is derated by 1 degree C per 300 m above 900 m
Altitude (nonoperating) (single, non-rack system)	15kPa

Acoustic Noise Emissions

Declared noise emissions in accordance with ISO 9296, A-weighted, operating and idling:	
LwAd (1B = 10dB) at max ambient	7.7 B

LpAm bystander at max ambient	65.8 dB
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Regulations

Meets or exceeds the following requirements:	
Safety	IEC 60950, UL/CSA 60950, EN60950, CB Scheme with all country differences
RFI/EMI	FCC CFR 47 Part 15 Class A, EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 300-386
Immunity	EN55024, EN300-386
Certifications: Safety EMC	UL/cUL, UL DEMKO, CE, BSMI, CCC, GOST-R, S-Mark CE, FCC, VCCI, ICES, C-Tick, MIC, CCC, GOST-R, BSMI Class A
Other	Complies with WEEE Directive (2002/96/EC) and RoHS Directive (2002/95/EC)

Dimensions and Weight

	Sun Fire X4150	Sun Fire X4250
Chassis		
Height	44 mm (1.746 in.)	88 mm (3.49 in.)
Width not including ears	426 mm (16.75 in.)	426 mm (16.75 in.)
Width including ears	435.721 mm (17.16 in.)	435.721 mm (17.16 in.)
Depth not including PSU handle	714 mm (28.125 in.)	714 mm (28.125 in.)
Depth including PSU handle	733.65 mm (28.88 in.)	733.65 mm (28.88 in.)
Weight	18.4 kg (40.66 lb) maximum assuming PCI-Express card weighs 0.12 kg (0.25 lb) each and without rack mounting slide rail kit	25.6 kg (56.3 lb) maximum assuming PCI-Express card weighs 0.12 kg (0.25 lb) each and without rack mounting slide rail kit

System Requirements, Configuration and Management

System Requirements

The Sun Fire X4150 and Sun Fire X4250 servers run the Solaris 10, standard Linux distributions Red Hat and SLES, Microsoft Windows, as well as VMware operating systems. For a list of supported OS versions, please refer to the following links:

Sun Fire X4150: <http://www.sun.com/servers/x64/x4150/os.jsp> _

Sun Fire X4250: <http://www.sun.com/servers/x64/x4250/os.jsp> _

System Configuration

The Sun Fire X4150 and Sun Fire X4250 servers have the following standard components:

- One or two Dual-Core or Quad-Core Intel Xeon processors
- Sixteen memory slots supporting PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMMs - Up to 64 GB of main memory with 4GB DIMMs
- Sun Fire X4150: Eight 2.5-inch SAS disk drives (with add-on SAS Host Bus Adapter)
Sun Fire X4250: Sixteen 2.5-inch SAS disk drives (with add-on SAS Host Bus Adapter)
- DVD+/-RW drive (optional)
- Four 10/100/1000Base-T Ethernet ports
- Five USB 2.0 ports: two front, two rear, one internal
- Sun Fire X4150: Three MD2 Low Profile 8-lane PCI-Express slots (with x16 mechanical connectors)
Sun Fire X4250: Six MD2 Low Profile 8-lane PCI-Express slots (with x8 mechanical connectors)
- Redundant hot-swappable fan modules
- Sun Fire X4150: 650 Watt AC power supply (hot-swappable in redundant configuration)
Sun Fire X4250: 1050 Watt AC power supply (hot-swappable in redundant configuration)
- Integrated Lights Out Manager (Integrated LOM) with dedicated 10/100BaseT Ethernet port (Please note that Sun Fire X4150 shipped prior to September 2008 had embedded LOM that can be upgraded to ILOM.)
- 19-inch rack-mount kit (optional)
- Cable management arm (optional)

Licensing/Usage

The Sun Fire X4150 and Sun Fire X4250 servers can be ordered 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 Sun Fire X4150 and Sun Fire X4250 servers vary depending upon configuration. For more specific information, please refer to MTBF Tool at <http://ram-server.eng>

BTU Information

BTUs/hr for the Sun Fire X4150 and Sun Fire X4250 servers will vary depending upon configuration.

Sun Fire X4150 Min BTU:

766.6 BTUs/hr at idle for Sun Fire X4150 with one Quad-Core Intel Xeon L5420 processor (2x6MB L2, 2.50 GHz, 1333 MHz FSB, 50W), 2x1GB PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMM, DVD+/-RW drive, two 73GB 10K RPM 2.5" SAS drive, 8-port internal SAS Host Bus Adapter, two power supply units.

Sun Fire X4150 Max BTU:

2110.75 BTUs/hr at max stress for Sun Fire X4150 with two Quad-Core Intel Xeon X5460 processors (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W), 16x4GB PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMM, DVD+/-RW drive, eight 146GB 10K RPM 2.5" SAS drive, three 8-port internal SAS Host Bus Adapter, two power supply units.

Sun Fire X4250 Min BTU:

581 BTUs/hr at idle for Sun Fire X4250 with one Quad-Core Intel Xeon E5440 processor (1x6MB L2, 2.83 GHz, 1333 MHz FSB, 80W), 4x2GB PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMM, DVD+/-RW drive, one 73GB 10K RPM 2.5" SAS drive, 8-port internal SAS Host Bus Adapter, two power supply units.

Sun Fire X4250 Max BTU:

2155 BTUs/hr at max stress for Sun Fire X4250 with two Quad-Core Intel Xeon X5460 processors (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W), 16x4GB PC2-5300 667 MHz ECC Fully Buffered DDR2 DIMM, DVD+/-RW drive, sixteen 73GB 10K RPM 2.5" SAS drive, three 8-port internal SAS Host Bus Adapter, two power supply units.

Power Consumption Information

Sun Fire X4150: Please refer to Power Calculator at <http://www.sun.com/servers/x64/x4150/calc/index.jsp>

Sun Fire X4250: Please refer to Power Calculator at <http://www.sun.com/servers/x64/x4250/calc/index.jsp>

Rack Mounting

The air-flow direction is from front to back. I/O ports are located on the front and rear panels. Informational LEDs are located on the front and rear panels. Access to the power connection is at the rear of the chassis.

Every current Sun Rack is supported for in-field installation and for shipment pre-installed by Sun Customer Ready (CRS) program. Field installation in the Sun Fire Hardware Expansion Cabinet, the Sun StorEdge(TM) Array Cabinet as well as 3rd party ANSI/EIA 310-D-1992 or IEC 60927 compliant cabinets is supported with the optional Rack Mounting Slide Rail Kit (X6326A) and optional Cable Management Arm (X6324A).

The optional rack mounting slide rail kit is a 4-point mounted slide rail kit and is designed to enable Sun Fire X4150 and Sun Fire X4250 servers to be racked in the Sun Rack 938, the Sun Rack 1038, the Sun Rack 1042 and 3rd party ANSI/EIA 310-D-1992 or IEC 60927 compliant racks. No other kits will be available to allow 2 point, front-mount, nor mid-mount configuration. The slide kit will include hardware that enables mounting to any of the following types of rack rails:

- 6 mm threaded holes
- #10-32 threaded holes
- #10 clearance holes

- square unthreaded holes per EIA and IEC standards listed above

Rack requirements to support installation are:

- rack horizontal opening and unit vertical pitch conforming to ANSI/EIA 310-D-1992 and/or IEC 60927
- four-post structure (i.e. mounting at both front and rear)
- distance between front and rear mounting planes between 610mm and 915mm (24 to 36 inches)
- clearance depth (to front cabinet door) in front of front rack mounting plane at least 25.4mm (1 inch)
- clearance depth (to rear cabinet door) behind front rack mounting plane at least 800mm (31.5inches), or 700mm (27.5inches) without cable management arm
- clearance width (between structural supports, cable troughs, etc.) between front and rear mounting planes at least 456mm (18 inches)

Please note that not all 3rd party racks meet these parameters and are not compatible with these slide rail kits. Also, some third-party rack vendors do not support a completely filled rack with this type of server, due to the amount of power required.

The Tool-less Rack Mounting Rail Kit cannot be used to mount servers prior to shipment.

Rack Density

Sun Fire X4150 and Sun Fire X4250 server rack density will vary widely based on systems installed, power distribution installation (in-cabinet, external), power source (single-phase, three-phase) and whether redundant power is required.

Up to 31 Sun Fire X4150 can be mounted in the Sun Rack 938 or the Sun Rack 1038. Up to 32 Sun Fire X4150 can be mounted in the Sun Rack 1042 using a 60A 3 phase MPS.

Up to 15 Sun Fire X4250 can be mounted in the Sun Rack 938, the Sun Rack 1038, or the Sun Rack 1042 using a 60A 3 phase MPS.

Sun Cluster Support

For Sun Cluster support information, please go to: <http://suncluster.sfbay.sun.com>

Origin Statement

The Sun Fire X4150 and Sun Fire X4250 servers have components from various countries of origin. The motherboards are manufactured in China. The power supplies are from Thailand. The chassis are manufactured in Mexico. The commodity parts such as disk drivers, memory, and CPU come from a variety of countries. Final system assembly is performed in Aachen, Germany or Fremont, California, USA.

Hardware Global compliance

Hardware Global compliance for this product complies with the guidelines as specified for hardware at: <http://global.eng/compliance/i18nl10nbigrules.html>

The localized documents will be located at:
<http://www.sun.com/products-n-solutions/hardware/docs/Servers/>

Ordering Information

Sun Fire X4150 Server RoHS Compliant Standard Configurations

Part Number	Description	Availability
B13-US1-CC-4GF-JLB	Sun Fire X4150: 1x Quad-Core Intel Xeon E5410 (2x6MB L2, 2.33 GHz, 1333 MHz FSB, 80W), 2x 2GB FB-DIMM, no HDD, no DVD, 1x PSU	Announce 8/5/08 RR 8/12/08
B13-UT2-AC-4GF-JLB	Sun Fire X4150: 2x Quad-Core Intel Xeon L5420 (2x6MB L2, 2.5 GHz, 1333 MHz FSB, 50W), 2x 2GB FB-DIMM, no HDD, no DVD, 2x PSU	Announce 8/5/08 RR 8/12/08
B13-UV2-CB-4GF-JLB	Sun Fire X4150: 2x Dual-Core Intel Xeon X5260 (6MB L2, 3.33 GHz, 1333 MHz FSB, 80W), 2x 2GB FB-DIMM, no HDD, no DVD, 2x PSU	Announce 8/5/08 RR 8/12/08
B13-UQ2-CC-8GB-KD6	Sun Fire X4150: 2x Quad-Core Intel Xeon E5450 (2x6MB L2, 3.0 GHz, 1333 MHz FSB, 80W), 4x 2GB FB-DIMM, 4x 146GB 10K RPM SAS HDD, SAS RAID HBA, DVD+/-RW, 2x PSU	Announce 8/5/08 RR 8/12/08
B13-UE2-EC-8GB-KD6	Sun Fire X4150: 2x Quad-Core Intel Xeon X5460 (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W), 4x 2GB FB-DIMM, 4x 146GB 10K RPM SAS HDD, SAS RAID HBA, DVD+/-RW, 2x PSU	Announce 8/5/08 RR 8/12/08
B13-UQ1-CC-4GB-JLB	Sun Fire X4150: 1x Quad-Core Intel Xeon E5450 (2x6MB L2, 3.0 GHz, 1333 MHz FSB, 80W), 2x2GB FB-DIMM, no HDD, no DVD, 1x PSU	Announce 5/13/08 RR 5/13/08
B13-UE1-EC-4GB-JLB	Sun Fire X4150: 1x Quad-Core Intel Xeon X5460 (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W), 2x2GB FB-DIMM, no HDD, no DVD, 1x PSU	Announce 1/8/08 RR Feb 08

Sun Fire X4150 Server XATO RoHS-Compliant Chassis Options

Part Number	Description	Availability
B13-AA	Sun Fire X4150 Base Chassis with 2x processor sockets, 16x memory slots, 8x 2.5" disk bays, 1x DVD drive bay, 3x PCI-Express slots, 4x GigE ports, 5 USB 2.0 ports, embedded LOM, 1x PSU	Announce 9/11/07 RR 10/17/07

Sun Fire X4250 Server RoHS Compliant Standard Configurations

Part Number	Description	Availability
X425-14L250-22AA	Sun Fire X4250: 1x Quad-Core Intel Xeon L5420 processor (2x6MB L2, 2.50 GHz, 1333 MHz FSB, 50W), 2x 2GB FB-DIMM, No HDD, no DVD, 1x PSU	Announce 08/05/08 RR 07/11/08
X425-22M333-22AA	Sun Fire X4250: 2x Dual-Core Intel Xeon X5260 processor (6MB L2, 3.33 GHz, 1333 MHz FSB, 80W), 2x 2GB FB-DIMM, No HDD, no DVD, 2x PSU	Announce 08/05/08 RR 07/11/08
X425-24M300-42ED	Sun Fire X4250: 2x Quad-Core Intel Xeon E5450 processor (2x6MB L2, 3.0 GHz, 1333 MHz FSB, 80W), 4x 2GB FB-DIMM, 4x 146GB SAS, SAS RAID HBA, DVD-RW, 2x PSU	Announce 08/05/08 RR 07/11/08
X425-24H316-42ED	Sun Fire X4250: 2x Quad-Core Intel Xeon X5460 processor (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W), 4x 2GB FB-DIMM, 4x 146GB SAS, SAS RAID HBA, DVD-RW, 2x PSU	Announce 08/05/08 RR 07/11/08

Part Number	Description	Availability
X425-14M300-22AA	Sun Fire X4250: 1x Quad-Core Intel Xeon E5450 processor (2x6MB L2, 3.0 GHz, 1333 MHz FSB, 80W), 2x 2GB FB-DIMM), no HDD, no DVD, 1x PSU	Announce 08/05/08 RR 07/11/08
X425-14H316-22AA	Sun Fire X4250: 1x Quad-Core Intel Xeon X5460 processor (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W), 2x 2GB FB-DIMM), no HDD, no DVD, 1x PSU	Announce 08/05/08 RR 07/11/08

Sun Fire X4250 Server XATO RoHS-Compliant Chassis Options

Part Number	Description	Availability
X4250-S1-AA	Sun Fire X4250 2U chassis with 2x processor sockets, 16x memory slots, 16x 2.5" disk bays, 1x DVD drive bay, 6x PCI-Express slots, 4 GigE ports, ILOM, 1x AC power supply	Announce 08/05/08 RR 07/11/08

Power Cords

Due to regulatory requirements of other countries, Sun Fire X4150 server and Sun Fire X4250 server Standard Configurations and XATO Chassis options are required to bundle their power cord separately. These are shippable anywhere in the world.

Each Geography must select their specific Country Power cord kit as listed in table to be included with each system or chassis.

Part Number	Description
X311L	(US/Asia (except China) Localized power cord kit
X312E	(China) Localized power cord kit
X312L	(Continental Europe) Localized power cord kit
X314L	(Switzerland) Localized power cord kit
X317L	(U.K.) Localized power cord kit
X332A	(Taiwan) Localized power cord kit
X383L	(Danish) Localized power cord kit
X384L	(Italian) Localized power cord kit
X386L	(Australian) Localized power cord kit
X312F	(Argentina) Localized power cord kit
X312G	(Korean) Localized power cord kit

Sun Fire X4150 and Sun Fire X4250 Server RoHS Compliant Options

The CRS part numbers are "Customer Ready Systems", and can be combined with other Sun and 3rd party products into customer-specific systems by the Sun CRS program. These servers are identical to their

Standard Configuration counterparts, but require CRS-specific part numbers for factory integration.

The following part numbers are available as X-, XATO and CRS options as noted for the Sun Fire X4150 and Sun Fire X4250 servers.

X-Option	XATO	CRS	Description	Notes
Processors				
X6350A	6350A	Mfg P/N	Dual-Core Intel Xeon 5160 processor (4MB L2, 3 GHz, 1333 MHz FSB, 80W)	EOL 04/29/08 LOD 08/01/08 LSD 11/01/08
X6351A	6351A	Mfg P/N	Quad-Core Intel Xeon L5310 processor (2x4MB L2, 1.6 GHz, 1066 MHz FSB, 50W)	EOL 12/04/07 LOD 03/04/08 LSD 06/04/08
X6352A	6352A	Mfg P/N	Quad-Core Intel Xeon E5320 processor (2x4MB L2, 1.86 GHz, 1066 MHz FSB, 80W)	EOL 12/04/07 LOD 03/04/08 LSD 06/04/08
X6353A	6353A	Mfg P/N	Quad-Core Intel Xeon E5345 processor (2x4MB L2, 2.33 GHz, 1333 MHz FSB, 80W)	EOL 12/04/07 LOD 03/04/08 LSD 06/04/08
X6354A	6354A	Mfg P/N	Quad-Core Intel Xeon X5355 processor (2x4MB L2, 2.66 GHz, 1333 MHz FSB, 120W)	EOL 12/04/07 LOD 03/04/08 LSD 06/04/08
X6356A	6356A	Mfg P/N	Quad-Core Intel Xeon L5335 processor (2x4MB L2, 2.0 GHz, 1333 MHz FSB, 50W)	EOL 12/04/07 LOD 03/04/08 LSD 06/04/08
X6390A	6390A	Mfg P/N	Dual-Core Intel Xeon X5260 processor (6MB L2, 3.33 GHz, 1333 MHz FSB, 80W)	Announce 1/08/08 RR Feb 08
X6391A	6391A	Mfg P/N	Quad-Core Intel Xeon E5410 processor (2x6MB L2, 2.33 GHz, 1333 MHz FSB, 80W)	Announce 12/4/07 RR Feb 08
X6392A	6392A	Mfg P/N	Quad-Core Intel Xeon E5440 processor (2x6MB L2, 2.83 GHz, 1333 MHz FSB, 80W)	Announce 12/4/07 RR Feb 08
X6393A	6393A	Mfg P/N	Quad-Core Intel Xeon X5460 processor (2x6MB L2, 3.16 GHz, 1333 MHz FSB, 120W)	Announce 12/4/07 RR Feb 08
X6394A	6394A	Mfg P/N	Quad-Core Intel Xeon L5420 processor (2x6MB L2, 2.50 GHz, 1333 MHz FSB, 50W)	Announce 5/13/08 RR 5/13/08
X6395A	6395A	Mfg P/N	Quad-Core Intel Xeon E5450 processor (2x6MB L2, 3.0 GHz, 1333 MHz FSB, 80W)	Announce 5/13/08 RR 5/13/08
Memory				
X6380A	6380A	Mfg P/N	2GB memory kit with 2x1GB PC2-5300 667 MHz ECC fully buffered DDR2 DIMM	EOL Sept 08 No support X4250
X6381A	6381A	Mfg P/N	4GB memory kit with 2x2GB PC2-5300 667 MHz ECC fully buffered DDR2 DIMM	Announce 9/11/07 RR 10/17/07
X6382A	6382A	Mfg P/N	8GB memory kit with 2x4GB PC2-5300 667 MHz ECC fully buffered DDR2 DIMM	Announce 9/11/07 RR 10/17/07
Cable Kits (Sun Fire X4150 Server)				
X6388A	6388A	Mfg P/N	Cable kit for internal SAS drives	Announce 9/11/07 RR 10/17/07

X-Option	XATO	CRS	Description	Notes
X6389A	6389A	Mfg P/N	Cable kit for internal SATA drives	Announce 9/11/07 RR 10/17/07
Hard Disk Drives				
-	6331A	Mfg P/N	Disk bay filler panel	Announce 9/11/07 RR 10/17/07
XRA-SS2CF-73G10K	RA-SS2CF-73G10K	Mfg P/N	73GB 10K RPM 2.5" SAS disk drive	Announce 9/11/07 RR 10/17/07
XRA-SS2CF-146G10K	RA-SS2CF-146G10K	Mfg P/N	146GB 10K RPM 2.5" SAS disk drive	Announce 9/11/07 RR 10/17/07
XRA-SS2CF-73G15K	RA-SS2CF-73G15K	Mfg P/N	73GB 15K RPM 2.5" SAS disk drive	Announce 12/4/07 RR Feb 08
Optical Disk Drives				
-	6332A	Mfg P/N	DVD drive filler panel	Announce 9/11/07 RR 10/17/07
X6323A	6323A	Mfg P/N	DVD+/-RW drive	Announce 9/11/07 RR 10/17/07
Power Supplies (Sun Fire X4150 Server)				
-	6333A	Mfg P/N	650W power supply filler panel	Announce 9/11/07 RR 10/17/07
X6327A	6327A	Mfg P/N	Redundant hot-swappable 650W power supply	Announce 9/11/07 RR 10/17/07
Power Supplies (Sun Fire X4250 Server)				
-	6334A	Mfg P/N	AC 1050W power supply filler panel	Announce 10/9/07 RR Nov 07
X6328A	6328A	Mfg P/N	Redundant hot-swappable AC 1050W power supply	Announce 10/9/07 RR Nov 07
Rack Mounting				
X6324A	-	Mfg P/N	Cable management arm	Announce 9/11/07 RR 10/17/07
X6325A	6325A	-	Tool-less rack mounting slide rail kit	Announce 9/11/07 RR 10/17/07
X6326A	6326A	Mfg P/N	Rack mounting slide rail kit	Announce 9/11/07 RR 10/17/07
Documentation & Toolkit (Sun Fire X4250 Server)				
X6369A	-	Mfg P/N	Sun Fire X4250 Installation Guide and CDs (Tools and Drivers, SIA)	Announce 08/05/08
OS Pre-installs				
-	6360A	Use Solaris and JES-IP part #	Solaris 10 and Java ES pre-install on SAS disk drives connected to 8-port SAS Host Bus Adapter	Announce 9/11/07 RR 10/17/07



X-Option	XATO	CRS	Description	Notes
-	6361A	Use Solaris and JES -IP part #	Solaris 10 and Java ES pre-install on SAS disk drives connected to 8-port SAS SRL RAID Host Bus Adapter	Announce 9/11/07 RR 10/17/07

General Configuration Notes:

1. Single processor systems can be expanded with a second processor of the identical model/speed only, e.g. 1X Quad-Core Intel Xeon E5410 processor based system can only use another Quad-Core Intel Xeon E5410 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. 2x4GB and 2x2GB can be used in the same system chassis.
3. The diskless standard configurations come with cable kit for SATA drives. When adding SAS drives to these diskless standard configurations, cable kits for SAS drives must be ordered with the SAS disk drives and the SAS host bus adapter.
4. The standard configuration with disks come with cable kit for SAS drives. If these configurations are converted to be using SATA-interfaced drives, cable kits for SATA drives must be ordered with the SATA drives.
5. If RAID 1 mirroring is going to be used, the drives to be mirrored must be identical in size.
6. There are two SAS host bus adapter options for the Sun Fire X4150 server. The 8-port SAS host bus adapter supports RAID 0, 1, 0+1. The 8-port SAS 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.

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 CPU option required. Single processor systems can be expanded with a second processor of the identical model/speed only, e.g. 1X Quad-Core Intel Xeon E5410 processor based system can only use another Quad-Core Intel Xeon E5410 processor; mixing with a different processor is not supported.
3. Memory must be installed in pairs. Pairs of different densities may be mixed, e.g. 2x4GB and 2x2GB 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 hard disk drive slot that is not filled.
5. A power supply filler panel is required for any power supply slot not filled.
6. A DVD+/-RW drive or DVD filler panel is required when selecting the B13-AA base chassis.
7. A cable kit must be ordered with each system. Order the cable kit for SAS drives if the Sun Fire X4150 will be populated with internal SAS drives. Order the cable kit for SATA drives if the Sun Fire X4150 will be populated with internal SATA drives. If the Sun Fire X4150 is a diskless configuration, the default is the cable kit for SATA drives.

Sun Fire X4150 and Sun Fire X4250 PCI-Express Card Support by OS

For the latest information on PCI-Express card support for Sun Fire X4150 Server, go to <http://www.sun.com/servers/x64/x4150/optioncards.jsp>

The latest information on PCI-Express card support for Sun Fire X4250 Server is coming soon. and will be available at:

<http://www.sun.com/servers/x64/x4250/optioncards.jsp>



Sun Fire X4150 Storage Options

Workgroup Storage Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
Sun StorageTek 2540 FC Array	ST2540	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Sun StorageTek 2530 SAS Array	ST2530	SG-XPCIE8SAS-E-Z	SG-XPCIE8SAS-E-Z	SG-XPCIE8SAS-E-Z	SG-XPCIE8SAS-E-Z
Sun StorageTek 1400 SAS Array	ST1400	SG-XPCIE8SAS-E-Z, SGXPCIESAS-R-EXT-Z	SG-XPCIE8SAS-E-Z, SGXPCIESAS-R-EXT-Z	SG-XPCIE8SAS-E-Z, SGXPCIESAS-R-EXT-Z	SG-XPCIE8SAS-E-Z, SGXPCIESAS-R-EXT-Z
Sun StorEdge 3320 SCSI (RAID)	XTA3320	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
Sun StorEdge 3320 SCSI (JBOD)	XTA3320	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
Sun StorEdge 3510 FC Array (RAID)	XTA3510	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Sun StorEdge 3510 FC Array (JBOD)	XTA3510	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Sun StorEdge 3120 SCSI (JBOD)	XTA3120	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
Sun StorageTek 2510 iSCSI Array	ST2510	Ethernet	Ethernet	Ethernet	Ethernet

Midrange Storage Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
Sun StorageTek 6140	ST6140	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Sun StorageTek 6540	ST6540	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4

The ST9900 High End Data Center Storage System supports a wide variety of Sun servers based on SPARC, AMD Opteron and Intel Xeon processors. Please refer to your local Sun Storage Sales or SE Specialist, and have them refer to the following documents:

- “What Works With What” document located at SunWin Token 344150
- “Feature Availability Report” document located at SunWin Token 385413

Data Center Storage Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
Sun StorEdge 9985	SE9985	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4

Data Center Storage Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
Sun StorEdge 9990	SE9990	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Sun StorEdge 9970	SE9970	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Sun StorEdge 9980	SE9980	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4

NAS Storage Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
Sun StorageTek 5220	XTB5220	Ethernet	Ethernet	Ethernet	Ethernet
Sun StorageTek 5320	XTB5320	Ethernet	Ethernet	Ethernet	Ethernet

Sun Fire X4150 Tape and Applications

Standalone Tape Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
DAT 72 Desktop (SCSI)	SG-XTAPDAT72-D2	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
DAT 72 Desktop (USB)	DAT72-USB-DTOP-Z	USB	USB	USB	USB
DAT 72 1U HH Rackmount	SG-XTAPDAT72-R-2	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
LTO 2 HH Desktop (SCSI)	SG-XTAPLT02V-D	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
LTO 3 FH Desktop (SCSI)	SG-XTAPLT03-D-2	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
LTO 2 1U HDD Rackmount (SCSI)	SG-XTAPLT02V-R	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
LTO 3 2U FH Rackmount (SCSI)	SG-XTAPLT03-R-Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
SDLT 320 Desktop (SCSI)	SG-XTAPSDLT320-D-Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
SDLT 600 Desktop (SCSI)	SG-XTAPSDLT600-D-Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
SDLT 600 2U FH Rackmount (SCSI)	SG-XTAPSDLT6R-Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
DLT S4 Desktop (SCSI)	DLTS4-DTOP-SC-DR-Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
LTO 4 FH Desktop (SCSI & SAS)	LTO4-HP-SC-DTOP-Z, LTO4-HP-SAS-DTOP-Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z

Tape and library support varies by backup storage applications listed below. Please refer to your local Sun Storage Sales or SE Specialist, and have them refer to the "Library, Tape and Application" support matrix.

Tape Library Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
Autoloader C2 (2RU) SCSI	SG-XAUTO08LTO3-C2, SG-XAUTO16LTO3-C2, SG-XAUTO08LSDTO3-C2, SG-XAUTO16LSDTO3-C2	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
Tape Library C4 (4RU) SCSI & FC	SG-XLIBLTOS-C4, SG-XLIBSDLTS-C4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Autoloader SL24 SCSI & FC	SL24-IL3-SCSI-Z SL24-IL3-FC-Z SL24-IL2H-SCSI-Z	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Tape Library SL48 SCSI & FC	SL48-IL3-SCSI-Z SL48-IL3-FC-Z SL48-IL2H-SCSI-Z	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
StorageTek SL500 SCSI	SL500-30-SCSI-Z, SL500-50-SCSI-Z	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
StorageTek SL500 FC	SL500-30-FC-Z, SL500-50-FC-Z	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
StorageTek L180 SCSI & FC	YSL-180-140-HV-STK, YSL-180-174-HV-STK, YSL-184-84-HV-STK	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG- XPCIE2SCSIU320Z, SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
StorageTek L1400 SCSI	SL1400MA-STK-Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z	SG- XPCIE2SCSIU320Z
StorageTek L1400 FC	SL1400-M1-STK-Z	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4
Sun StorageTek SL8500 FC	SL8500-BASE-LIB-Z	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4	SG-XPCIE1FC-QF4, SG-XPCIE2FC-QF4, SG-XPCIE1FC-EM4, SG-XPCIE2FC-EM4

Tape Backup Storage Applications	S10	RHEL 4	SLES 10	Win 2003
Symantec (Veritas) NetBackup	Client Only	Client/Server 32-bit/64-bit	Client Only	Client/Server 32-bit



Tape Backup Storage Applications	S10	RHEL 4	SLES 10	Win 2003
Sun EBS / EMC (Legato) Networker	Client/Server 64-bit	Client/Server 32-bit/64-bit	Client/Server 64-bit	Client/Server 32-bit/64-bit
CA BrightStor ARCserve	Not supported	Client/Server 32-bit/64-bit	Client/Server 64-bit	Client/Server 32-bit/64-bit
IBM TSM	Client/Server 32-bit/64-bit	Client/Server 32-bit/64-bit	Not supported	Client/Server 32-bit/64-bit
Symantec (Veritas) Backup Exec	Not supported	Not supported	Not supported	Client/Server 32-bit
HP DataProtector	Not supported	Client/Server 64-bit	Client/Server 64-bit	Client/Server 64-bit
BakBone NetVault	Client/Server 32-bit/64-bit	Client/Server 32-bit/64-bit	Client/Server 64-bit	Client/Server 32-bit/64-bit



Services

Warranty Support

The Sun Fire X4150 server and the Sun Fire X4250 server both include 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

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: www.sun.com/comparewarranty

SunSpectrum Service Plans

SunSpectrum Service Plans provide integrated hardware and Solaris OS 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 at: www.sun.com/service/support/sunspectrum

SunSpectrum Service Plan Highlights:

- Integrated whole-system support, including the operating system
- 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 * 1

*1 Based on Total Economic Impact Study by Forrester Research. This study is available at: sun.com/service/support/sunspectrum



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
Additional Services for Qualifying Sites	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 sun.com/service/support/localinfo.html			

- 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.

Warranty Upgrade to SunSpectrum Service Plan for Sun Fire X4150 Server

The following are part numbers and descriptions for the warranty upgrade to SunSpectrum Service Plan

Part Number	Description
W9D-B13-1S	Sun Fire X4150 server upgrade to 1 year of Silver support
W9D-B13-1G	Sun Fire X4150 server upgrade to 1 year of Gold support
W9D-B13-24-1G	Sun Fire X4150 server upgrade to Gold support + 7X24 On-Site support for 1 year
W9D-B13-1P	Sun Fire X4150 server upgrade to 1 year of Platinum support
W9D-B13-3S	Sun Fire X4150 server upgrade to 3 years of Silver support
W9D-B13-3G	Sun Fire X4150 server upgrade to 3 years of Gold support
W9D-B13-24-3G	Sun Fire X4150 server upgrade to Gold support + 7X24 On-Site support for 3 years
W9D-B13-3P	Sun Fire X4150 server upgrade to 3 years of Platinum support

Warranty Upgrade to SunSpectrum Service Plan for Sun Fire X4250 Server

The following are part numbers and descriptions for the warranty upgrade to SunSpectrum Service Plan

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

Sunsm System Service Plans for Windows OS

The Sunsm 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

Features	Premium Service Plan (Mission Critical Systems)	Global Service Plan (Business Critical Systems)	Standard Service Plan (Same Day Support)	Basic Service Plan (Non-Critical 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
Hardware Service Coverage	24/7 2hr onsite	8-8, M-F 4hr onsite	8-5, M-F 4hr onsite	Replacement Parts 2nd Business Day
Online System Admin Resources	Yes	Yes	Yes	Yes
Support Notification Services	Yes	Yes	Yes	Yes

* Availability of specific features, coverage hours and response times may vary by location and/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".

Sun Fire X4150 & Sun Fire X4250 Servers
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Warranty Upgrade to Sunsm System Service Plans for Windows OS for Sun Fire X4150 Server

The following are part numbers and descriptions for the warranty upgrade to Sunsm System Service Plans for Windows OS

Part Number	Description
W9D-B13W-1S	Sun Fire X4150 Server with Windows Operating System Upgrade to 1 year of Silver support
W9D-B13W-1G	Sun Fire X4150 Server with Windows Operating System upgrade to 1 year of Gold support
W9D-B13W-1P	Sun Fire X4150 Server with Windows Operating System Upgrade to 1 year of Platinum support
W9D-B13W-3S	Sun Fire X4150 Server with Windows Operating System Upgrade to 3 years of Silver support
W9D-B13W-3G	Sun Fire X4150 Server with Windows Operating System Upgrade to 3 years of Gold support
W9D-B13W-3P	Sun Fire X4150 Server with Windows Operating System Upgrade to 3 years of Platinum support

Warranty Upgrade to Sunsm System Service Plans for Windows OS for Sun Fire X4250 Server

The following are part numbers and descriptions for the warranty upgrade to Sunsm System Service Plans for Windows OS

Part Number	Description
IWU-X4250W-1S	Sun Fire X4250 Server with Windows Operating System Upgrade to 1 year of Silver support
IWU-X4250W-1G	Sun Fire X4250 Server with Windows Operating System upgrade to 1 year of Gold support
IWU-X4250W-1P	Sun Fire X4250 Server with Windows Operating System Upgrade to 1 year of Platinum support
IWU-X4250W-2S	Sun Fire X4250 Server with Windows Operating System Upgrade to 2 years of Silver support
IWU-X4250W-2G	Sun Fire X4250 Server with Windows Operating System upgrade to 2 years of Gold support
IWU-X4250W-2P	Sun Fire X4250 Server with Windows Operating System Upgrade to 2 years of Platinum support
IWU-X4250W-3S	Sun Fire X4250 Server with Windows Operating System Upgrade to 3 years of Silver support
IWU-X4250W-3G	Sun Fire X4250 Server with Windows Operating System Upgrade to 3 years of Gold support
IWU-X4250W-3P	Sun Fire X4150 Server with Windows Operating System Upgrade to 3 years of Platinum support2

Warranty Upgrade to Sun HW Only Service for Sun Fire X4150 Server

Part Number	Description
W9D-B13-SD-1H	Sun Fire X4150 server upgrade to 1 year of same day hardware only support
W9D-B13-SD-3H	Sun Fire X4150 server upgrade to 3 years of same day hardware only support
W9D-B13-24-1H	Sun Fire X4150 server upgrade to 1 year of 7x24 hardware only support with 4 hour response
W9D-B13-24-3H	Sun Fire X150 server upgrade to 3 years of 7x24 hardware only support with 4 hour response
W9D-B13-22-1H	Sun Fire X4150 server upgrade to 1 year of 7x24 hardware only support with 2 hour response
W9D-B13-22-3H	Sun Fire X4150 server upgrade to 3 years of 7x24 hardware only support with 2 hour response

Warranty Upgrade to Sun HW Only Service for Sun Fire X4250 Server

Part Number	Description
IWU-X4250-SD-1H	Sun Fire X4250 server upgrade to 1 year of same day hardware only support
IWU-X4250-SD-2H	Sun Fire X4250 server upgrade to 2 years of same day hardware only support
IWU-X4250-SD-3H	Sun Fire X4250 server upgrade to 3 years of same day hardware only support
IWU-X4250-24-1H	Sun Fire X4250 server upgrade to 1 year of 7x24 hardware only support with 4 hour response
IWU-X4250-24-2H	Sun Fire X4250 server upgrade to 2 years of 7x24 hardware only support with 4 hour response
IWU-X4250-24-3H	Sun Fire X4250 server upgrade to 3 years of 7x24 hardware only support with 4 hour response
IWU-X4250-22-1H	Sun Fire X4250 server upgrade to 1 year of 7x24 hardware only support with 2 hour response
IWU-X4250-22-2H	Sun Fire X4250 server upgrade to 2 years of 7x24 hardware only support with 2 hour response
IWU-X4250-22-3H	Sun Fire X4250 server upgrade to 3 years of 7x24 hardware only support with 2 hour response

Installation Service for Sun Fire X4150 Server

Sun's exceptional support for server installation is also available for the Sun Fire X4150 and Sun Fire X4250 servers. This service can be purchased at the time of the server sale. Use the following part numbers to order the installation service.

Part Number	Description
EIS-2WYWGS-E	Install 2-way Workgroup Server
EIS-2WYWGS-E-AH	Install 2-way Workgroup Server-AH
EIS-2WYWGS-5-E	Install 5 2-way Workgroup Servers
EIS-2WYWGS-5-E-AH	Install 5 2-way Workgroup Servers-AH
EIS-2WYWGS-10-E	Install 10 2-way Workgroup Servers
EIS-2WYWGS-10-E-AH	Install 10 2-way Workgroup Servers - AH

For additional information about the server installation service see:

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

Learning Services

Sun offers a wide range of expert training services, from consulting to courseware to certification, to improve expertise and accelerate productivity, to help enable maximum uptime for IT environments, & to provide lower total cost of ownership for technology investments.

All of these courses are available at:

<https://slp.sun.com/sun>

<https://slp.sun.com/partners>

HPC Quick Start Services

Sun provides a suite of services to help customers architect, deploy and manage their High Performance Computing (HPC) environments for faster time to deployment and with reduced risk. Our expertise includes installation, integration, training, and ongoing support of network connections, software stacks, and thousands of cores in a large-scale, high-density environment. More info.:

<http://sun.com/service/hpc>

Sun HPC Quick Start Services

Sun HPC Quick Start Services — Implement

Speed design, and implementation of your HPC solution

- Reduce deployment time by up to 80%
- Prepare infrastructure for business
- Reduce risk
- Control & reduce cost
- **Key Included Services**
 - > Application Readiness Services (PS)
 - > Installation Services (EIS)
 - > Integrated Services for x4500, x4600, 8000, & 8000p servers (System Packs)
 - > Professional Services for your specific configuration & migration needs (PS)

Sun HPC Quick Start Services — Optimize

Accelerate the time to optimize and manage HPC solutions

- Speed time to achieve performance goals & improvement
- Reduce risk & cost
- Maximize IT assets
- **Key Included Services**
 - > Managed Services (MS)
 - > Performance analysis and tuning to business needs (PS)
 - > Professional Services (PS)
 - > Proactive & continued infrastructure monitoring (Mgd Ops)
 - > Control Tower Appliance included (Mgd Ops)
 - > Incident Response Services (Mgd Ops)

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Connected Services

Provision new systems. Manage updates and configuration changes with Sun Connection, the Solaris and Linux life cycle management tool.

<http://www.sun.com/service/sunconnection/index.jsp>

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.
ChipKill ^T	ChipKill, or advanced ECC memory, is an IBM xSeries memory subsystem technology that increases memory reliability several times over, helping to reduce the chances of system downtime caused by memory failures.
ECC	Error Correcting Code. A type of memory that corrects errors on the fly.
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.
FRU	Field Replaceable Unit.
Hot-pluggable	A feature that allows an administrator to remove a 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.
EIDE	See ATA.
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.
RAM	Random Access Memory.
SAS	Serial Attached SCSI. A serial hardware interface that allows the connection of up to 128 devices and point-to-point data transfer speeds up to 3 Gbits/sec.
SATA	Serial Attached ATA. The resulting evolution of the ATA (IDE) interface from a parallel to a serial and from a master-slave to a point-to-point architecture with data transfer speeds up to 1.5 Gb/s.
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.
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.
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	Audience	Purpose	SunWIN Token #
Sales Tools			
• Sun Fire X4150 Server Datasheet	Customer	Sales Tool, Training	508673
• Sun Fire X4150 Server Just the Facts	Sales, SEs, Partners	Sales Tool, Training	508674
• Sun Fire X4150 Server Customer Presentation	Sales, SEs, Partners, Customer	Sales Tool, Training	508681
• Sun Fire X4150 Server Technical Presentation	Customer Presentation	Sales Tool, Training	508676
• Sun Fire X4150 Server Sales Presentation	Sales, SEs, Partners	Training	508677
• Sun Fire X4150 Server Technical Whitepaper	Sales, SEs, Partners, Customer	Sales Tool, Training	508678
• Sun Fire X4150 Server Reviewer's Guide	Customer	Sales Tool, Training	509341
• Sun Fire X4250 Server Datasheet	Customer	Sales Tool, Training	535337
• Sun Fire X4150 Server & Sun Fire X4250 Server Just the Facts	Sales, SEs, Partners	Sales Tool, Training	535336
• Sun Fire X4250 Server Customer Presentation	Sales, SEs, Partners, Customer	Sales Tool, Training	535340
• Sun Fire X4250 Server Technical Training Presentation	Customer Presentation	Sales Tool, Training	535339
• Sun Fire X4250 Server Sales Presentation	Sales, SEs, Partners	Training	508677
• Sun Fire X450 Server Technical Whitepaper	Sales, SEs, Partners, Customer	Sales Tool, Training	535338
External Web Sites			
• Sun Fire X4150 Server Web Site	www.sun.com/servers/x64/x4150		
• Sun Fire X4250 Server Web Site	www.sun.com/x4250		



Competitive Information

Positioning Sun Fire X4150 server

Elevator Pitch

The Sun Fire X4150 server is the best 1-RU 2-socket enterprise class x64 server in terms of performance, density and energy efficiency that runs Solaris, Linux, Windows and VMware.

Value Proposition

- Sun Fire X4150 can run a broad range of Solaris, Linux, Windows and VMware applications more efficiently and more quickly.
- Sun Fire X4150 has up to two times the memory capacity, internal storage and integrated networking connectivity than other systems in the same class, leaving more headroom to grow.
- Sun Fire X4150 is energy efficient, consuming less power, requires less cooling, and reduces negative impact to the environment.
- Sun Fire X4150 comes standard with embedded Lights Out Manager for system management and monitoring at no extra cost. It also has redundant and hot-swappable components, such as cooling fans, power supplies and disk drives, that makes component swap-out fast, easy and effortless.

Key Differentiators

- Highly expandable with twice the amount of memory and internal storage, as well as integrated networking connectivity as other systems in the same class
 - 16 memory DIMM slots (64GB of memory with 4GB DIMMs)
 - 8 internal disk drives (over 1 TB of internal storage)
 - 4 GbE ports on-board
- Extreme I/O capabilities with 3 PCI-Express slots
- Embedded Lights Out Manager comes standard at no extra cost

Competitive Positioning	
HP competitive offerings	
HP DL360 G5	<p>The Sun Fire X4150 server has multiple strengths to offer, which one is the memory capacity can reach up to 64GB. It can handle up to 8 HDDs within a 1-RU form factor. Also, it has 4 GbE ports on the system board, which will save a PCIe slot for other usages. Oh by the way, the X4150 has 3 PCIe slots available to handle any type of network traffic. On the eco friendly side, the X4150 power supplies uses less power at only 650W.</p> <p>However, the DL360 G5 servers only offer up to 32GB of memory max with only a max storage capacity of 6 HDDs. Likewise, it only offers 2 GbE ports on-board and 2 PCIe slots within the system. Additionally, the DL360 G5 uses a higher rated power supply at 700W.</p>



Competitive Positioning

HP touts the fact that it sells high energy efficient servers. HP DL360 G5 server is more energy efficient and SAS drives using less space and less power of 3.5 inch drives.

HP offers Eco-friendly products and services to help customers manage their power consumption of their data centers. With each product HP also provides documentation for use by end-of-life recyclers or treatment facilities. It provides the basic instructions for the disassembly of HP products to remove components and materials requiring selective treatment, as defined by EU directive 202/96/EC, Waste Electrical and Electronic Equipment (WEE).

HP sells the fact that their ProLiant systems are specifically designed for dense server environments by including lights-out technology for reduced reactive support time, fault resilient technologies for reduced downtime, and balanced performance architectures to handle greater transaction. workloads for various applications.

IBM competitive offerings

IBM x3550	<p>The Sun Fire X4150 server has multiple strengths to offer, which one is the memory capacity can reach up to 64GB. It can handle up to 8 HDDs within a 1-RU form factor. Also, it has 4 GbE ports on the system board, which will save a PCIe slot for other usages. Oh by the way, the X4150 has 3 PCIe slots available to handle any type of network traffic. On the eco friendly side, the X4150 power supplies uses less power at only 650W.</p> <p>On the other hand, the x3550 servers only offer up to 32GB of memory max with only half the storage HDD slots available compared to the X4150. Furthermore, it only offers 2 GbE ports on-board and 2 PCIe slots within the system. Also, the x3550 uses a higher rated power supply at 670W.</p>
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IBM will paint Sun as an Opteron only provider with an inadequate Xeon line. They will co-market with Microsoft and Red Hat. IBM sells at higher levels in a corporation, at times above a CIO. IBM will lose money on System x hardware when bundling with IBM middleware, storage, services or financing. IBM will sell its ability to deliver models to customers faster. IBM will use periodic web/hard drive/memory promotions to gain business. IBM will push its qualification matrix (more versions of Oses, more EMC storage, etc...) to its advantage in certain deals. IBM will use its better/longer/more-in-depth expertise in Windows/VMware to advantage to position Sun as a one dimension x86 player.

Dell competitive offerings

Dell PE1950	<p>The Sun Fire X4150 server has multiple strengths to offer, which one is the memory capacity can reach up to 64GB. It can handle up to 8 HDDs within a 1-RU form factor. Also, it has 4 GbE ports on the system board, which will save a PCIe slot for other usages. Oh by the way, the X4150 has 3 PCIe slots available to handle any type of network traffic. On the eco friendly side, the X4150 power supplies uses less power at only 650W.</p> <p>Then again, the PE1950 servers only offer up to 32GB of memory max with only half the storage HDD slots available compared to the X4150. Moreover, it only offers 2 GbE ports on-board and 2 PCIe slots within the system. Also, the x3550 uses a higher rated power supply at 670W.</p>
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Dell will always sell on price especially in the lower end units as this area is more price sensitive. Dell is looked at being more of a short-term investment with a higher TCO. Dell is not considered a leader in regards to support for integration and services. The PE1950 is also used in clustering for HPC applications due to the high number of flops. Specifically, Dell uses the PE 1950 in a cluster configuration and again the same issues listed above are prevalent. The Dell deals in the HPC market are more on the public sector (education/health care/government) side or where price is the issue and they do provide excellent support for Dell products.



Attribute	Sun Fire X4150	HP DL360 G5	Dell PE1950	IBM x3550
Form Factor	1U	1U	1U	1U
Processor	Intel Xeon Dual Core & Quad Core	Intel Xeon Dual Core & Quad Core	Intel Xeon Dual Core & Quad Core	Intel Xeon Dual Core & Quad Core
Socket	2-socket	2-socket	2-socket	2-socket
Memory	16 DIMMs (64GB max)	8 DIMMs (32GB max)	8 DIMMs (32GB max)	8 DIMMs (32GB max)
Disk Drives	8x 2.5" SAS	6x 2.5" SAS	4x 2.5" SAS	4x 2.5" SAS
RAID	RAID 0,1,5,6	RAID 0,1,5,6	RAID 0,1,5	RAID 0,1,5,6
GigE Ports	4	2	2	2
I/O Slots	3x PCIe	2x PCIe	2x PCIe	2x PCIe
Hot Swap PSU	2x 650W	2x 700W	2x 670W	2x 670W
Hot Swap Fans	Yes	Yes	Yes	No
Lights Out Manager	Embedded LOM	iLO2	IPMI 2.0 (add-on option)	IPMI 2.0 (add-on option)
Warranty	3 Yr NBD	3 Yr NBD	3 Yr NBD	3 Yr NBD

Positioning Sun Fire X4250 server

Elevator Pitch

The Sun Fire X4250 server is the best 2-RU 2-socket enterprise class x64 server in terms of performance, density and expandability that runs Solaris, Linux, Windows and VMware.

Value Proposition

- Sun Fire X4250 can run a broad range of Solaris, Linux, Windows and VMware applications more efficiently and more quickly.
- Sun Fire X4250 has up to two times the memory capacity, internal storage and integrated networking connectivity than other systems in the same class, leaving more headroom to grow.
- Sun Fire 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 cooling fans, power supplies and disk drives, that makes component swap-out fast, easy and effortless.

Key Differentiators

- Highly expandable with twice the amount of memory and internal storage, as well as integrated

networking connectivity as other systems in the same class

- 16 memory DIMM slots (64GB of memory with 4GB DIMMs)
- 16 internal disk drives (over 2 TB of internal storage)
- 4 GbE ports on-board
- Ultra extreme I/O capabilities with 6 PCI-Express slots
- Integrated Lights Out Manager comes standard at no extra cost

Competitive Positioning

Sun Fire X4250 vs. HP DL380 G5

	SF X4250	HP DL380G5
Rack Space	2U	2U
CPU Type	Intel Dual/Quad	Intel Dual/Quad
Max Socket	2 Sockets	2 Sockets
DIMMs/Chassis	16 FBDIMM	8 FBDIMM
Max Memory	64GB	32GB
Disk Drives	16x2.5" SAS*	8x2.5" SAS/SATA
RAID 0, 1, 5, 6	RAID 0,1,1E,5,5EE,6,10, 50,60	RAID 0,1,5,6
GbE Ports	4xGbE	2xGbE
Expansion Slots	6xPCIe	4xPCIe
Hot Swap PSUs	2x1050W	2x1000W
Hot Swap Fans	Yes	Yes
Management	ILOM	ILO 2
Waranty	3 Yr NBD	3 Yr NBD

Positioning vs. the HP DL380 G5:

When setting up RFPs or competing, sell on the following advantages:

- 1) Available DIMM slots in a system
 - * SF X4250 has more Memory DIMM Slots
 - Add more DIMMs with higher density at lower cost, achieve same memory footprint as HP (Benefit: lower cost points, given higher density DIMMs are generally more expensive.)
- 2) Total addressable memory
 - * SF X4250 offers more addressable memory
 - Add more total addressable memory (64 GB vs. 32 GB). (Benefit: More available memory for memory intensive applications resulting in increased performance using those applications).
- 3) Addressable HDDs
 - * SF X4250 offers eight more 2.5" SAS drives than HP
 - With the ability to host a total of 16 2.5" SAS drives, customers (depending on their requirements) can achieve one or more of the following benefits:
 - > More Local Storage (2.3TB vs. 1.2TB)
 - > Better Redundancy

- > More RAID options
 - > Higher storage throughput given there are more spindles
- 4) Importance of integrated 4GbE port integration
- * The SF X4250 offers two additional, independent 2GbE ports (4 total ports) vs. the HP DL380 G5.
 - When Sun was offering only 2GbE ports with their earlier x64 Servers we noticed the number 1 option card sold with with these systems was a dual GbE card. What does that mean? Customers need 4GbE ports on average with their x64 server.
 - To obtain 4 GbE ports on an HP DL380 G5, the customer must purchase an additional Dual GbE card or their server.
 - > \$259 Card from HP (Dual Port Gigabit Server Adapter)
 - > Use one of the available PCIe slots (1 of the 4 PCIe for just Dual GbE). Now only three slots are available to add from the 23 optional PCIe cards from HP (i.e. NIC cards, RAID cards, IB cards, Fibre Channel cards, etc.)
 - Summary: The Sun Fire X4250 provides 4GbE ports and still allows the customer to fill PCIe slots with a multitude of PCIe options while the HP DL380 G5 only provides a maximum of 3 PCIe options if 4 GbE ports are a requirement.
- 5) Total available PCIe Slots
- * The SF X4250 offers six PCIe slots vs. 4 on the HP DL380 G5.
 - Sun Fire X4250 servers enable the addition of 6 different types of PCIe Option cards, where HP can host only 2. Should a customer require 4 GbE ports on their DL380 G5, only 2 slots are left.
 - Sun customers can insert a variety of additional NIC cards, RAID cards, Fibre channel cards, etc., up to 6 per X4250 server.

When to walk away from selling the SF X4250 against the HP DL380 G5:

- * If support and use of SATA drives are ever a requirement.
 - The Sun Fire X4250 will not support SATA drives.
 - * If power draw is a key requirement, HP has slightly better power efficiency with 1000W PSUs vs. 1050 W PSUs for the SF X4250.
- * Customer requires the ability to drive legacy PCI-X cards. The HP DL 380 G5 can support PCI-X cards through the purchase of a \$59 PCI-X RISER card from HP. Most PCI-X cards however, have a PCIe equivalent, with the exception of some older, custom PCI-X cards. Should the PCI-X requirement come up, seek a PCIe equivalent solution first before walking away.

Sun Fire X4250 vs. IBM x3650

	SF X4250	IBM x3650
Rack Space	2U	2U
CPU Type	Intel Dual/Quad	Intel Dual/Quad
Max Socket	2 Sockets	2 Sockets
DIMMs/Chassis	16 FBDIMM	12 FBDIMM
Max Memory	64GB	48GB
Disk Drives	16x2.5" SAS*	8x2.5"SAS/ 6x3.5"SATA
RAID 0, 1, 5, 6	RAID 0,1,1E,5,5EE,6,10, 50,60	RAID 0,1,5,6,10
GbE Ports	4xGbE	2xGbE
Expansion Slots	6xPCIe	4xPCIe
Hot Swap PSUs	2x1050W	2x835W
Hot Swap Fans	Yes	Yes
Management	ILOM	IPMI 2.0 Add-On
Waranty	3 Yr NBD	3 Yr NBD

Positioning vs. the IBM x3650:

When setting up RFPs or competing, sell on the following advantages:

- 1) Available DIMM slots in a system
 - * SF X4250 has more Memory DIMM Slots
 - Add more DIMMs with higher density at lower cost, achieve same memory footprint as IBM (Benefit: lower cost points, given higher density DIMMs are generally more expensive.)
- 2) Total addressable memory
 - * SF X4250 offers more addressable memory
 - Add more total addressable memory (64 GB vs. 48 GB). (Benefit: More available memory for memory intensive applications resulting in increased performance using those applications).
- 3) Addressable HDDs
 - * SF X4250 offers eight more 2.5" SAS drives than IBM
 - With the ability to host a total of 16 2.5" SAS drives, customers (depending on their requirements) can achieve one or more of the following benefits:
 - > More Local Storage (2.3TB vs. 1.8TB)
 - > Better Redundancy
 - > More RAID options
 - > Higher storage throughput given there are more spindles
- 4) Importance of integrated 4GbE port integration
 - * The SF X4250 offers two additional, independent 2GbE ports (4 total ports) vs. the IBM x3650.
 - When Sun was offering only 2GbE ports with their earlier x64 Servers we noticed the number 1 option card sold with with these systems was a dual GbE card. What does that mean? Customers need 4GbE ports on average with their x64 server.

- To obtain 4 GbE ports on an IBM x3650 server, the customer must purchase an additional Dual GbE card or their server.
 - > \$269 Card from IBM (PRO/1000 PT Dual Port Server Adapter)
 - > Use one of the available PCIe slots (1 of the only 4 PCIe used for just Dual GbE). Now only three slots are available to add in optional PCIe cards from IBM (i.e. NIC cards, RAID cards, IB cards, Fibre Channel cards, etc.)
- Summary: The Sun Fire X4250 provides 4GbE ports and still allows the customer to fill PCIe slots with a multitude of PCIe options while the IBM x3650 only provides a maximum of 3 PCIe options if 4 GbE ports are a requirement.

5) Total available PCIe Slots

- * The SF X4250 offers six PCIe slots vs. 4 on the IBM x3650 server.
- Sun Fire X4250 servers enable the addition of 6 different types of PCIe Option cards, where IBM can host only 4. Should a customer require 4 GbE ports on their IBM x3650 server, only 3 slots are left.
- Sun customers can insert a variety of additional NIC cards, RAID cards, Fibre channel cards, etc., up to 6 per X4250 server.

6) ILOM

- * Every SF X4250 shipped comes standard with Integrated Lights Out Manager.
- To obtain ILOM functionality in an IBM x3650 server the customer must purchase the Remote Supervisor Adapter II Slimline (FSA II Slimline) for an incremental \$385. Remote systems management is not a standard feature with the IBM x3650 like it is with the SF X4250.

When to walk away from selling the SF X4250 against the IBM x3650:

- * If support and use of SATA drives are ever a requirement.

The Sun Fire X4250 will not support SATA drives.

- * If power draw is a key requirement, IBM has better power efficiency with 835W PSUs vs. 1050 W PSUs for the SF X4250
- * Customer requires the ability to drive legacy PCI-X cards.

The IBM X3650 can support PCI-X cards through the purchase of a \$10 PCI-X RISER card from IBM. Most PCI-X cards however, have a PCIe equivalent, with the exception of some older, custom PCI-X cards. Should the PCI-X requirement come up, seek a PCIe equivalent solution first before walking away.

Sun Fire X4250 vs. Dell PE2950

	SF X4250	Dell PE2950
Rack Space	2U	2U
CPU Type	Intel Dual/Quad	Intel Dual/Quad
Max Socket	2 Sockets	2 Sockets
DIMMs/Chassis	16 FBDIMM	8 FBDIMM
Max Memory	64GB	32GB
Disk Drives	16x2.5" SAS*	8x2.5" SAS/ 6x2.5" SATA
RAID 0, 1, 5, 6	RAID 0,1,1E,5,5EE,6,10, 50,60	RAID 0,1,5
GbE Ports	4xGbE	2xGbE
Expansion Slots	6xPCIe	3xPCIe
Hot Swap PSUs	2x1050W	2x750W
Hot Swap Fans	Yes	Yes
Management	ILOM	IMPI 2.0 Add-On
Waranty	3 Yr NBD	3 Yr NBD

Positioning vs. the Dell PE2950:

When setting up RFPs or competing, sell on the following advantages:

- 1) Available DIMM slots in a system
 - * SF X425 has more Memory DIMM Slots
 - Add more DIMMs with higher density at lower cost, achieve same memory footprint as Dell (Benefit: lower cost points, given higher density DIMMs are generally more expensive.)
- 2) Total addressable memory
 - * SF X4250 offers more addressable memory
 - Add more total addressable memory (64 GB vs. 32 GB).
 - (Benefit: More available memory for memory intensive applications resulting in increased performance using those applications).
- 3) Addressable HDDs
 - * SF X4250 offers twice the amount of SAS drives as Dell's PE2950.
 - With the ability to host a total of 16 2.5" SAS drives, customers (depending on their requirements) can achieve one or more of the following benefits:
 - > Better Redundancy
 - > More RAID options
 - > Higher storage throughput given there are more spindles
- 4) Importance of integrated 4GbE port integration
 - * The SF X4250 offers two additional, independent 2GbE ports (4 total ports) vs. the Dell PE2950.
 - When Sun was offering only 2GbE ports with their earlier x64 Servers we noticed the number 1 option card sold with with these systems was a dual GbE card. What does that mean? Customers need 4GbE ports on average with their x64 server.

- To obtain 4 GbE ports on an Dell PE2950, the customer must purchase an additional Dual GbE card for their server.
 - > \$199 Card from Dell (Dual Port Gigabit Adapter)
 - > Use one of the available PCIe slots (1 of the only 3 PCIe used for just Dual GbE). Now only two slots are available to add optional PCIe cards from Dell (i.e. NIC cards, RAID cards, Fibre Channel cards)
- Summary: The Sun Fire X4250 provides 4GbE ports and still allows the customer to fill PCIe slots with a multitude of PCIe options while the Dell PE2950 only provides a maximum of 2 PCIe options if 4 GbE ports are a requirement.

5) Total available PCIe Slots

- * The SF X4250 offers six PCIe slots vs. 3 on the PE2950.
- Sun Fire X4250 server enables the addition of 6 different types of PCIe Option cards, where Dell can host only 3. Should a customer require 4 GbE ports on their PE2950, only 2 slots are left.
- Sun customers can insert a variety of additional NIC cards, RAID cards, Fibre channel cards, etc., up to 6 per X4250 server.

6) ILOM

- * Every SF X4250 shipped comes standard with Integrated Lights Out Manager.
 - To obtain ILOM functionality in the Dell PE2950 server the customer must purchase the Dell Remote Access Card, 5th Generation for PowerEdge Remote Management for an incremental \$299. Systems management is a taxed option on a Dell PE2950, but always comes standard on a SF X4250 server.

7) RAID 6 Support

- * RAID 6 support is an option on X4250 Servers.
 - Although the Dell PE2950 can support up to RAID 5, RAID 6 is not an option customers can seek with this server. The main improvement RAID 6 offers over RAID 5 is the fact that in a RAID 6 configuration you have double-parity, allowing two separate parity stripe units to be stored on two separate spindles. This addresses one of the main problems of RAID 5 which is the extended rebuild times in the face of large size of current hard disks. If the customer is planning to use cheap SATA drives (which are more prone to failures) customers need some additional guarantee for fault-tolerance.

When to walk away from selling the SF X4250 against the Dell PE2950:

- * If support and use of SATA drives are a requirement today.
 - The Sun Fire X4250 will not support SATA drives.
- * If the customer requires more than 2.3TB of internal disk capacity. Although the SF X4250 offers more drives, the Dell PE2950 can host the larger, 3.5" - 750GB SATA drive, allowing it to obtain 4.5TB. Should capacity become an issue sell against the reliability of the Sun Fire X4250 vs. the lower reliability SATA drive.
- * Customer requires the ability to drive legacy PCI-X cards. The Dell PE2950 can support PCI-X cards through the use of their PCI-X RISER card. Most PCI-X cards however, have a PCIe equivalent, with the exception of some older, custom PCI-X cards. Should the PCI-X requirement come up, seek a PCIe equivalent solution first before walking away.
- * Customer is looking for the lowest price possible. If the key enterprise features and advantages the SF X4250 offer isn't of use to the customer (i.e. RAID 6, incremental PCIe slots, more memory, etc.) and price point is the number 1 buying criteria, walk away.

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