Sun Fire™ X4150 Server

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

Industry Leading Performance, Expandability & Power Efficiency

Just the Facts

SunWIN Token # 508674

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Xeon is a trademark of Intel Corporation in the U.S. and other countries.

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Sun Fire X4150 = Performance, Density, and Energy Efficiency

What's new

09/11/07: Announce Sun Fire X4150 RoHS Compliant Standard Configurations and XATO Options. **(NOTE: these configurations and options will not RR until 09/17/07.)**

TBD: 73GB 15K RPM 2.5" SAS disk drive option

TBD: 200GB 5,400 RPM 2.5" SATA disk drive option

TBD: Sun Cluster support

Introduction

The Sun Fire™ X4150 is Sun's newest addition to its x64 server family powered by the Intel Xeon processor.   The Sun Fire X4150 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 one 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 servers delivering world-class 32-bit and 64-bit performance in rack-mountable 1U form factor with Sun's rock-solid, enterprise-class capabilities and quality.

Running Solaris(TM), Linux, Windows and VMware Operating systems, the Sun Fire X4150 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 X415**0 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 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

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 embedded Lights Out Manager (embedded LOM) comes standard on all systems without extra cost, enabling the system to be managed and monitored locally or remotely.

The Sun Fire X4150 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 see: http://www.sun.com/x4150.

Features, Functions, and Benefits

Sun Fire X4150 Server Key Features, Functions, and Benefits

Feature	Function	Benefit
Performance		
Highest Performance in class	• Sufficient power-envelope to support the today and tomorrow's fastest Intel Xeon processors Delivers both 32- and 64-bit enterprise-class computing	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	Performance for I/O-bound applications and redundancy for mission-critical data	Increase performance and availability
Up to 64GB of memory with ECC and ChipKill	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	Improve application performance ECC helps to ensure data integrity improving availability ChipKill improves system availability
Integrated Quad Gigabit Ethernet	Outstanding network I/O performance Increased network availability when installed in failover configurations	Increases network efficiency, flexibility, and availability
64-bit PCI-Express Slots	Allows connectivity to additional network or storage while supporting full CPU path bandwidth.	Enables flexibility to meet evolving business and application requirements.
Energy Efficiency		
Intel Xeon Processors	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	Nearly doubles computing resources with minimal power and cooling increases Reduces the processor energy consumption by up to 60W per system
Operating System and Management Environment		

Feature	Function	Benefit
Embedded Lights Out Mnager for Remote Management	mbedded Lights Out Manager (embedded LOM): • 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	• 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 • Embedded LOM is a core part of system, there is no additional charge for this functionality as with some of the competition

Runs applications on:
    Solaris 10
    Linux (RHEL 4 and SLES 10)
    Windows Server 2003
    VMware ESX 3.0.2
	Run applications on industry standard platform running OS of choice	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 server is the newest member in Sun's x64 server based on the Intel Xeon processor. The Sun Fire X4100 server still remains in the product lineup for customers who prefer 1-RU 2-socket servers based on the AMD Opteron processor.

X64 Server Family Comparison

The following table compares some features of the Sun Fire X2200, Sun Fire X4100 and Sun Fire X4150 servers.

Features	Sun Fire X2200 Server	Sun Fire X4100 Server	Sun Fire X4150 Server
Processor Architecture	AMD Opteron	AMD Opteron	Intel Xeon
Processor Type	Dual-Core	Dual-Core	Dual-Core or Quad-Core
Processor Speed	1.8 GHz to 3.0 GHz	1.8 GHz to 3.0 GHz	1.6 GHz to 3.0 GHz
Level 2 Cache	1MB	1MB	4MB for Dual-Core 2x4MB for Quad-Core
CPU Interconnect	HyperTransport	HyperTransport	Front Side Bus

Features	Sun Fire X2200 Server	Sun Fire X4100 Server	Sun Fire X4150 Server
Memory Controller	Embedded in processor	Embedded in processor	Separate chip
Memory Type	667 MHz unbuffered DDR2	667 MHz registered DDR2	667 MHz registered FB-DIMM
DIMM Slots	16	8	16
DIMMs per CPU	8	4	16
Max Memory	64 GB	32 GB	64 GB
Internal Disk	2x 3.5" SATA	4x 2.5" SAS	8x 2.5" SAS or 6x 2.5" SATA
Onboard RAID	RAID 0, 1 for SAS	RAID 0, 1 for SAS	SW RAID 0, 1 for SATA
Add-on RAID	none	none	RAID 0, 1, 5, 6 with SAS RAID HBA
Removable Media	DVD-ROM, CD-RW/DVD	DVD-ROM, CD-RW/DVD	DVD+/-RW
Onboard GigE	4 GigE	4 GigE	4 GigE
PCI-Express	2x PCI-Express	2x PCI-Express	3x PCI-Express
Service Processor	Embedded LOM	Integrated LOM	Embedded LOM
Redundant, Hot-Swap PSU	No	Yes	Yes
Redundant, Hot-Swap Fans	No	Yes	Yes
Depth	25 in. 633.7 mm	24.8 in. 632 mm	28 in. 711.2 mm

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 its class

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

Embedded Lights Out Manager (embedded LOM) allows full remote KVMS functionality with video and media redirection

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 the customer's 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 that are fast, expandable and energy efficient.

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

Commerical HPC Grid Computing

File/Print

Messaging/Collaboration

Video Streaming

Market Value Proposition

Sun Fire X4150 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 efficient that results in 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

Standard configurations in US will RR on September 17, 2007, and GA on October 17, 2007.

Standard configurations outside of US will RR September 27, 2007, and GA on October 17,

2007.

XATO configurations worldwide will RR and GA on October 17, 2007.

Enabling Technology

Technology Overview

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

Quad-Core Intel® Xeon® processor 5300 series

Common Ultra high density chassis design

Embedded Lights Out Management with a dedicated Service Processor

Quad-Core Intel Xeon processor 5300 series

The Quad-Core Intel Xeon Processor 5300 Series are 64-bit server/workstation processors utilizing four Intel Core microarchitecture cores. These processors are based on Intel's 65 nanometer process technology combining high performance with the power efficiencies of low-power Intel Core microarchitecture cores.

The Quad-Core Intel Xeon Processor 5300 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 4 MB shared Level 2 cache per die (8 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 1066 MT/s Front Side Bus is based on a 266 MHz system clock for an 8.5 GBytes per second data transfer rate.

The Quad-Core Intel Xeon Processor 5300 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 5300 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.

Embedded Lights-Out-Manager

Embedded Lights-out Manager is driven by an integrated AST2000 service processor that follows x86 standards and is different from SPARC(R) technology-based system remote management solutions. It provides for full remote KVMS (Keyboard, Video, Mouse, Storage) support together with remote media functionality. Lights-out management (LOM) is achieved using an on-board, independently powered service processor with its own robust, security hardened OS. Embedded LOM provides secure 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. With out-of-band management, the system administrator can remotely control power of the system, monitor system FRU status, and load system firmware

The Service Processor (SP) provides the following functions:

Capability to remotely manage the server through remote keyboard, video, mouse, and storage redirection

Extensive control and reporting over environmentals, power, hardware and BIOS/OS features

Remote flash upgrades of system BIOS and service processor software

Remote diagnosis of failed components allows for rapid correction

User configurable serial console accessible via a physical port or re-directed through the management network

System Architecture

Overview

The Sun Fire X4150 server is based on the Intel Bensley platform which features up to 2 Quad-Core Intel Xeon Processor 5300 Series or 2 Dual-Core Intel Xeon Processor 5100 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 offers a total of 24 PCIe lanes, sixteen of which are used as two 8-lane PCIe link for PCIe expansion slots 1 and 2.

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. The ESB-2 supports up to six SATA disks connected to the disk backplane in SATA configurations. 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
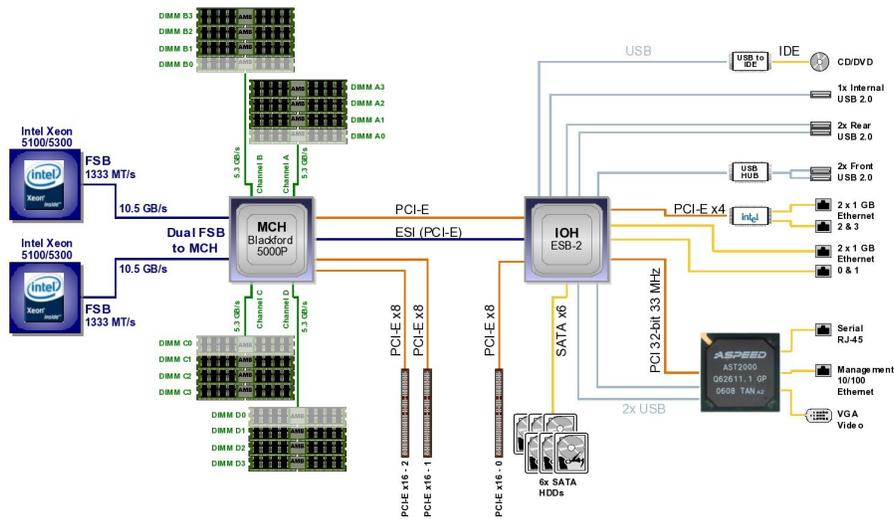
Figure 3. Sun Fire X4150 SATA Server Block Diagram

Block Diagram – SAS
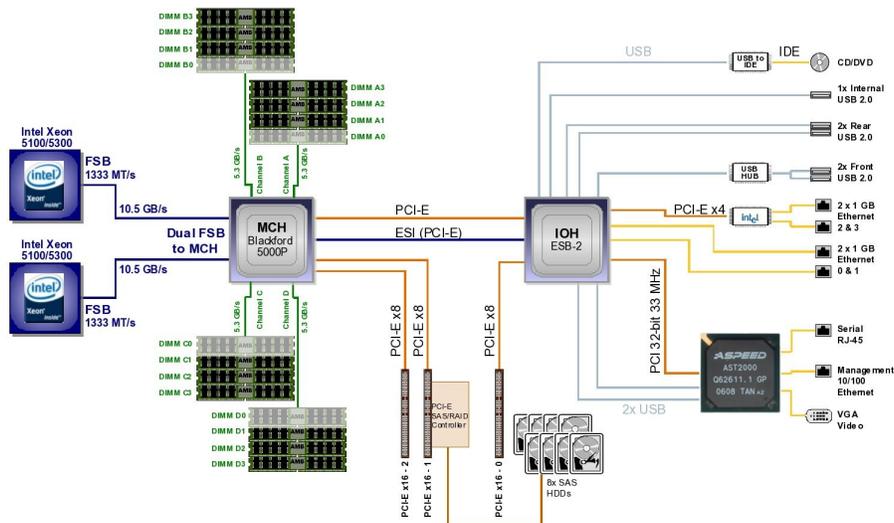
Figure 4. Sun Fire X4150 SAS Server Block Diagram

Reliability, Availability, and Serviceability (RAS)

Reliability

Software RAID 0, 1 with SATA controller onboard.

8-port SAS host bus adapter 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 with ChipKill 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 Server Operating Systems

A world-class performance platform, the 64-bit Sun Fire X4150 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 servers provide customers with more choices, within the same hardware architecture, than competing servers in its class.

Operating Systems		Dual Core Support	Quad Core Support	Factory Installed	Sold by Sun	Supported by Sun
Solaris 10 Update 4	64-bit	Yes	Yes	Yes	Yes	Yes
VMware ESX 3.0.2	64-bit	Yes	Yes	No	Yes	Yes
Windows Server 2003 Enterprise Edition, SP2	32-bit/ 64-bit	Yes	Yes	No	No[2]	Yes[3]
Red Hat Enterprise Linux 4, Update 4	32-bit/ 64-bit	Yes	Yes	No[1]	Yes	Yes
Red Hat Enterprise Linux 4, Update 4	64-bit	Yes	Yes	No[1]	Yes	Yes
SUSE Linux Enterprise Server 10, SP1	64-bit	Yes	Yes	No[1]	Yes	Yes

1. Red Hat Enterprise Linux 4, SUSE Linux Enterprise Server 10, and Solaris 10 can be ordered from Sun. Support contracts are also available.
2. "Designed for Windows" designation as a certified platform.
3. Sun System Service Plans for Windows Server 2003 are available from Sun.

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

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 form 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, 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 Servers are certified to run the Microsoft Windows Server 2003 Enterprise and Standard Edition operating systems. Sun System Service Plans will be available from Sun Microsystems at an additional charge. Please see the "Services" section for more details.

VMware OS

The Sun Fire X4150 Server is certified to run VMware ESX 3.0.2 operating system. Sun System Service Plans will be available from Sun Microsystems at an additional charge. Please see the "Services" section for more details.

Installation Data

Sun Fire X4150 Server Specification

Processor Options

Processor	One or two Intel Xeon Processors;
	    Dual-Core Intel Xeon 5160 (4MB L2, 3 GHz, 1333 MHz FSB, 80W)
	    Quad-Core Intel Xeon L5310 (2x4MB L2, 1.6 GHz, 1066 MHz FSB, 50W)
	    Quad-Core Intel Xeon E5320 (2x4MB L2, 1.86 GHz, 1066 MHz FSB, 80W)
	    Quad-Core Intel Xeon E5345 (2x4MB L2, 2.33 GHz, 1333 MHz FSB, 80W)
	    Quad-Core Intel Xeon X5355 (2x4MB L2, 2.66 GHz, 1333 MHz FSB, 120w)

Main Memory

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

Standard/Integrated Interfaces

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)

Mass Storage and Media

Hot-swappable, 2.5" Internal disk	Up to eight SAS disk drives with add-on SAS Host Bus Adapter, Or up to six SATA disk drives (offering at end of CY2007)
Removable Media	One EIDE DVD+/-RW drive
External disk	See http://www.sun.com/servers/x64/x4150/storage.jsp

Software

Operating environment	Solaris 10 Update 4 Red Hat Enterprise Linux 4 Update 5, 32-bit/64-bit Red Hat Enterprise Linux 5, 64-bit SUSE Linux 10 Professional 64-bit Windows Server 2003, Enterprise Edition, 32-bit/64-bit Windows Server 2003, Standard Edition, 32-bit/64-bit VMware ESX 3.0.2 See http://www.sun.com/servers/x64/x4150/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

Dual redundant, hot -swappable power supply	
UL Maximum (AC Input)	8.2 Amps RMS at 100 VAC
Power Supply Rating (DC output)	650 W

Environment

AC power	90–264 V AC (47–63 Hz)
Operating temperature/humidity (single, non-rack system)	5 ºC to 35 ºC (41 ºF to 95 ºF), 10% to 90% relative humidity, non-condensing
Nonoperating temperature/humidity (single, non-rack system)	-40 ºC to 70 ºC (-40 ºF to 158 ºF), 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

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

Chassis	
Height	44 mm (1.73 in.)
Width not including ears	425.5 mm (16.75 in.)
Width including ears	443.9 mm (17.47 in.)
Depth not including PSU handle	711.2 mm (28 in.)
	736.4 mm (28.99 in.)
Depth including PSU handle	18.4 kg (40.66 lb.) maximum assuming PCI-Express card weighs
Weight	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 servers run the Solaris 10, standard Linux distributions, Microsoft Windows Server 2003, as well as VMware operating systems. For a list of supported OS versions, please refer to section "Sun Fire X4150 Server Operating Systems Support "

System Configuration

The Sun Fire X4150 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
- Eight 2.5-inch SAS disk drives (with add-on SAS Host Bus Adapter) or six 2.5-inch SATA disk drives (SATA controller onboard)
- DVD+/-RW drive (optional)
- Four 10/100/1000Base-T Ethernet ports
- Five USB 2.0 ports: two front, two rear, one internal
- Three MD2 Low Profile 8-lane PCI-Express slots (with x16 mechanical connectors)
- Redundant hot-swappable fan modules
- 650 Watt AC power supply (hot-swappable in redundant configuration)
- Embedded Lights Out Manager (Embedded LOM) with dedicated 10/100BaseT Ethernet port
- 19-inch rack-mount kit (optional)
- Cable management arm (optional)

Licensing/Usage

The Sun Fire X4150 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 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 servers will vary depending upon configuration.

Min BTU:

766.6 BTUs/hr at idle for Sun Fire X4150 with one Quad-Core Intel Xeon L5310 processor (2x4MB L2, 1.60 GHz, 1066 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.

Max BTU:

2110.75 BTUs/hr at max stress for Sun Fire X4150 with two Quad-Core Intel Xeon X5355 processors (2x4MB L2, 2.66 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.

Power Consumption Information

Please refer to Power Calculator at http://www.sun.com/servers/x64/x4150/calc/index.jsp

Rack Mounting

The Sun Fire X4150 server is 1.73 inches (44 mm) high, 16.75 inches (425.5 mm) wide and 28 inches (711.2 mm) deep. 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 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 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.

Sun Cluster Support

The support of Sun Fire X4150 servers by Sun Cluster will be announced at a later date.

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

Origin Statement

The Sun Fire X4150 servers have components from various countries of origin. The motherboard is manufactured in China. The power supply is from Thailand. The chassis is 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-UW1-CC-2GB-JLB	Sun Fire X4150: 1x Quad-Core Intel Xeon E5320 (2x4MB L2, 1.86 GHz, 1066 MHz FSB, 80W), 2x 1GB FB-DIMM, no HDD, no DVD, 1x PSU	Announce 9/11/07 RR 9/17/07
B13-UX2-AC-4GB-JLB	Sun Fire X4150: 2x Quad-Core Intel Xeon L5310 (2x4MB L2, 1.6 GHz, 1066 MHz FSB, 50W), 4x 1GB FB-DIMM, no HDD, no DVD, 2x PSU	Announce 9/11/06 RR 9/17/07
B13-UQ2-CB-4GB-JLB	Sun Fire X4150: 2x Dual-Core Intel Xeon 5160 (4MB L2, 3.0 GHz, 1333 MHz FSB, 80W), 4x 1GB FB-DIMM, no HDD, no DVD, 2x PSU	Announce 9/11/07 RR 9/17/07
B13-UG2-EC-8GB-JL6	Sun Fire X4150: 2x Quad-Core Intel Xeon EX5355 (2x4MB L2, 2.66 GHz, 1333 MHz FSB, 120W), 4x 2GB FB-DIMM, no HDD, DVD+/-RW, 2x PSU	Announce 9/11/07 RR 9/17/07
B13-US2-CC-8GB-KD6	Sun Fire X4150: 2x Quad-Core Intel Xeon EX5355 (2x4MB L2, 2.33 GHz, 1333 MHz FSB, 80W), 4x 2GB FB-DIMM, 4x 146GB 10K RPM SAS HDD, SAS SRL RAID HBA, DVD+/-RW, 2x PSU	Announce 9/11/07 RR 9/17/07

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

Power Cords

Due to regulatory requirements of other countries, Sun Fire X4150 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

Part Number	Description
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) Localised power cord kit

Sun Fire X4150 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 servers.

X-Option	XATO	CRS	Description	Notes
X6350A	6350A	Mfg P/N	Dual-Core Intel Xeon 5160 processor (4MB L2, 3 GHz, 1333 MHz FSB, 80W)	Announce 9/11/07 RR 10/17/07
X6351A	6351A	Mfg P/N	Quad-Core Intel Xeon L5310 processor (2x4MB L2, 1.6 GHz, 1066 MHz FSB, 50W)	Announce 9/11/07 RR 10/17/07
X6352A	6352A	Mfg P/N	Quad-Core Intel Xeon E5320 processor (2x4MB L2, 1.86 GHz, 1066 MHz FSB, 80W)	Announce 9/11/07 RR 10/17/07
X6353A	6353A	Mfg P/N	Quad-Core Intel Xeon E5345 processor (2x4MB L2, 2.33 GHz, 1333 MHz FSB, 80W)	Announce 9/11/07 RR 10/17/07
X6354A	6354A	Mfg P/N	Quad-Core Intel Xeon X5355 processor (2x4MB L2, 2.66 GHz, 1333 MHz FSB, 120W)	Announce 9/11/07 RR 10/17/07
X6380A	6380A	Mfg P/N	2GB memory kit with 2x1GB PC2-5300 667 MHz ECC fully buffered DDR2 DIMM	Announce 9/11/07 RR 10/17/07
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
X6388A	6388A	Mfg P/N	Cable kit for internal SAS drives	Announce 9/11/07 RR 10/17/07
X6389A	6389A	Mfg P/N	Cable kit for internal SATA drives	Announce 9/11/07 RR 10/17/07
-	6331A	Mfg P/N	Disk bay filler panel	Announce 9/11/07 RR 10/17/07

X-Option	XATO	CRS	Description	Notes
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
-	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
-	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
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
-	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
-	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
SG-XPCIE8SAS-I-Z	SG-PCIE8SAS-I-Z	Mfg P/N	8-port internal SAS host bus adapter	Announce 9/11/07 RR 10/17/07
SGXPCIESAS-R-INT-Z	SG-PCIESAS-R-INT-Z	Mfg P/N	8-port internal SRL RAID host bus adapter	Announce 9/11/07 RR 9/17/07
SG-XPCIE8SAS-E-Z	-	Mfg P/N	8-port external SAS host bus adapter	Announce 9/11/07 RR 10/17/07
SGXPCIESAS-R-EXT-Z	-	Mfg P/N	8-port external SRL RAID host bus adapter	Announce 9/11/07 RR 9/17/07
SG-XPCIE2SCSIU320Z	-	SG-PCIE2SCSIU320Z	Ultra320 SCSI 2-port host bus adapter	Announce 9/11/07 RR 9/17/07
SG-XPCIE1FC-QF4	-	SG-PCIE1FC-QF4	4Gb single-port FC-AL PCI-Express card	Announce 9/11/07 RR 9/17/07
SG-XPCIE2FC-QF4	-	SG-PCIE2FC-QF4	4Gb dual-port FC-AL PCI-Express card	Announce 9/11/07 RR 9/17/07

X-Option	XATO	CRS	Description	Notes
SG-XPCIE1FC-EM4	-	SG-PCIE1FC-EM4	4Gb single-port FC-AL PCI-Express card	Announce 9/11/07 RR 9/17/07
SG-XPCIE2FC-EM4	-	SG-PCIE2FC-EM4	4Gb dual-port FC-AL PCI-Express card	Announce 9/11/07 RR 9/17/07
X1236A-Z	-	1236A-Z	Dual-port 4x Infiniband host channel adapter	Announce 9/11/07 RR 9/17/07
X7280A-2	-	7280A-2	Dual Gigabit-Ethernet PCI-Express card (copper)	Announce 9/11/07 RR 9/17/07
X7281A-2	-	7281A-2	Dual Gigabit-Ethernet PCI-Express card (fiber)	Announce 9/11/07 RR 9/17/07
X4446A-Z	-	Mfg P/N	Quad Gigabit-Ethernet PCI-Express card (copper)	Announce 9/11/07 RR 9/17/07
X1027A-Z	-	Mfg P/N	10 Gigabit-Ethernet PCI-Express card	Announce TBD RR TBD
X5558A	-	Mfg P/N	10 Gigabit-Ethernet short range Transceiver	Announce TBD RR TBD
X5560A-Z	-	Mfg P/N	10 Gigabit-Ethernet long range Transceiver	Announce TBD RR TBD
X6000A	-	6000A	Sun Crypto Accelerator 6000 SSL/IPsec accelerator PCI-Express card with keystore and FIPs support	Announce 9/11/07 RR 9/17/07
X6099A	-	Mfg P/N	IPsec enabler CD	Announce 9/11/07 RR 9/17/07

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 E5320 processor based system can only use another Quad-Core Intel Xeon E5320 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. 2x1GB and 2x2GB can be used in the same system chassis.

3. The internal disk drives must be of the same type: they must all be SAS drives or all be SATA drives.

4. 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.

5. The standard configuration with disks come with cable kit for SAS drives. If these configurations are converted to be using SATA drives, cable kits for SATA drives must be ordered with the SATA disk drives.

6. If RAID 1 mirroring is going to be used, the drives to be mirrored must be identical in size.

7. 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 SRL RAID host bus adapter has 256MB of DDR2 memory and battery-backed write cache for 72 hour backup, and also supports RAID 0, 1, 10, 1E, 5, 50, 5EE, 6, 60.

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 E5320 processor based system can only use another Quad-Core Intel Xeon E5320 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. 2x1GB 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 suply 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 PCI-Express Card Support by OS

For the latest information on PCI-Express card support, go to
http://www.sun.com/servers/x64/x4150/optioncards.jsp

PCI-Express Card	Sun P/N	Max Config	S10	RHEL 4	SLES 10	Win 2003	VMware
Software RAID 0,1	Onboard SATA controller	N/A	Yes	Yes	Yes	Yes	
8-port Internal SAS HBA	SG-PCIE8SAS-I-Z; SG-XPCIE8SAS-I-Z	TBD	Yes	Yes	Yes	Yes	
8-port External SAS HBA	SG-XPCIE8SAS-E-Z	TBD	Yes	Yes	Yes	Yes	
8-port Internal SAS SRL RAID HBA	SGPCIESAS-R-INT-Z; SGXPCIESAS-R-INT-Z	TBD	Yes	Yes	Yes	Yes	
8-port External SAS SRL RAID HBA	SGXPCIESAS-R-EXT-Z	TBD	Yes	Yes	Yes	Yes	
Ultra320 SCSI 2-port HBA	SG-XPCIE2SCSIU320Z	TBD	Yes	Yes	Yes	Yes	
4Gb Single-Port FC-AL	SG-XPCIE1FC-QF4	TBD	Yes	Yes	Yes	Yes	
4Gb Dual-Port FC-AL	SG-XPCIE2FC-QF4	TBD	Yes	Yes	Yes	Yes	
4Gb Single-Port FC-AL	SG-XPCIE1FC-EM4	TBD	Yes	Yes	Yes	Yes	
4Gb Dual-Port FC-AL	SG-XPCIE2FC-EM4	TBD	Yes	Yes	Yes	Yes	

PCI-Express Card	Sun P/N	Max Config	S10	RHEL 4	SLES 10	Win 2003	VMware
Dual Port 4x Infiniband HBA	X1236A-Z	TBD	TBD	TBD	TBD	TBD	
Dual Gigabit-Ethernet (copper)	X7280A-2	TBD	TBD	TBD	TBD	TBD	
Dual Gigabit-Ethernet (fiber)	X7281A-2	TBD	TBD	TBD	TBD	TBD	
Quad Gigabit-Ethernet (copper)	X4446A-Z	TBD	TBD	TBD	TBD	TBD	
10 Gigabit-Ethernet (fiber)	X1027A-Z	TBD	TBD	TBD	TBD	TBD	
10 Gigabit Ethernet SR XFP Transceiver	X5558A	TBD	TBD	TBD	TBD	TBD	
10 Gigabit Ethernet LR XFP Transceiver	X5560A	TBD	TBD	TBD	TBD	TBD	
Sun Crypto Accelerator 6000 SSL/IPsec	X6000A	TBD	TBD	TBD	TBD	TBD	
IPsec enabler CD	X6099A	TBD	TBD	TBD	TBD	TBD	

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

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Midrange Storage Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
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
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-XTAPSDLT6-R-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-XAUTO8LTO3-C2,** **SG-**XAUTO16LTO3-C2, SG-XAUTO8LSDTO3-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

Tape Library Options	Sun SKU	S10	RHEL 4	SLES 10	Win 2003
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
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 has a three year, next business day warranty.

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

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

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

Sun℠ System Service Plans for Windows OS

The Sun℠ 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

Sun System Service Plans for Windows OS: Features Matrix

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".

Warranty Upgrade to Sun℠ System Service Plans for Windows OS for Sun Fire X4150 Server

The following are part numbers and descriptions for the warranty upgrade to Sun℠ 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 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

Installation Service for Sun Fire X4150 Server

Sun's exceptional support for server installation is also available for the Sun Fire X4250 server. 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
External Web Sites			
• *Sun Fire X4150 Server Web Site*	http://www.sun.com/servers/x64/TBD		
Internal Web Sites			
• *Sun Fire X4150 Server Internal Web Site*	http://TBD		
Reseller Web Site			
• *Sun Reseller General Information*	http://TBD		

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 wice 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

Competitive Positioning	
HP DL360 G5	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. 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.

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 facilites. It provides the basic instructions for the disassemby 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	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. 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.

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

Competitive Positioning	
Dell PE1950	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. 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, t 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.
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 prevelant. The Dell deals in the HPC market are more on the public sector (education/healthcare/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

How to Beat Your Competition

Visit http://competitive.central (or MySales > Systems > Competitive) for a broad range of tools available to counter competitive claims.

Engage the SSC War room for competitive deal support, sscwarrom@sun.com, x86484