

Sun Fire V40z Server Just the Facts

SunWIN Token #407577

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Sun Fire V40z Server



What's New -

1/10/06: Announce End-of-Life for non-RoHS conforming Sun Fire V40z configurations and options **in EMEA only**. Last Order Date for EMEA is April 10, 2006. Last Ship Date for EMEA is June 30, 2006. RoHS compliant configurations are expected to be available before the LOD.

11/22/05: New RoHS compliant Quad Gigabit Ethernet PCI-X card.

11/08/05: A new slide rail kit that supports 30" deep racks. A 146 GB drive with Solaris 10 pre-installed.

10/11/05: AMD Opteron 880 dual core configuration and CPU options.

9/13/05: A new RAID PCI-X card with battery backup.

7/26/05: New Sun StorEdge single channel Ultra320 differential SCSI PCI-X card

07/12/05: AMD Opteron™ 850 single core and 870 dual core configurations and CPU options. EOL of Sun Fire V40z S1 systems. A new blocking plate enabling customers to create XATO configurations without an optical drive.

Introduction

Introduced in May 2004, the Sun Fire V40z server is a 1- to 8-way x64 3U rack-optimized server powered by AMD's (Advanced Micro Devices) award-winning Opteron™ processors. **Running Solaris™, Linux, and Windows Operating Systems**, the Sun Fire V40z server supports both 32-bit and 64-bit operating systems and applications. With a single architecture, the Sun Fire V40z server offers greater flexibility for customers that wish to run existing 32-bit x86 OS and applications, and at the same time, migrate to the next generation 64-bit OS and

applications. Using the same hardware architecture, customers can minimize staff training and support and still can achieve the migration to faster 64-bit applications

The Sun Fire V40z is a general-purpose server is designed to be easily managed and deployed in a wide range of architectures:

- Scale-out architectures: With large memory capacity (32 GB), dual Gigabit Ethernet ports and seven high speed PCI-X expansion slots that enable high speed system interconnects such as fibre channel, Myrinet, and InfiniBand, the Sun Fire V40z server is able to solve complex computing problems.
- Scale-up architectures: With up to 8 cores available, this server is well-suited for compute-intensive applications found in such industries as oil & gas, EDA, MCAE, and bio-science.
- Scale-within: With its ability to run Solaris 10 Containers and VM Ware, the Sun Fire V40z server is an ideal platform for application consolidation.

The Sun Fire V40z server, when combined with Sun's rich portfolio of software, storage, services and network switches, help reduce cost and complexity while accelerating time-to-revenue for web, app, database and grid applications.

For more information see: <http://www.sun.com/server/entry/v40z>.

Features, Functions, and Benefits

Sun Fire V40z Server Key Features, Functions, and Benefits

| Feature | Function | Benefit |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Performance | | |
| <ul style="list-style-type: none"> • Up to four AMD Opteron processors, supporting the fastest AMD CPUs. | <ul style="list-style-type: none"> • Delivers both 32- and 64-bit enterprise-class computing for increased scalability of computer and applications while not requiring dramatic instruction set changes. | <ul style="list-style-type: none"> • Increases performance while providing investment protection. |
| <ul style="list-style-type: none"> • HyperTransport technology and 128-bit wide DDR memory controller | <ul style="list-style-type: none"> • Reduces latency by pooling memory resources onto a single coherent space. • Provides a high-speed connection between processors and core logic | <ul style="list-style-type: none"> • Increases performance by eliminating performance bottlenecks found in traditional x86 Front Side Bus (FSB) architecture. |
| Raising the Bar for Industry Standard Servers with Reliability and Expandability | | |
| <ul style="list-style-type: none"> • Standard 3 RU form factor | <ul style="list-style-type: none"> • Fits into industry-standard racks to maximize data center space and standardized stack deployments for ISPs. | <ul style="list-style-type: none"> • Provides investment protection and lowers total cost of ownership. |

| Feature | Function | Benefit |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Up to 32GB of DDR memory with ECC and ChipKill™ | <ul style="list-style-type: none"> Supports memory-intensive applications and processes. ECC helps to ensure data integrity with automatic error correction in case a single bit is affected by such events as alpha particle hitting a memory cell. ChipKill™ allows a single DRAM chip to fail (not the DIMM just a chip on the DIMM) and the system to continue running. | <ul style="list-style-type: none"> Allows for deployment of a wide range of applications. Increases memory reliability, helping to reduce the chances of system downtime caused by memory failures. |
| <ul style="list-style-type: none"> Internal Ultra320 SCSI interface to support up to six hard drives | <ul style="list-style-type: none"> Offers plenty of disk space for I/O-bound applications and redundancy for mission-critical data. | <ul style="list-style-type: none"> Increases performance and availability. |
| <ul style="list-style-type: none"> Dual integrated Gigabit Ethernet | <ul style="list-style-type: none"> Provides outstanding network I/O performance as well as increased network reliability when installed in failover configurations. | <ul style="list-style-type: none"> Increases network efficiency, flexibility and availability. |
| <ul style="list-style-type: none"> Seven 64-bit PCI-X slots | <ul style="list-style-type: none"> Allows connectivity to additional network, storage, or graphics devices while supporting full CPU path bandwidth. Enables the support of high-bandwidth, low-latency system interconnects such as Myrinet or Infiniband to build horizontally scaled clusters | <ul style="list-style-type: none"> Enables flexibility to meet evolving business and application requirements. Enables horizontal scaling to achieve low-cost, very high performance super-computers |
| <ul style="list-style-type: none"> Front and back LEDs | <ul style="list-style-type: none"> Provides ability to determine at a glance server status (power, fault, etc.) in large data center server clusters. | <ul style="list-style-type: none"> Increases ease of physical management and serviceability. |
| Operating System and Management Environments | | |
| <ul style="list-style-type: none"> Multiple OS support | <ul style="list-style-type: none"> Enables customers to run the applications designed to run in specific OS | <ul style="list-style-type: none"> Customers can use same server hardware to support different applications running in 32-bit or 64-bit OS, and thus lowering IT hardware training and support |
| <ul style="list-style-type: none"> Integrated service processor with two dedicated 10/100 Ethernet ports | <ul style="list-style-type: none"> Enables command-line(CLI), IPMI v1.5, or SNMP server management with consolidated IT staff Allows for daisy-chaining of management Ethernet cable in a single rack | <ul style="list-style-type: none"> Increases manageability options. Provides for ease of cable management for dedicated management Ethernet, lowering support costs |
| <ul style="list-style-type: none"> Lights Out Management (LOM) | <ul style="list-style-type: none"> Monitors and reports system and component status, meaning less need for on-site staff. Enables data-driven scripts and SNMP to be used in conjunction with automatic upgrades and failure notifications. | <ul style="list-style-type: none"> Increases productivity and availability by allowing remote management via network connections. |



Product Family Placement

Although Sun announced a new line of x64-based servers, the Sun Fire V20z and Sun Fire V40z servers still remain in the product lineup along side the Sun Fire X2100, X4100 and X4200 servers. The Sun Fire V40z server remains in the product line for those customers who may require a larger number of CPU cores (up to 8), a larger addressable memory (> 16GB) space, or greater I/O (7 PCI slots) expansion capability than the Sun Fire X4200 server offers. They also remain for those customers still requiring support for Solaris 9, HW 04/04, HW 09/04 or SLES 8.

X64 Server Family Comparison

The following table compares some features of the Sun Fire X2100, Sun Fire X4100, Sun Fire X4200, Sun Fire V20z and Sun Fire V40z servers.

| Features | Sun Fire X2100 Server | Sun Fire X4100 Server | Sun Fire X4200 Server | Sun Fire V20z Server | Sun Fire V40z Server |
|-------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CPU type – AMD Opteron processor | One single- or dual-core (up to 2 cores) | Up to 2 single- or dual-core (up to 4 cores) | Up to 2 single- or dual-core (up to 4 cores) | Up to 2 single- or dual-core (up to 4 cores) | Up to 4 single- or dual-core (up to 8 cores) |
| CPU speed | 146 (2.0 GHz), 148 (2.2 GHz), 152 (2.6 GHz) Dual-Core – 175 (2.2 GHz) | 248 (2.2 GHz), 252 (2.6 GHz), 254 (2.8 GHz) Dual-Core – 270 (2.0 GHz), 275 (2.2 GHz), 280 (2.4 GHz), 285 (2.6 GHz) | 248 (2.2 GHz), 252 (2.6 GHz), 254 (2.8 GHz) Dual-Core – 270 (2.0 GHz), 275 (2.2 GHz), 280 (2.4 GHz), 285 (2.6 GHz) | 244 (1.8 GHz), 248 (2.2 GHz), 250 (2.4 GHz), 252 (2.6 GHz) Dual-Core - 270 (2.0 GHz), 275 (2.2 GHz) | 844 (1.8 GHz), 848 (2.2 GHz), 850 (2.4 GHz), 852 (2.6 GHz), 854 (2.8 GHz) Dual-Core - 870 (2.0 GHz), 875 (2.2 GHz), 880 (2.4 GHz) |
| Level 2 cache | 1 MB | | | | |
| CPU interconnect | 1 HyperTransport Link @ 4 GB/s | 3 HyperTransport Links @ 4 GB/s per link | | | |
| Max. memory - 4 DIMM slots/CPU | 4 GB of DDR1/400 unbuffered ECC DIMMs | 16 GB of DDR/400 ECC registered DIMMs (32 GB when 4 GB DIMMs are available) | | 16 GB of DDR/333 or 400 ECC registered DIMMs | 32 GB of DDR/333 or 400 ECC registered DIMMs |
| Graphics Controller | ATI Rage™ XL | | | None | |
| Internal HDDs (hot-swappable except for X2100) | Up to two SATA (3.5") hot-pluggable HDDs | Up to two (w/ DVD-ROM) or four (w/o DVD-ROM) SAS (2.5") HDDs | Up to four SAS (2.5") HDDs | Up to two U320 SCSI HDDs | Up to six U320 SCSI HDDs |
| On-board RAID | Mirroring, RAID 1 | Striping, Mirroring (RAID 0, 1) (LSI SAS 1064) | | Mirroring, RAID 1 (LSI 1020) | Mirroring, RAID 1 (LSI 1030) |

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Just the Facts, February 1, 2006

02/01/06



| Features | Sun Fire X2100 Server | Sun Fire X4100 Server | Sun Fire X4200 Server | Sun Fire V20z Server | Sun Fire V40z Server |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Network connections | Integrated 2 x Gigabit Ethernet | Integrated 4 x Gigabit Ethernet | | Integrated 2 x Gigabit Ethernet | |
| Removable media | DVD-ROM (optional) | DVD-ROM | | CD-ROM/floppy | DVD-ROM/floppy |
| Expansion Slots | One PCI-Express (8-lane) | Two 64-bit PCI-X MD2 Low Profile (1 at 100 MHz, 1 at 133 MHz) | Five 64-bit PCI-X MD2 Low Profile (1 at 100 MHz, 1 at 133 MHz, 3 at 66 MHz) | Two 64-bit PCI-X (1 at 133 Mhz ¹ , 1 half-length/full height at 66 MHz) | Seven 64-bit PCI-X (4 at 133 Mhz ² , 1 at 100 MHz, 1 half-length/full height at 100 MHz, 1 half-length/half-height at 66 MHz) |
| Service Processor | Optional | Yes | | | |
| In-band management | IPMI v1.5 | IPMI v2.0 via KCS driver SNMP OS-resident agent | | IPMI v1.5 and CLI | |
| Out-of-band management | IPMI v1.5 | IPMI v2.0, DMTF CLI, SNMP- v1, v2c, v3, Web GUI | | IPMI v1.5, CLI, SNMP-v1, v2 | |
| Remote management features | Remote power on / off, remote access to BIOS | Remote Keyboard, Video, Mouse (KVM), Video redirection, Remote media functionality, Remote power control remote access to BIOS, remote FRU status, monitoring. Logging, role-based access control | | Remote power on / off, remote access to BIOS, remote FRU status | |
| System management paths | serial port and two system Ethernet ports | A single dedicated management 100BaseT port, system serial port and four system Ethernet ports | | Two dedicated management 100BaseT ports for daisy chaining, system serial port and two system Ethernet ports | |
| RU height | 1U | 1U | 2U | 1U | 3U |
| Depth | 21.68 in. 550 mm | 25.2 in. 640 mm | 25.2 in. 640 mm | 28.5 in. (724 mm) | 29.74 in. (755 mm) |
| Power supply | Single, 300 W | Redundant, Hot-Swappable 550W each | | Single, 465 W | Redundant, Hot-swappable 760 W each |
| O/S | See http://www.sun.com for latest operating system support for each product | | | | |

¹ Note that the Sun Fire V20z server has a BIOS update that reprograms the PCI-X transmit strings to reduce the issues with the 133 MHz PCI-X slot. This is required to resolve the AMD Errata #56 that involves a timing issue at 133 MHz for certain PCI-X cards. However, 4 function PCI-X cards such as the X9273A Quad Gigabit Ethernet card must be deployed/relocated to the 66 MHz slot only. This is a change from the previous deployment in the 133 MHz slot – that is no longer supported. All other PCI-X cards offered by Sun will be still supported in the V20z's 133 MHz slot.

² Note that Sun Fire V40z server has a BIOS update that reprograms the four hot-swap 133 MHz PCI-X slots to run at 100 MHz. This is required to resolve a issue with the AMD Errata #56 that involves a timing issue at 133 MHz for certain PCI-X cards.

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Key Messages

The Sun Fire V40z server provides a platform to run new high performance 64-bit applications or to run older 32-bit x86 applications. With support for multiple 32-bit and 64-bit operating systems, Sun addresses customers' need to run their choice of applications using the same hardware architecture, minimizing hardware support costs and IT support training costs. Coupled with base warranty of 3-year, next business day support, the Sun Fire V40z server offers among the best TCO (Total Cost of Ownership) on rack-server deployments for customers.

- **Multiple Operating Systems in a 64-bit Server:** The Sun Fire V40z offers certification or support for more than 7 operating systems, including OS that are 32-bit and 64-bit, for 3 different OS architectures (Solaris, Linux, Windows).
- **Investment Protection:** Sun provides customers with the flexibility to build an infrastructure that can scale from low-end to high-end UNIX systems—helping them to protect existing investments in hardware, software and training.
- **Superior System Management:** The Sun Fire V40z server features a dedicated Service Processor (SP) for complete OS independence and maximum availability for system management. Lights Out Management (LOM) with CLI, IPMI, or SNMP integration enables administration from anywhere.
- **World-Class Services:** The Sun Fire V40z server is supported by the world-class Sun Services organization, which provides a wide range of services to help customers reduce cost and complexity, accelerate network deployment, and deliver mobility with security.
- **Sun's "One-Stop Shop":** Customers can buy their x64 and UltraSPARC® server products, software, service, consulting, and training from Sun's "One-Stop Shop." Sun makes it easy and understands secure enterprise network computing.

Target Markets

The Sun Fire V40z server is especially suited in a broad range of industries including:

- Financial Services
- Scientific Research
- Bio-science
- Oil Exploration
- Electronic Design (EDA)
- Government
- Education and research
- Service providers

Target Applications

- High-performance compute clusters
- Web or application serving, especially Java deployment
- Database management, especially grid-type deployment like Oracle 9iRAC or 10g
- Grid computing

Market Value Proposition

The Sun Fire V40z server offers among the highest performance for both 64-bit and 32-bit x86 applications. Now offered with optional dual core CPUs, the performance only gets better. Relative to other 64-bit servers, such as those using the Itanium or PowerPC processors, the Sun Fire V40z server offers much lower pricing, yet provides a similar level of performance. With support for multiple operating systems, customers can deploy the Sun Fire V40z to run their existing x86 applications and also run new 64-bit applications, minimizing IT hardware training and support costs. With its 3RU form factor, high speed PCI-X slots and Gigabit Ethernet connectivity, customers can network these servers using high speed interconnects to build large compute clusters delivering world class computing performance. The Sun Fire V40z is perfect for high performance technical computing, web services and grid data management applications.

- **Performance:** The Sun Fire V40z delivers world-class 64-bit and 32-bit application performance, and can demonstrate superior benchmark in SPECcpuRate2000 and SpecWeb99SSL and other benchmarks. This world-class level of performance is achieved with the AMD Opteron processors with built-in HyperTransport technology that provides high-speed connection between processors and I/O, as well as built-in memory controllers that can access large physical memory up to 32 GB.
- **Affordability:** The Sun Fire V40z server presents an affordable, feature rich, fully-fledged 64-bit x86 server platform, priced competitively to other 32-bit Xeon based 4P/3U systems.
- **Application Compatibility/Migration:** Because the Sun Fire V40z server runs 32-bit x86 operating systems and applications today, customers can take advantage of improved 32-bit performance enhancements and protect their 32-bit investments while still having the ability to upgrade to 64-bit operating systems and applications as needed. With multiple OS support, the Sun V40z server is one of the first x64 64-bit server from a top-tier server vendor that certifies or supports more than 7 operating systems.
- **Density:** The Sun Fire V40z server is 3 RU, enabling flexibility and expandability in server deployments to decrease operating costs by more efficiently using existing data center space.
- **Availability:** The Sun Fire V40z server provides an economical approach to deploying services redundantly, with small footprint and low cost—allowing the servers to be used as a basis for redundantly deploying services for higher availability when compared to competing alternatives.

The Solaris Operating System helps to reduce planned and unplanned downtime. Planned downtime is minimized with fast, easy automatic provisioning using Solaris Flash and Live Upgrade with its roll-back capability.

- **Reliability:** The Sun Fire V40z server provides standard Sun reliability that is well established in the market. Solaris technology provides proven reliability, robustness, and binary compatibility. With the Solaris OS (x86 Platform Edition), Sun delivers a trustworthy, universal platform to meet the needs of today's businesses—from small startups to large Fortune 1000 enterprises.
- **Manageability:** The Sun Fire V40z server has a dedicated Service Processor (SP) for CLI, IPMI, or SNMP server management for in-band and out-of-band management access.

Enabling Technology

Technology Overview

The Sun Fire V40z server is a symmetric, multiprocessor, x86-based, rack-optimized server which has the following system architectural features:

- AMD Opteron processors
- HyperTransport technology
- Balanced I/O architecture and PCI-X 133 MHz/64-bit expansion
- Lights Out Management with Service Processor

AMD Opteron Processor

The AMD Opteron processor is part of a new computing platform that extends the ubiquitous x86 architecture to accommodate 64-bit processing. Formerly known as x86-64, AMD's enhancements to the x86 architecture allow users of laptops, desktops, workstations, and servers operating within a 32-bit architecture to migrate seamlessly to the superior performance of 64-bit technology. This approach defines a new class of computing by combining full x86 compatibility, a high-performance 64-bit architecture, and the economics of an industry-standard processor. This new class of computing allows the technology industry to build solutions focused on customer needs while removing barriers to future innovation.

Major enhancements over legacy x86 include:

- Sixteen 64-bit general-purpose integer registers that quadruple the general-purpose register space available to applications and device drivers as compared to x86 systems.
- Sixteen 128-bit XMM registers for enhanced multimedia performance to double the register space of any current SSE/SSE2 implementation.
- A full 64-bit virtual address space with 40 bits of physical memory addressing and 48 bits of virtual addressing that can support systems with up to 256 terabytes of physical memory.
- 64-bit operating systems to provide full, transparent, and simultaneous 32-bit and 64-bit platform application multitasking.
- A 128-bit wide, on-chip DDR memory controller supports ECC and ChipKill technologies that provides low-latency memory bandwidth which scales as processors are added.

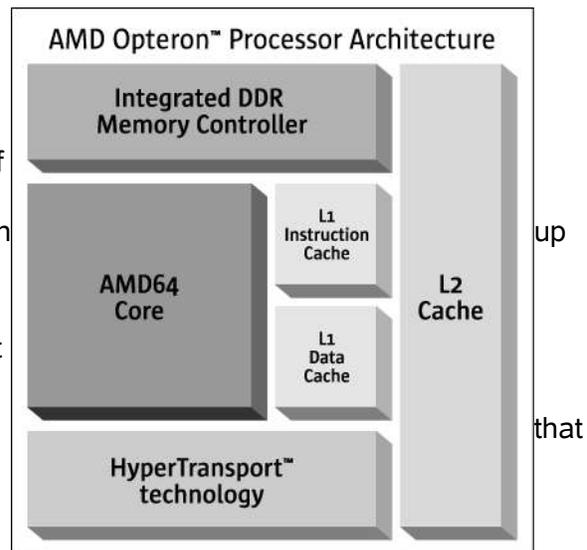


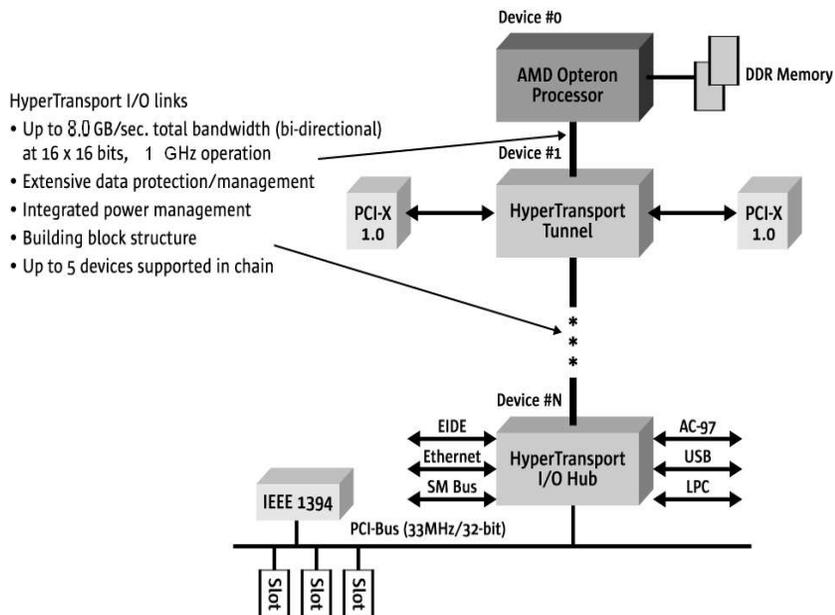
Figure 1. Architecture block diagram for the AMD Opteron processor

HyperTransport Technology

The AMD Opteron processor with integrated-in HyperTransport technology links provides a scalable bandwidth interconnect among processors, I/O subsystems, and other chipsets.

HyperTransport technology interconnects:

- Help to increase overall system performance by removing I/O bottlenecks and efficiently integrating with legacy buses, increasing bandwidth and speed, and reducing latency of processors.
- Provide up to 8.0GB/sec. bandwidth per link at 16 x bits, 1 GHz operation, providing sufficient bandwidth for supporting new interconnects.



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Figure 2. Sample HyperTransport technology interconnect block diagram

Balanced I/O and PCI-X Expansion, with 100MHz/66/MHz/64bit Slots

The I/O architecture for the Sun Fire V40z server is designed to provide balanced I/O, with high bandwidth connectivity to multiple devices with high bandwidth. The AMD-8131 chip provides for Ultra320 SCSI and dual gigabit Ethernet support, while still providing for a PCI expansion slot running at 66MHz/64bit. The PCI-X bridge provides for the four full length/full-height PCI-X slots that runs at 133 MHz [reduced to 100 MHz due to AMD Errata #56]/64bit and one full length/full-height PCI-X slot and one half length/full-height PCI-X slot that both run at 100MHz/64bit and one half-length/half-height 66 MHz/64bit PCI-X slot. These PCI-X slots can be used to connect a high bandwidth, low-latency interconnect such as Myrinet or InfiniBand to make the Sun Fire V40z server a member of a horizontally scaled supercomputer. Although sounding complex, this I/O design is simple with a single HyperTransport off one of the four CPUs in the Sun Fire V40z system.

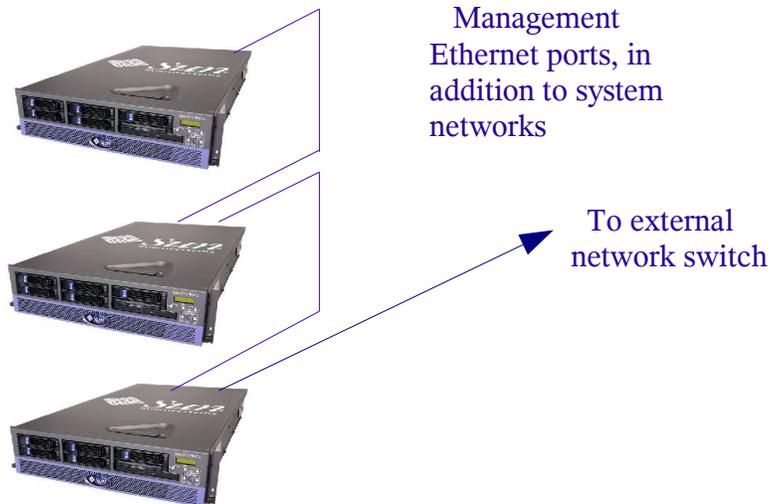
Lights-Out-Management (LOM)

Lights-out management (LOM) is achieved using the on-board, independently powered service processor with its own robust, security hardened OS. Lights Out Management provides remote administration via a CLI remote console or SNMP or IPMI v1.5 protocols using the out-of-band management Ethernet, or using in-band communication thru the running main system operating systems. With out-of-band management, the system administrator can remotely power on/off

the system, monitor system FRU status, and load operating system software and 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:

- Extensive control and reporting over environmental, power, hardware and BIOS/OS features
- Remote flash upgrades of system BIOS and service processor software
- Full suite of remote diagnostics that can allow rapid diagnosis and correction
- User configurable serial console accessible via a physical port or re-directed through management network



System Architecture

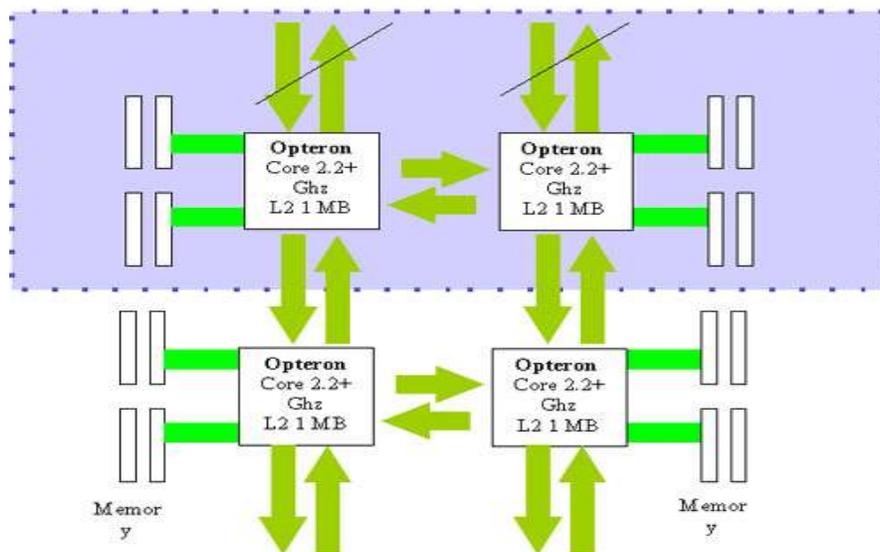
Overview

The Sun Fire V40z server has a very elegant and simple architecture, as shown below. There are up to 4 AMD Opteron processors, interconnected by a dedicated 6.4 GB/sec. HyperTransport link. Each processor controls 2 pairs of DIMM slots, with 5.33GB/second access between processor and memory. Through the HyperTransport, each processor can access the other processor's memory. Using 2GB DIMMs, the Sun Fire V40z provides up to 32GB of memory. DDR1/333 ECC registered memory components sold by Sun are supported. The 852 System configurations announced on 02/15/05 support DDR1/400 MHz DIMMs as well as DDR1/333 MHz DIMMs (but not simultaneously in the same system).

The Sun Fire V40z using the S2 version of the motherboard (e.g. The Sun Fire V40z 4x852 system introduced on 2/15/05) supports dual core processors. Customer have the option to expand a system to up to 8 cores in a compact 3 RU system.

A second HyperTransport link on each of CPU-P0 and CPU-P1 connects to an AMD-8131 PCI-X Tunnel with 6.4 GB/sec throughput as well. The PCI-X channel off CPU-P0 is split between two PCI-X 100MHz/64bit cards (one full length, full height and one half-length, full height), a PCI-X 66 MHz/64-bit half-length/half height expansion card, 2 on-board Gigabit Ethernet channels and a Ultra320 SCSI channel. The Gigabit Ethernet NICs are using a Broadcom controller, whereas the SCSI channel is controlled by LSI controller that provides a built-in RAID-1 mirroring feature. The PCI-X channel of CPU-P1 is dedicated for full 64-bit operation for four PCI-X 133 MHz [reduced to 100 MHz due to AMD Errata #56] expansion cards.

The AMD-8131 bridge also communicates with a AMD-8111 chip via another HyperTransport link. The AMD-8111 HyperTransport I/O hub provides the keyboard and mouse PS/2 connectivity, USB 1.1 connection, an IDE link to the CD or DVD option, as well as a floppy connection. The separately powered Service Processor (SP with Lights Out Management capability or LOM) communicates with the 4 main system processors and the rest of the system via an management I²C bus.



Front and Back

The Sun Fire V40z server provides for front access of the Ultra320 SCSI disk drives, as well as the DVD device and floppy drive. There are some status LEDs up front, as well as system ID switch that, when pushed, would light up an LED in the front and the back of the server. In the back of the servers, there are connections for a power cord, a keyboard PS/2 port, a mouse PS/2 port, a video port, front/rear USB 1.1 ports, dual Gigabit Ethernet ports, and the dual 10/100 BaseT management Ethernet ports, as well some status LEDs and a system ID switch. In addition, there are also seven slots for PCI-X cards.

Note that LCD in the front panel provides only limited information. Any IP address displayed on the LCD panel is likely to be the IP address of the management service processor, not that of the main system. There are 3 buttons associated with the LCD to provide some local control of the server. See instruction manual for more details.

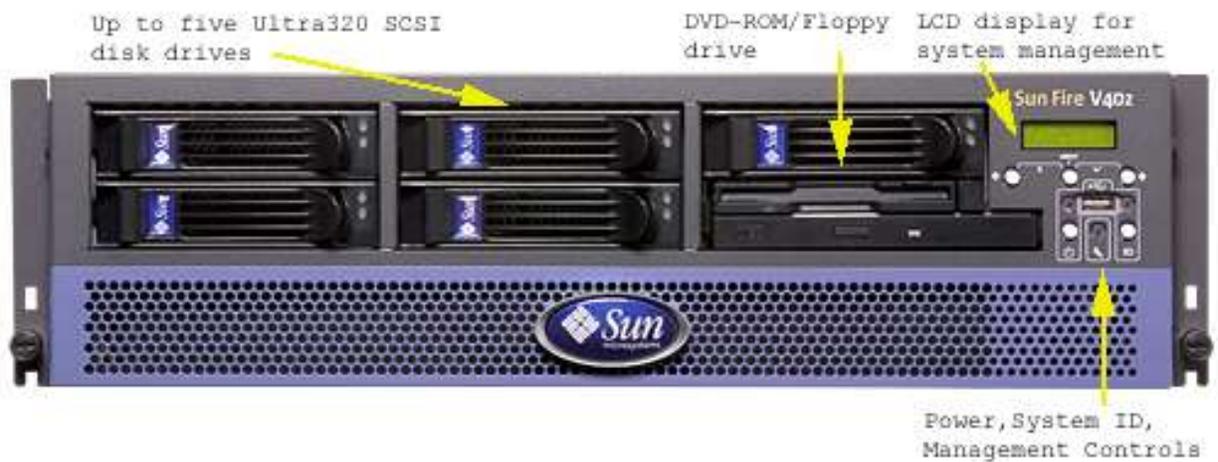


Figure 3. Sun Fire V40z server

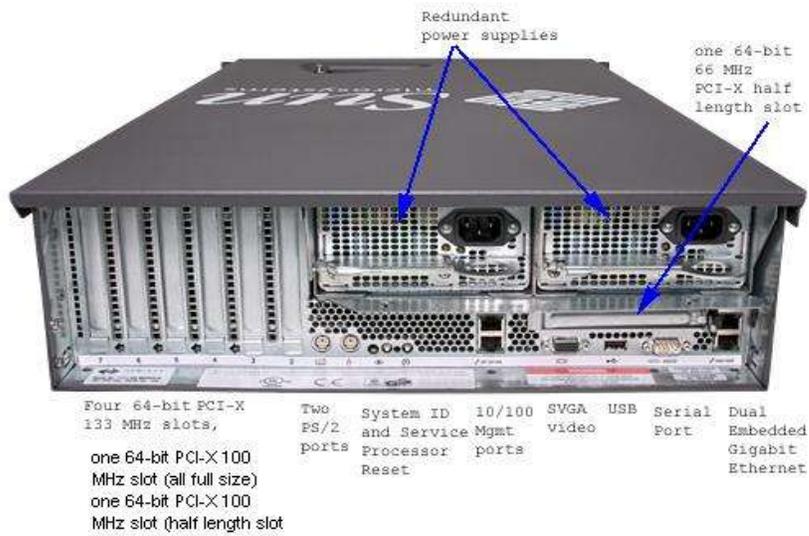


Figure 4. Rear Sun Fire V40z server

Reliability, Availability, and Serviceability (RAS)

Reliability

- Simplicity of design with the AMD Opteron processors and HyperTransport requires less components and thus provides higher reliability
- RAID 1 mirroring of the on-board Ultra320 SCSI disks
- Hot swap drives (hardware capable if OS has appropriate drivers)
- ECC memory with ChipKill™ supported
- Redundant, hot-swappable fan assemblies but not entire fan cage)
- Configurable with redundant, hot-swappable power supplies
- Optional RAID 0,1,5,10,50 PCI-X card

Availability

- The low cost and form factor of the Sun Fire V40z server allow redundant deployment in a compact space to increase overall service availability.
- Service providers can have a separate service per server and provide more services within the same footprint. This eliminates sharing servers and increases availability if the system goes down—only one server would be affected.
- Built-in dual gigabit Ethernet ports provide redundancy.

Serviceability

- Front-accessible, hot-swappable drives.
- 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.
- Rear power switch provides easy access.
- Rack-mount slide rails for easy installation and removal of a unit are available as an X-option.

Operating System

Sun Fire V40z Server Operating Systems

A world-class performance platform, the 64-bit Sun Fire V40z server allows customers to run the operating system that fits their needs. With a multitude of operating systems fully supported and/or certified, the V40z server provides customers with more choices, within the same hardware architecture, than competing servers in its class. The Sun Fire V40z server provides a high performance hardware platform for multiple 32-bit and 64-bit OS. Below is a table of supported operating systems for the V40z. For the latest information, please see <http://www.sun.com/servers/entry/v40z/os.html>.

| Operating Systems | | Single core systems | Dual core systems | Factory Pre-installed | Sold by Sun | V40z Support by Sun |
|------------------------------------------------------------|---------------|---------------------|-------------------|-----------------------|-------------|---------------------|
| Solaris 10 on x64 | 64-bit | Yes | Yes | Yes | Free | Yes |
| Solaris 9 09/05 x86 Platform Edition | 32-bit | Yes ² | Yes ² | Yes ² | Yes | Yes |
| Solaris 9 9/04 x86 Platform Edition | 32-bit | Yes | No | No | Yes | Yes |
| Solaris 9 4/04 x86 Platform Edition | 32-bit | Yes | No | Yes ¹ | Yes | Yes |
| Red Hat Enterprise Linux 3, U1-4 | 32-bit/64-bit | Yes | No | No | Yes | Yes |
| Red Hat Enterprise Linux 3, U5-6 | 32-bit/64-bit | Yes | Yes | No | Yes | Yes |
| Red Hat Enterprise Linux 4 | 32-bit | Yes | No | No | Yes | Yes |
| Red Hat Enterprise Linux 4, U1 | 32-bit/64-bit | Yes | Yes | No | Yes | Yes |
| SUSE Linux Enterprise Server 8 SP 3 | 64-bit | Yes | No | No | Yes | Yes |
| SUSE Linux Enterprise Server 9 SP 1 | 64-bit | Yes | Yes | No | Yes | Yes |
| SUSE Linux Enterprise Server 9 SP 2 | 64-bit | Yes | Yes | No | Yes | Yes |
| VMware ESX Server 2.5.2 | | Yes | Yes | No | No | No |
| VMware ESX Server 2.5.1 | | Yes | Pending | No | No | No |
| VMware ESX Server 2.5 | | Yes | Pending | No | No | No |
| Windows Server 2003, Enterprise, Standard and Web Editions | 32-bit | Yes | Pending | No | No | No |
| Windows Server 2003, Enterprise and Standard x64 Editions | 64-bit | Yes | Yes | No | No | No |
| Windows 2000 Advanced Server | 32-bit | Yes | No | No | No | No |
| Windows 2000 Server | 32-bit | Yes | No | No | No | No |

1. Older Sun Fire Systems can use a media kit with Solaris 9 HW 4/04 OS, x86 Platform Edition a Sun Fire V40z-specific Hardware release of Solaris 9 x86 – it is an updated version (i.e. different version) of Solaris 9 4/04 OS, x86 Platform Edition as used on Sun Fire V20z. Sun Fire V20z bundled Solaris media kits should NOT be used on Sun Fire V40z – please use the media kit specifically bundled with Sun Fire V40z.
2. Sun Fire V40z based on S2 motherboards (configurations A57*A or XATO A57B-AA based) will support a pre-install option of Solaris 9 9/05, x86 Platform Edition approximately in September 2005. This provides the ability

Sun Fire V40z Server

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Just the Facts, February 1, 2006

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to configure a Sun Fire V40z and Java Enterprise System with the customer's exact specifications and deliver with a pre-installed Solaris 9 HW OS, x86 Platform Edition image on the internal disk. Solaris 9 HW 4/04 OS, x86 Platform Edition pre-install XATO option is discontinued. This option will also include the appropriate Solaris Right-To-Use license. The Java Enterprise System will be an evaluation copy and require a separately purchased Right-To-Use license beyond the evaluation period.

Solaris™ 10 Operating System – In a Class By Itself

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 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 making it possible 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** (zettabyte 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™, AMD Opteron™ and Intel Xeon™ processors as well as:
 - **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 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 “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** 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 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 platforms.
- **Solaris Application Guarantee Program.** This program guarantees binary compatibility between versions of Solaris 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 are:** Glib, Gtk+, JPEG, PNG, TIFF, and XML2
 - **Hundreds of Linux applications and libraries** are provided with the Solaris OS including the GNOME desktop.
 - **Solaris Linux Application Environment** allows Linux applications to run unchanged on the Solaris OS when coupled with a Linux distribution.
 - **Linux Compatibility Assurance Toolkit (LinCat)** helps to simplify the process of porting Linux applications to run natively on the Solaris OS.

Support

- Sun provides full services and support for the Solaris OS (x86 Platform Edition) on Sun and third party-certified systems.

Pricing

Solaris 10 is free to end-users with registration and is available via free download. Media kits are available for purchase.

Linux - Complementing Sun's Solaris 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 Java

Enterprise System, 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 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 Sun's Java Enterprise System for Linux, customers can standardize on a set of Java-based network services across their heterogeneous infrastructure.
- A growing line of Sun and third-party Intel Xeon and AMD Opteron-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) hardware platforms from Sun and third parties.
- Selling the simplest and most comprehensive middleware & web services offering with Java Enterprise System.

- **Optimized Java – Java Everywhere – Broaden the reach of Java investments**

- Sun is focused on maximizing Java 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) included as part of the OS distributions. (The JVM technology allows the Java 2 Platform to host applications on any computer or operating system without rewrite or recompile).

Pricing

Linux is available for the Sun Fire V40z at additional charge.

Support

All levels of support provide access to either Red Hat Network or SUSE's Linux Portal. During the support period, if any new versions of SLES or RHEL for AMD64 are made available, users with current support entitlements have access to those new versions from the maintenance sites of Red Hat and SUSE.

Subscriptions are available with or without media (CDs, manuals). This provides customers the flexibility to purchase Enterprise Linux in the most efficient manner to match their individual requirements.

“Designed for Windows” Certification

Key Messaging

To ensure investment protection and to provide customers with the option to install an alternative OS if they choose to do so, the Sun Fire V40z server is certified under the “Designed for Windows” program to run the Microsoft Windows 2000 Server and Windows Server 2003 Enterprise Edition operating systems. For more information about this alternative, visit ::

<http://www.microsoft.com/windows/catalog/server/default.aspx?subID=22&xslt=hardwarehome>

Click “Servers” on the left most side of screen, then “Server” (not Datacenter). Enter “Sun Fire” in search field to see the available Sun Fire server Windows certifications.

Support

While the Sun Fire V40z is certified to support these Windows server operating systems, software and support are provided by 3rd parties only. The certification encompasses the base server hardware with the supported CPU and memory.

Microsoft Windows Device Drivers

Microsoft Windows 2000/2003 device drivers for Sun Fire V40z can be obtained from Sun at:

<http://www.sun.com/v40z/downloads.html>

Installation Data

Sun Fire V40z Server Specifications

Processor Options

| | |
|-----------|--------------------------------------------------------------------------------------------------------------|
| Processor | Two or four AMD Opteron Processor 800 Series (single-core 844, 848, 850, 852, 854) (dual-core 870, 875, 880) |
| Cache | 1 MB Level 2 per core |

Main Memory

| |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4 DIMM slots per processor, DDR1/333 ECC registered DIMMs (128 bit plus ECC databus), total 16 DIMM slots. Selected new systems introduced after 2/15/05 (with system part numbers A57*A or A57B-AA based) use DDR1/400 ECC registered DIMMs (see limitations in "XATO Option configurations for memory, disk, and CPU" section). |
| System configurations from 2 GB up to 32 GB. |

Standard/Integrated Interfaces

| | |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network | Two 10/100/1000Base-T Ethernet ports |
| Network management | One dedicated 10/100Base-T Ethernet port with integrated 2 ports switch for daisy-chaining |
| Serial | One TIA/EIA-232-F asynchronous RJ45 Port |
| SCSI | Single Ultra320 SCSI interface, internal access only. No external SCSI port. |
| USB | Two USB 1.1 ports (1 front, one rear) |
| Expansion bus | Seven internal PCI-X slots (four full-length/full-height at 64-bit/100 MHz [reduced from 133 MHz due to AMD Errata #56], one full-length/full-height at 64-bit/100 MHz, one half-length/full-height at 64-bit/100 MHz, and one half-length/half-height at 64-bit/66 MHz) |

Mass Storage and Media

| | |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal disk | Up to six hot-swap Ultra320 SCSI disks (sixth bay is DVD/floppy and must be deleted for the sixth drive – XATO only – Webdesk modified to allow in November) |
| Internal DVD or CD-ROM | One Slim-line ATAPI DVD-ROM (std– takes up sixth drive bay) |
| External disk | See "External Storage configurations and Options" section |

Software

| | |
|------------------------|---------------------------------------------------------------------------------------------------|
| Operating environment | See "Sun Fire V40z Server Operating Systems" section |
| Java Enterprise System | Solaris 10 on x64, Solaris 9 Operating System (x86 Platform Edition) Standard Linux distributions |
| Programming Languages | C/C++, FORTRAN, Java programming language, all other standard Sun-supported languages |

| | |
|------------|--------------------------------------------------------------------------------------------------------------|
| Networking | ONC™, ONC+, NFS, WebNFS, TCP/IP, SunLink™, OSI, MHS, IPX™/SPX, SMB technologies, and XML |
| Management | Command Line over SSH (in-band and out-of-band), IPMI 1.5 (in-band and out-of-band), SNMP (out-of-band only) |

Localization

| | |
|---------------------|-----------------------------------|
| Languages Supported | Over 37 languages and 162 locales |
|---------------------|-----------------------------------|

Power Supplies

| | |
|-------------------------------|-------|
| Two power supplies, redundant | |
| Maximum AC Input | 980 W |

Environment

| | |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------|
| AC power | 90–264 V AC (47–63 Hz) |
| Operating temperature (single, non-rack system) | 5° C to 35° C (41° F to 95° F), 10% to 90% relative humidity, noncondensing, 27° C max wet bulb |
| Nonoperating temperature (single, non-rack system) | -40° C to 65° C (-40° F to 149° F), up to 93% relative humidity, noncondensing, 38° C max wet bulb |
| Altitude (operating) (single, non-rack system) | Up to 3000 m, maximum ambient temperature is derated by 1° C per 500 m above 500 m |
| Altitude (nonoperating) (single, non-rack system) | Up to 12000 m |
| Acoustic noise (single, non-rack system) | Less than 6.7B sound power in ambient temperature of up to 24C. |

Regulations

| | |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Meets or exceeds the following requirements: | |
| Safety | IEC60950, UL/CSA60950, EN60950 |
| RFI/EMI | FCC Class A, Part 15 47 CFR, EN55022, CISPR 22 |
| Immunity | EN55024 |
| Certifications Safety EMC | cULus Mark, TUV GS Mark, CE Mark, CCC, GOST, S-Mark CE Mark (93/68/EEC), FCC authorized Class A, VCCI, BSMI, CTICK, MIC, ICES, CCC, GOST |

Dimensions and Weight

| | |
|-------------------------|------------------------|
| Chassis | |
| Height | 133 mm (5.3 in.) |
| Width | 445 mm (17.5 in.) |
| Depth | 756 mm (29.8 in.) |
| Weight (with packaging) | 34 kg (75 lb.) maximum |

System Requirements, Configuration and Management

System Requirements

The Sun Fire V40z server runs the Solaris Operating System on x64 as well as standard Linux distributions and and Microsoft Windows 2000 and Microsoft Server 2003.

System Configuration

The Sun Fire V40z server has the following standard components:

- 2 or 4 x AMD Opteron Processor 800 Series (844 (1.6 GHz), 848 (2.2 GHz), 850 (2.4 GHz), 852 (2.6 GHz), 854 (2.8 GHz), 870 dual core (2.0 GHz), 875 dual core (2.2 GHz), 880 dual core (2.4 GHz))
- DDR1/333 MHz Registered ECC DIMMS - Up to 16 GB (2 CPU system) or 32 GB (4 CPU system) main memory
- DDR1/400 MHz Registered ECC DIMMS - Up to 16 GB (2 CPU system) or 32 GB (4 CPU system) main memory BIOS release 2.32.8.2 (NSV 2.3.0.6h) or later.
- AC power supply(can be configured as redundant, hot-swappable)
- Seven 64-bit PCI-X slots (four full length/full-height at 133MHz [reduced to 100 MHz due to AMD Errata #56], one full length/full-height at 100 MHz, one half length/full-height at 100 MHz, one half length/half-height at 66MHz)
- six disk drive bays, one optical drive can be placed in sixth drive bay.
- Two USB 1.1 ports (one front, one rear)
- Two 10/100/1000Base-T Ethernet ports
- Lights Out Management (LOM) with two dedicated 10/100BaseT Ethernet ports
- 19-inch rack-mount kits for both 28" and 30" deep racks (optional)

For list of support OS versions, please refer to section "Sun Fire V40z Server Operating Systems Support "

Licensing/Usage

The Sun Fire V40z server can be ordered either with the Solaris 9 OS (x86 Platform Edition) server license or Linux from Sun. Solaris 10 on x64 RTU is given free when the system is registered with Sun. Windows must be purchased from Microsoft or their partners/resellers.

MTBF Information

The MTBF for the Sun Fire V40z server varies depending upon configuration. Operating at 35° C, the MTBF is predicted by calculations to be approximately 35,000 hours.

BTU Information

BTUs/hr for the Sun Fire V40z will vary depending upon configuration. Estimates are provided for informational purposes for systems populated with the dual-core Opteron 880 processors.

- A Sun Fire V40z Server with two AMD dual-core Opteron 880 (2.2 GHz), 4 x 1GB RAM, and 1 x 73GB disk is estimated to be 360 W = 1228 BTUs/hr

Rack Mounting

The Sun Fire V40z server is 5.3 inches (133 mm) high, 17.5 inches (445 mm) wide and 29.75 inches (756 mm) deep. The air-flow direction is from front to back. I/O ports are located on the rear panels. Informational LEDs are located on the front panel as well on an LCD panel for Service Processor (SP) configuration. Access to the power connection is at the rear of the chassis.

The optional slide rail kit (X9267A) is a 4-point mounted slide rail kit only. It is designed to enable Sun FireV40z servers to be racked in a Sun Rack 900-38, Sun Rack 1000-38, Sun Rack 1000-42 and 3rd party EIA 310D compliant racks which have mounting depths of 27-30 inches. Please note that not all 3rd party racks meet these parameters. The slides are usable on racks with a rail-to-rail spacing of 26.88-30.63 inches.

The optional slide rail kit, X3894A, is a 4-point mounted slide rail kit only. It is designed to enable Sun Fire V40z servers to be racked in 30" deep third party racks.

Both slide rail kits 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

No other kits will be available to allow 2 point, front-mount, nor mid-mount configuration.

Rack Density

Currently, there are no rack vendors in the marketplace that allow you to completely fill a rack with this type of server, due to the amount of heat produced.

Up to twelve Sun Fire V40z servers have been qualified in a Sun Rack 1000-38. The operational environmental range is as follows:

Temperature/Altitude for **Unit-Level**: 35 *C at 0 m and a derating of 1 *C for every 300 m in altitude up to 3000 m maximum.

Temperature/Altitude for **Rack-Level**: 30 *C at 0 m and a derating of 1 *C for every 300 m in altitude up to 3000 m maximum.

Performance Benchmarks—Reference

Public benchmark information available at: <http://www.sun.com/v40z/benchmarks.html>

Origin statement

The Sun Fire V40z has components from various countries of origin. The motherboard is manufactured in the USA. The power supply/chassis are manufactured in China. The commodity parts such as disk drivers, memory, and CPU come from a various of countries.

Final systems assembly is performed in Guadalajara, Mexico.

Hardware Global compliance

Hardware Global compliance for this product complies with the guidelines as specified for hardware at:

<http://global.sfbay/compliance/i18n/i10nbigrules.html>

The localized documents will be located at:

http://www.sun.com/products-n-solutions/hardware/docs/Servers/Workgroup_Servers/Sun_Fire_V40z/index.html

or

http://www.sun.com/products-n-solutions/hardware/docs/Servers/Workgroup_Servers/Sun_Fire_V40z/index.html

AMD Errata #56

A rare condition exists on Sun Fire V20z/V40z systems with the AMD 8131 chipset whereby data integrity could be adversely affected.

Note: AMD has issued "Errata #56" detailing this condition, available at http://www.amd.com/us-en/assets/content_type/white_papers_and_tech_docs/26310.pdf.

Contributing Factors

This issue can occur on the following platform:

- Sun Fire V20z/V40z without NSV (BIOS Update) version 2.1.0.16 (NSV bundles)

Note: This condition affects PCI-X cards in 133 MHz slots only.

Symptoms

Stale data can be delivered to a PCI-X card running at 133 MHz via split completion cycles. There are no visible indications that this condition has occurred.

Resolution:

This issue is addressed on the following platform:

- Sun Fire V20z/V40z with NSV (BIOS Update) version 2.1.0.16 (NSV bundles)

This BIOS update can be downloaded from

<http://www.sun.com/software/download/products/416df7a5.html>.

Note: Sun is providing this BIOS solution (as recommended by AMD) to resolve this issue for high-speed 1, 2, or 3 function PCI-X cards. Sun Fire V20z systems will need to use the 66 MHz slot when utilizing either "4-function" PCI-X cards or 133 MHz cards. "4-function" PCI-X cards (such as Sun's X9273A Gigabit Quad Ethernet card) are not addressed by this BIOS update.

Sun does not recommend or support a "4-function" PCI-X card in a 133 MHz slot (one slot in Sun Fire V20z, four slots in Sun Fire V40z). Note that 4 function PCI cards run at a maximum of 66 MHz and can run in any PCI-X slot. They are not affected by AMD Errata #56.

Sun Alert ID: 57680

<http://classic.sunsolve.sun.com/pub-cgi/retrieve.pl?doc=fsalert%2F57680>

IPMItool for Solaris

Both Solaris SPARC x86 packages for ipmitool 1.6.0 are at:

[http://sourceforge.net/project/showfiles.php?](http://sourceforge.net/project/showfiles.php?group_id=95200&package_id=101411&release_id=267131)

[group_id=95200&package_id=101411&release_id=267131](http://sourceforge.net/project/showfiles.php?group_id=95200&package_id=101411&release_id=267131)

They are also available internally with a link to Solaris on x64 KCS driver at:

<http://webhome.sfbay/duncan/ipmitool/1.6.0/>

The Sun Fire V20z resource CD includes a version of ipmitool (and the ipmi driver) for Solaris on x64. For Solaris 10 ipmitool 1.5.9 will be included with the OS.

Sun Cluster Support

For more information, please go to:

<http://suncluster.eng.sun.com>

Ordering Information

Current Sun Fire V40z Server Factory Standard Configurations:

| Part Number | Description | Availability |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| A57-QZB416GTB7A | 4xAMD Opteron 880 dual core processors,16GB RAM (8x 2 GB DIMMs), 2x146 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive, Two redundant power supplies, Power cords ordered separately, Solaris 10 pre-installed. E-Stepping ,S2. | 10/11/05 EMEA EOL-01/10/06 |
| A57-QFB416GRB7A | 4xAMD Opteron 875 dual core processors,16GB RAM (8x 2 GB DIMMs), 2x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive, Two redundant power supplies, Power cords ordered separately, Solaris 10 pre-installed. E-Stepping ,S2. | 05/03/05 EMEA EOL-01/10/06 |
| A57-QYB24GRA7A | 2xAMD Opteron 870 dual core processors, 4GB RAM (4x1GB DDR1/400DIMMs), 1x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately, Solaris 10/JavaES3 pre-installed, Std. Config., E-Stepping, S2. | 07/12/05 EMEA EOL-01/10/06 |
| A57-MPB24GRA7A | 2xAMD Opteron 854processors, 4GB RAM (4x1GB DIMMs), 2x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately,Solaris 10 pre-installed, Std. Config., E-Stepping, S2. | 09/13/05 EMEA EOL-01/10/06 |
| A57-MGB416GRB7A | 4xAMD Opteron 852 processors, 16GB RAM (8x2GB DIMMs), 2x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately,Solaris 10 pre-installed, Std. Config., E-Stepping, S2. | 02/15/05 EMEA EOL-01/10/06 |
| A57-MZB24GRA7A | 2xAMD Opteron 850 processors, 4GB DDR1/400 ECC RAM (4x1GB DIMMs), 1x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately, Solaris 10 pre-installed S2.incl | 07/12/05 EMEA EOL-01/10/06 |
| A57-MFB22GRA7A | 2xAMD Opteron 848 processors, GB DDR1/400 ECC RAM (4x 512 MB DIMMs), 1x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately, Sol 9 x86 HW 4/04 evaluation media kit included, S2. | 08/23/05 EMEA EOL-01/10/06 |

Current Sun Fire V40z Server CRS Systems:

The CRS systems are “Customer Ready Systems” that are custom-built by the CRS team. These systems are identical to their Standard configuration counterparts, but require CRS-specific part numbers in order for the factory to build them.

| CRS Part Number | Description | Availability |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| A57-QZB416GTB7A-IP | 4xAMD Opteron 880 dual core processors,16GB RAM (8x 2 GB DIMMs), 2x146 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive, Two redundant power supplies, Power cords ordered separately, Solaris 10 pre-installed. E-Stepping ,S2. | 10/11/05 EMEA EOL-01/10/06 |

| CRS Part Number | Description | Availability |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| A57-QFB416GRB7A-IP | 4xAMD Opteron 875 dual core processors,16GB RAM (8x2GB DIMMs), 2x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive, Two redundant power supplies, Power cords ordered separately, Solaris 10 pre-installed. E-Stepping ,S2. | 05/03/05 EMEA EOL-01/10/06 |
| A57-QYB24GRA7A-IP | 2xAMD Opteron 870 dual core processors, 4GB RAM (4x1GB DDR1/400DIMMs), 1x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately, Solaris 10/JavaES3 pre-installed, Std. Config., E-Stepping, S2. | 07/12/05 EMEA EOL-01/10/06 |
| A57-MPB24GRA7A-IP | 2xAMD Opteron 854 processors, 4GB RAM (4x1GB DIMMs), 2x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately,Solaris 10 pre-installed, Std. Config., E-Stepping, S2. | 09/13/05 EMEA EOL-01/10/06 |
| A57-MGB416GRB7A-IP | 4xAMD Opteron 852 processors, 16GB RAM (8x2GB DIMMs), 2x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately,Solaris 10 pre-installed, Std. Config., E-Stepping, S2. | 02/15/05 EMEA EOL-01/10/06 |
| A57-MZB24GRA7A-IP | 2xAMD Opteron 850 processors, 4GB DDR1/400 ECC RAM (4x1GB DIMMs), 1x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately, Solaris 10 pre-installed S2.incl | 07/12/05 EMEA EOL-01/10/06 |
| A57-MFB22GRA7A-IP | 2xAMD Opteron 848 processors, GB DDR1/400 ECC RAM (4x 512 MB DIMMs), 1x73 GB U320 SCSI drive 10K RPM, DVD-ROM/floppy combination drive,Two redundant power supplies, Power cords ordered separately, Sol 9 x86 HW 4/04 evaluation media kit included, S2. | 08/23/05 EMEA EOL-01/10/06 |

Sun Fire V40z Server XATO Chassis Option:

| Part Number | Description | Availability |
|-------------|----------------------------------------------|-------------------------------|
| A57B-AA | V40z S2 Base Chassis , motherboard, two PSUs | 02/15/05 EMEA EOL-01/10/06 |
| A57A-AA | V40z Base Chassis, motherboard, two PSUs | RR EOL- 08/23/05 |

Due to regulatory requirements of other countries, Sun Fire V40z 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 two** for 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 |

| Part Number | Description |
|--------------------|---------------------------------------|
| X317L | (U.K.) Localized power cord kit |
| X332A | (Taiwan) Localized power cord kit |
| #180-1995 | (Danish) Localized power cord kit |
| X384L | (Italian) Localized power cord kit |
| X386L | (Australian) Localized power cord kit |

Sun Fire V40z Server (X)ATO Options:

The following part numbers are available as X- , XATO options as noted for the Sun Fire V40z Server:

| X-option | XATO | Description | Availability |
|--------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| A57*7 or A57A-AA compatible CPUs and daughterboards w/CPUS | | | |
| X9283A | 9283A | 2x AMD Opteron 844 (1.8 GHz),daughterboard, VRMs, heatsinks (compatible only with A57*7 or A57A-AA XATO chassis) | GA EOL 07/12/05 |
| X9284A | 9284A | 2x AMD Opteron 848 (2.2 GHz),daughterboard, VRMs, heatsinks (compatible only with A57*7 or A57A-AA XATO chassis) | GA EOL 07/12/05 |
| X9285A | 9285A | 2x AMD Opteron 850 (2.4 GHz),daughterboard, VRMs, heatsinks (compatible only with A57*7 or A57A-AA XATO chassis) | GA EOL 07/12/05 |
| | 9286A | AMD Opteron 844 CPU (1.8 GHz) XATO ONLY -must be ordered in pair (compatible only with A57*7 or A57A-AA XATO chassis) | GA EOL 07/12/05 |
| | 9287A | AMD Opteron 848 CPU (2.2 GHz) XATO ONLY -must be ordered in pair (compatible only with A57*7 or A57A-AA XATO chassis) | GA EOL 07/12/05 |
| | 9288A | AMD Opteron 850 CPU (2.4 GHz) XATO ONLY -must be ordered in pair (compatible only with A57*7 or A57A-AA XATO chassis) | GA EOL 07/12/05 |
| A57*7A or A57B-AA compatible CPUs and daughterboards w/CPUS | | | |
| X7243A | 7243A | Sun Fire V40z daughterboard with two AMD Opteron 848 CPUs with VRMs and heatsinks. Use only with matching CPU models. Expands dual CPU systems to quad CPU capability. E-stepping. S2.0 | RR/GA 08/23/05 EMEA EOL- 01/10/06 |
| X7245A | 7245A | Sun Fire V40z daughterboard with two AMD Opteron 854 CPUs with VRMs and heatsinks. Use only with matching CPU models. Expands dual CPU systems to quad CPU capability. E-stepping. S2.0 | RR/GA 09/13/05 EMEA EOL- 01/10/06 |
| X7249A | 7249A | Sun Fire V40z daughterboard with two AMD Opteron 880 CPUs with VRMs and heatsinks. Use only with matching CPU models. Expands dual CPU systems to quad CPU capability. E-stepping. S2.0 | RR/GA 10/11/05 EMEA EOL- 01/10/06 |
| X9862A | 9862A | Sun Fire V40z daughterboard with two AMD Opteron 850 CPUs with VRMs and heatsinks. Use only with matching CPU models. Expands dual CPU systems to quad CPU capability. E-stepping. S2.0 | RR/GA 07/12/05 EMEA EOL- 01/10/06 |
| X9863A | 9863A | Sun Fire V40z daughterboard with two AMD Opteron 852 CPUs with VRMs and heatsinks. Use only with matching CPU models. Expands dual CPU systems to quad CPU capability. E-stepping. S2.0 | RR 5/12/05 GA 6/13/05 EMEA EOL- 01/10/06 |

| X-option | XATO | Description | Availability |
|-----------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|
| | 7242A | Sun Fire V40z AMD Opteron 848 CPU. Must be ordered in pairs. XATO only. E-stepping. S2.0.included | RR/GA 08/23/05 EMEA EOL- 01/10/06 |
| | 7244A | Sun Fire V40z AMD Opteron 854 CPU. Must be ordered in pairs. XATO only. E-stepping. S2.0.included | RR/GA 09/13/05 EMEA EOL- 01/10/06 |
| X7248A | | Sun Fire V40z AMD Opteron 880 (dual core) CPU. Must be ordered in pairs. RoHS-5. | RR/GA 12/06/05 EMEA EOL- 01/10/06 |
| X9869A | 9869A | Sun Fire V40z AMD Opteron 850 CPU. Must be ordered in pairs. XATO only. E-stepping. S2.0 | RR/GA 07/12/05 EMEA EOL- 01/10/06 |
| | 9870A | Sun Fire V40z AMD Opteron 852 CPU. Must be ordered in pairs. XATO only. E-stepping. S2.0.included | RR 5/12/05 GA 6/13/05 EMEA EOL- 01/10/06 |
| X9895A | 9895A | Sun Fire V40z daughterboard with two AMD Opteron 870 CPUs with VRMs and heatsinks. Use only with matching CPU models. Expands dual CPU(dual core) systems to quad CPU dual core) capability. E-stepping. S2.0 | RR/GA 7/12/05 EMEA EOL- 01/10/06 |
| X9896A | 9896A | Sun Fire V40z daughterboard with two AMD Opteron 875 CPUs with VRMs and heatsinks. Use only with matching CPU models. Expands dual CPU(dual core) systems to quad CPU dual core) capability. E-stepping. S2.0 | RR 6/24/05 GA 6/30/05 EMEA EOL- 01/10/06 |
| | 9897A | Sun Fire V40z AMD Opteron 870 (Dual Core). Must be ordered in pairs. XATO only. | RR/GA 7/12/05 EMEA EOL- 01/10/06 |
| | 9898A | Sun Fire V40z AMD Opteron 875 (Dual Core). Must be ordered in pairs. XATO only. | RR 6/24/05 GA 6/30/05 EMEA EOL- 01/10/06 |
| | 7248A | Sun Fire V40z AMD Opteron 880 CPU. Must be ordered in pairs. XATO only. E-stepping. S2.0.included | RR/GA 10/11/05 EMEA EOL- 01/10/06 |
| X9251A | 9251A | 1GB ECC DDR/333 (2x512MB DIMMs) | GA, EMEA EOL- 01/10/06 |
| X9252A | 9252A | 2GB ECC DDR/333 (2x1GB DIMMs) | GA, EMEA EOL- 01/10/06 |

| X-option | XATO | Description | Availability |
|-----------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| X9266A | 9266A | 4GB ECC DDR/333 (2x2GB DIMMs) V40z only | GA, EMEA EOL- 01/10/06 |
| X9295A | 9295A | 1GB ECC DDR/400 (2x512MB DIMMs) (compatible only with A57*A or A57B-AA XATO chassis) | RR/GA 3/18/05 EMEA EOL- 01/10/06 |
| X9296A | 9296A | 2GB ECC DDR/400 (2x1GB DIMMs) (compatible only with A57*A or A57B-AA XATO chassis) | RR/GA 3/18/05 EMEA EOL- 01/10/06 |
| X9297A | 9297A | 4GB ECC DDR/400 (2x2GB DIMMs) (compatible only with A57*A or A57B-AA XATO chassis) V40z only | RR/GA 3/18/05 EMEA EOL- 01/10/06 |
| | 9839A | Option to create Sun Fire V20z/V40z XATO configuration without any installed hard disk drive. | RR/GA 3/18/05 EMEA EOL- 01/10/06 |
| | 9848A | Pre-installed Solaris 10 OS, x86 Platform Edition and Java Enterprise Server on a Sun Fire V20z or V40z 146 GB 10K RPM disk only. Right-To-Use (RTU) license included. XATO ONLY. | RR/GA 11/1/05 |
| X9254A | 9254A | 36GB Ultra320 SCSI 10K RPM disk drive | LOD - 12/03/04 |
| X9256A | 9256A | 73GB Ultra320 SCSI 10K RPM disk drive | GA EMEA EOL- 01/10/06 |
| X9291A | 9291A | 73GB Ultra320 SCSI 15K RPM disk drive | GA EMEA EOL- 01/10/06 |
| X9257A | 9257A | 146GB Ultra320 SCSI 10K RPM disk drive | GA EMEA EOL- 01/10/06 |
| X9883A | 9883A | 300GB Ultra320 SCSI 10K RPM disk drive | RR/GA 04/15/05 EMEA EOL- 01/10/06 |
| X9289A | 9289A | Sun Fire V40z DVD/floppy drive | GA EMEA EOL- 01/10/06 |
| X9290A | 9290A | Sun Fire V40z spare power supply (for spare stocking) | GA EMEA EOL- 01/10/06 |
| | 9891A | Factory option to create Sun fire V40z XATO configurations without any installed optical drive (signals need blocking plate). Use only with A57B-AA XATO chassis. | 07/12/05 EMEA EOL- 01/10/06 |

| X-option | XATO | Description | Availability |
|----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| X3794A | | Slide rail kit for Sun Fire V20z and V40z. Fits Sun and selected third-party racks. Replaces X9267A. | EMEA EOL-01/10/06 |
| X9267A | | Sun Fire V40z Slide Rail Kit | GA EOL-11/22/05 |
| X9293A | | Sun Fire V40z Cable Management Arm | GA, EMEA EOL-01/10/06 |
| X1233A | | Infiniband HCA Low Profile PCI-X Card (6.7"x2.5"), 133-MHz card (Mellanox) | EOL-01/10/06 |
| X1333A-4 | 2333A-4 | Sun Dual Port 4x IB Host Channel Adapter Low Profile PCI-X card. Includes std bracket. Used to provide 4x (10Gbps) connectivity to Infiniband Fabric Network. RoHS compliant | 01/10/06 |
| X4445A | 4445A | Sun Quad GigSwift PCI-X Ethernet UTP - RoHS compliant Adapter (QGE-X) is a half length PCI card with four 10/100/1000 BASE-T Ethernet interfaces in a single card | RR/GA 11/08/05 EOL-01/10/06 |
| | | | |
| X5544A | 4455A | Sun 10-Gigabit Ethernet (850nmFX) Low Profile PCI-X Card, (6.6"x2.5"), 66/133MHz | Q2CY05 EOL-01/10/06 |
| X5544A-4 | 4455A-4 | Sun 10-Gigabit Ethernet (850nmFX) Low Profile PCI-X Card, 133Mhz, requires MMF or SMF transceiver: X5558A or third party. RoHS compliant | 01/10/06 |
| X7285A | | Sun PCI-X Dual Gigabit Ethernet UTP, Low Profile,RoHS compliant | Q4CY05 |
| X7286A | | Sun PCI-X Gigabit Ethernet MMF, Low Profile, RoHS compliant | Q4CY05 |
| X9265A | 9265A | Ultra320 SCSI Dual Channel Half-Length/Full-Height PCI-X Card,33/66/100/133 MHz (LSI Logic LSI22320-R) | GA, EMEA EOL-01/10/06 |
| X9269A | 9269A | RAID Controller Half-Length/Full-Height PCI-X Card,(6.8"x 4.2"), 66/133 MHz card , 128 MB RAM (LSI Logic MegaRAID 320-2128). | GA EOL-11/22/05 |
| X9270A | 9270A | Infiniband HCA Low Profile PCI-X Card (6.7"x2.5"), 133-MHz card (Topspin HCA) | Q3CY04 |
| X9271A | 9271A | Single Port Gigabit Ethernet Low Profile PCI-X Card, (6.6"x2.5"), 33/66/100/133 MHz card (Intel Pro/1000 MT single port - PWLA8490MT) | GA EOL-01/10/06 |
| X9272A | 9272A | Dual Port Gigabit Ethernet Low Profile PCI-X Card, (6.6"x2.5"), 33/66/100/133 MHz card (Intel Pro/1000 MT dual port – PWLA8492MT) Linux requires workaround: http://www.sun.com/products-n-solutions/hardware/docs/Servers/Workgroup_Servers/Sun_Fire_V20z/index.html | EOL-01/10/06 |
| X9273A | 9273A | Quad Port Gigabit Ethernet Half-Length/Full-Height PCI-X Card (6.6"x 4.2"), 33/66/100/133 MHz card (Intel Pro/1000 MT dual port - PWLA8494MT) | GA EMEA EOL-01/10/06 |

| X-option | XATO | Description | Availability |
|------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|
| X9279A | 9279A | Single-port, 2-GB/Sec FC-AL QLA 2340 Low Profile PCI-X Card, (6.7"x2.5")full-length, half-height, 133 MHz card (Qlogic QLA2340) | GA, EMEA EOL-01/10/06 |
| X9884A | 9884A | RAID Controller PCI-X card with battery backup for the Sun Fire V20Z and Sun Fire V40 | 09/13/05 EMEA EOL-01/10/06 |
| SG-XPCI1FC-QLC | | Sun StorEdge 2 Gb FC Entry-Level Single Channel PCI-X Card, 33/66/100/133 MHz card | EOL-01/10/06 |
| SG-XPCI1FC-QLC-Z | | X-opt 2Gb HBA, single port, entry level FC HBA, qualified only on Opteron-based servers. Supports solaris 10, Linux, and Windows, includes both brackets, RoHS 6 compliant. | RR/GA 01/10/06 |
| SG-XPCI1FC-QL2 | | Sun StorEdge 2Gb FC PCI-X Single Channel Adapter Card | |
| SG-XPCI1FC-QF2 | | Sun StorEdge 2Gb FC PCI-X Single Channel Adapter card, (6.6"x4.2") half-length, full-height, 66-MHz. | Q4CY04, EOL-01/10/06 |
| SG-XPCI2FC-QF2 | | Sun StorEdge 2Gb FC- PCI-X Dual Channel Adapter Card, (6.6"x2.5") half-length, half-height, 66-and 133-MHz. | Q4CY04 EOL-01/10/06 |
| SG-XPCI1FC-EM2 | | Sun StorEdge 2Gb FC PCI-X Single Channel Adapter card | Q4CY04 |
| SG-XPCI2FC-EM2 | | Sun StorEdge 2Gb FC- PCI-X Dual Channel Adapter Card | Q4CY04 |
| SG-XPCI1SCS I-LM320 | | Sun StorEdge PCI/PCI-X Single-Channel Ultra320 SCSI Host Bus Adapter | EOL-01/10/06 |
| SG-XPCI2SCS I-LM320 | | Sun StorEdge PCI/PCI-X Dual-Channel Ultra320 SCSI Host Bus Adapter, (7.3" x 5") full-length,full-height, 33/66/133/MHz. | Q4CY04 EOL-01/10/06 |
| SG-XPCI1SCS I-LM320-Z | | Xoption, Sun StorEdge PCI Single Channel, Ultra320 SCSI Host Adapter, Low Profile, includes standard and low profile brackets | RR/GA 01/10/06 |
| SG-XPCI2SCS I-LM320-Z | | Sun StorEdge PCI dual channel Ultra320 differential SCSI host bus adapter | RR/GA 01/10/06 |
| PCI cards (not PCI-X) | | | |
| X3150A | | Sun GigaSwift Ethernet UTP PCI Adapter,full height/half length. <i>PCI, not PCI-X.</i> | GA |
| X3151A | | Sun GigaSwift Ethernet MMF PCI Adapter,full height/half length. <i>PCI, not PCI-X.</i> | GA |

| X-option | XATO | Description | Availability |
|----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| X4150A | | Sun GigaSwift Ethernet UTP Low Profile PCI Adapter,(Single-port Gigabit Ethernet), (6.6"x 2.5"), 33/66Mhz, Full-height bracket. <i>PCI, not PCI-X.</i> | Q4CY04 EOL- 01/10/06 |
| X4150A-2 | 4150A-2 | Gigabit Ethernet network Interface Card for high performance Cat 5 Copper PCI applications with full IEEE 802.3 compliance. RoHS compliant | 01/10/06 |
| X4151A | | Sun GigaSwift Ethernet MMF PCI Adapter, (Single-port Gigabit Ethernet), (6.6"x 2.5"), 33/66Mhz,Full-height bracket. <i>PCI, not PCI-X.</i> | Q4CY04 EOL- 01/10/06 |
| X4151A-2 | 4151A-2 | Gigabit Ethernet Network Interface Card for high performance fiber and PCI applications with full IEEE 802.3 compliance. RoHS compliant. | 01/10/06 |
| X4422A | 4422A-2 | Sun Dual Gigabit Ethernet (UTP) + Dual SCSI (80 Mbps Wide-Ultra2 SE/LVD) PCI Adapter, half-length card. <i>PCI, not PCI-X.</i> | GA EOL- 01/10/06 |
| X4422A-2 | | PCI Adapter with two 10/100/1000 Mbps Ethernet UTP (RJ45) and two 80 Mbps Wide-Ultra2 SE/LVD SCSI interfaces. RoHS compliant. | 01/10/06 |
| X4444A | | Sun Quad GigaSwift Ethernet UTP Adapter (Quad GbE) PCI card, full-length. <i>PCI, not PCI-X.</i> | GA EOL-11/22/05 |

General Configuration Notes:

1. System

- All Standard Configurations have two redundant power supplies for maximum availability. Power cords are ordered separately . Please order quantity 2 of worldwide kits as necessary.
- The two CPU systems have 4 remaining active memory slots for future expansion (two slots per CPU), 5 empty disk drive bays, and 7 empty PCI-X slots. The disk drive bays can support a maximum of six 36 GB drives or 73 GB drives, 146 GB drives, or 300 GB drives . The 6th drive bay supports the DVD or a 6th drive (only available via XATO – Webdesk will allow 6th drive. Not available via FRU.).
- The four CPU system has 8 remaining active memory slots (two slot per CPU) for future expansion, 4 empty disk drives, and 7 empty PCI-X slots. The disk drive bays can support 73 GB, 146 GB, or 300 GB drives.

2. CPU

- No mixing of CPU speeds is allowed.
- Odd-numbered CPU configurations are not supported.
- The two CPU systems can be expanded with a CPU daughter board assembly with matching CPU speeds.

- Customers that have systems with Opteron 844 CPUs and wish to upgrade to Opteron 848 or 850 can order the X-options of the faster CPUs, but are required to order them in pairs.

3. Memory

- Any combination of DDR1/333 memory is supported up to 8GB per CP.
- (maximum of 32 GB with four CPUs).Use identically-sized DIMMs for maximum memory interleaving performance
- Arrange DIMMs symmetrically in a 4 CPU system for maximum memory performance.

| Available Memory slots by CPU | CPU 1 | CPU2 | CPU3 | CPU4 |
|--------------------------------------|--------------|-------------|-------------|-------------|
| Two CPU system | 4 slots | 4 slots | None | None |
| Four CPU system | 4 slots | 4 slots | 4 slots | 4 slots |

| Recommended DIMM layout for maximum performance (DIMMs must be identical size) | CPU 1 | | | | CPU 2 | | | | CPU 3 | | | | CPU 4 | | | |
|---------------------------------------------------------------------------------------|--------------|---|---|---|--------------|---|---|---|--------------|---|---|---|--------------|---|---|---|
| | Memory slots | | | | Memory slots | | | | Memory slots | | | | Memory slots | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 2 CPU system, minimum RAM | X | X | | | X | X | | | | | | | | | | |
| 2 CPU system, maximum RAM | X | X | X | X | X | X | X | X | | | | | | | | |
| 4 CPU system, minimum RAM | X | X | | | X | X | | | X | X | | | X | X | | |
| 4 CPU system, maximum RAM | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Examples of supported configurations, but reduced memory performance | CPU 1 | | | | CPU 2 | | | | CPU 3 | | | | CPU 4 | | | |
| | Memory slots | | | | Memory slots | | | | Memory slots | | | | Memory slots | | | |
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| 2 CPU system, asymmetric CPU 1 | X | X | X | X | X | X | | | | | | | | | | |
| 2 CPU system, asymmetric CPU 2 | X | X | | | X | X | X | X | | | | | | | | |
| 4 CPU system, asymmetric CPU 1 | X | X | X | X | X | X | | | X | X | | | X | X | | |
| 4 CPU system, asymmetric CPU 3 | X | X | | | X | X | | | X | X | X | X | X | X | | |
| 4 CPU system, asymmetric CPUs 2/4 | X | X | | | X | X | X | X | X | X | | | X | X | X | X |

4. Memory Layout Restrictions with A57B-AA chassis

- Systems support either DDR1/333 or DDR1/400, but not mixed simultaneously in the memory banks.
- DDR1/400 memory for can be expanded from 8 GB (1 CPU) up to 32 GB (4 CPU) systems with BIOS 2.32.8.2 (NSV 2.3.0.6h) or later.

5. Disk Drives

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- Any combination of two drives supported – 36 and 73 GB, 73 and 146GB, 73 and 300 GB, etc.
- If onboard RAID 1 mirroring is going to be used, it requires identically-sized drives and of even number (2, or 4 drives)..
- Solaris 9 does not support the 300GB drive.

6. PCI-X Slots

- All Standard Configurations have slots that are comprised of four 100 MHz full length slots[reduced from 133 MHz due to AMD Errata #56 with BIOS update], one 100 MHz full-length slot, one 100 MHz half-length slot, and one 66 MHz half-length slot. Note that the 100 MHz PCI-x slots are backward compatible with the slower speed 66 MHz cards. However, note that some cards are full length, others are half-length, while others are recommended at 133 MHz only. These specifications will restrict which slot can be used.
- See “Sun Fire V40z PCI-X/PCI Card Slot Configuration” and “Sun Fire V40z PCI-X card support by OS” tables for more specific PCI-X card support information.
- Due to bug 6196936, do not install X4422A in V40z PCI slots 2 and 3 simultaneously.

XATO Configuration Notes:

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.

1. General configuration guidelines apply to XATO configurations as well.

2. All XATO orders require a working configuration. An XATO configuration can not be created without the minimum memory or disk required. Not all X-options available as XATO options on Sun Fire V40z.

3. All configurations require one A57B-AA base chassis (chassis, motherboard, power supply). The second power supply will be automatically required on XATO orders.

4. CPU

- The following CPU options: [9863A](#), [9870A](#), [9896A \(single-core\)](#) or [9897A](#), [9898A \(dual-core\)](#) are compatible with A57B-AA chassis . The other CPU X-options for Sun Fire V40z are compatible only with A57A-AA (**EOL'd 08/23/05**).
- minimum of two CPUs options are required. Up to four CPUs allowed (models must be identical). When configuring a two CPU system, a pair of CPU options are required for the base chassis. No daughterboard will be included with the base chassis.

5. Daughterboard - Systems with four CPUs require an additional CPU daughter board.

- A matching CPU daughter board with matching CPU speeds must be used.
- There are unique, non-interchangeable CPU daughterboards and CPUs for A57A-AA and A57B-AA. Please consult the part tables for proper application.

Compatible only with A57A-AA XATO chassis

| Legal XATO CPU combinations | No daughterboard | 9283A (2x844 daughterboard) (EOL'd 08/23/05) | 9284A (2x848 daughterboard) (EOL'd 08/23/05) | 9285A (2x850 daughterboard) (EOL'd 08/23/05) |
|------------------------------------------------------------|-------------------------|---------------------------------------------------------|---------------------------------------------------------|---------------------------------------------------------|
| Two 9286A (Opteron 844 CPUs) (EOL'd 08/23/05) | Yes | Yes | No | No |
| Two 9287A (Opteron 848 CPUs) (EOL'd 08/23/05) | Yes | No | Yes | No |
| Two 9288A (Opteron 850 CPUs) (EOL'd 08/23/05) | Yes | No | No | Yes |
| No mixing of CPU speeds allowed. | | | | |

Compatible only with A57B-AA XATO chassis, S2

| Legal XATO CPU combinations | No daughterboard | 9862A (2x850 daughterboard) | 9863A (2x852 daughterboard) | 9895A (2x870 dual core processors and daughterboard) | 9896A (2x875 dual core processors and daughterboard) | 7249A (2x880 dual core processors and daughterboard) |
|--------------------------------------------------------|-------------------------|----------------------------------------|----------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|
| Two 9869A (Opteron 850 CPUs) | Yes | Yes | No | No | No | No |
| Two 9870A (Opteron 852 CPUs) | Yes | No | Yes | No | Yes | No |
| Two 9897A (Opteron 870 dual-core processors) | Yes | No | No | Yes | Yes | No |
| Two 9898A (Opteron 875 dual-core processors) | Yes | No | No | No | Yes | No |
| Two 7248A (Opteron 880 dual-core processors) | Yes | No | No | No | No | Yes |
| No mixing of CPU speeds allowed. | | | | | | |

- 6. Memory - a minimum of one memory option per CPU required.** There are 4 memory slots per CPU (8 total memory slots on standard/XATO 2 CPU factory configurations, 16 total memory slots on standard/XATO factory configurations).
- 7. Disk Drive – a minimum of one disk drive is required unless option 9839A is selected.** The Sun Fire V40z server has up to six Ultra320 SCSI drives (Sixth drive replaces the optical drive. Only available via XATO. Not available via FRU.). The sixth bay is for the DVD/floppy

assembly. Drive options include 73 GB, 146 GB , and 300 GB capacities. Any combination of Ultra320 SCSI drives is supported.

8. Optical Drive -The optical drive is required unless option 9891A is selected.

PCI-X/PCI Card Slot Configuration

| X-option/ XATO | PCI-X/PCI card description | Four Full-length slots hot-swap 100 ¹ MHz | One Full-length slot 100 MHz | One Half-length slot 100 MHz | One Half-length slot 66 MHz | Sys. max. |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------|------------------------------|-----------------------------|-----------|
| X1233A | Infiniband HCA Low Profile PCI-X Card (6.7"x2.5"), 133-MHz card (Mellanox) | Yes ² | Yes | Yes | No | 2 |
| X4445A | Sun Quad GigSwift PCI-X Ethernet UTP - RoHS compliant Adapter (QGE-X) is a half length PCI card with four 10/100/1000 BASE-T Ethernet interfaces in a single card.,RoHS Compliant | Yes ² | Yes | Yes | Yes | 2 |
| X5544A | Sun 10-Gigabit Ethernet (850nmFX) Low Profile PCI-X Card, (6.6"x2.5"), 66/133MHz | Yes | No | No | No | 2 |
| X7285A | Sun PCI-X Dual Gigabit Ethernet UTP, Low Profile,RoHS compliant | Yes | Yes | Yes | Yes | 6 |
| X7286A | Sun PCI-X Gigabit Ethernet MMF, Low Profile, RoHS compliant | Yes | Yes | Yes | Yes | 6 |
| X9265A/ 9265A | Ultra320 SCSI Dual Channel Half-Length / Full-Height PCI-X Card, 33/66/100/133 MHz (LSI Logic LSI22320-R) | Yes | Yes | Yes | Yes | 5 |
| X9269A/ 9269A | RAID Controller Half-Length/Full-Height PCI-X Card,(6.8" x 4.2"), 66/133 MHz card , 128 MB RAM (LSI Logic MegaRAID 320-2128). | No | No | No | Yes | 1 |
| X9270A/ 9270A | Infiniband HCA Low Profile PCI-X Card (6.7"x2.5"), 133-MHz card (Topspin HCA) | Yes | No | No | No | 2 |
| X9271A/ 9271A | Single Port Gigabit Ethernet Low Profile PCI-X Card,(6.6"x2.5"), 33/66/100/133 MHz card (Intel Pro/1000 MT single port - PWLA8490MT) | Yes | Yes | Yes | Yes | 6 |
| X9272A/ 9272A | Dual Port Gigabit Ethernet Low Profile PCI-X Card,(6.6"x2.5"), 33/66/100/133 MHz card (Intel Pro/1000 MT dual port - PWLA8492MT) | Yes | Yes | Yes | Yes | 6 |
| X9273A/ 9273A | Quad Port Gigabit Ethernet Half-Length/Full-Height PCI-X Card (6.6"x 4.2"), 33/66/100/133 MHz card (Intel Pro/1000 MT dual port - PWLA8494MT) | Yes ² | Yes | Yes | Yes | 2 |

| X-option/ XATO | PCI-X/PCI card description | Four Full- length slots hot- swap 100¹ MHz | One Full- length slot 100 MHz | One Half- length slot 100 MHz | One Half- length slot 66 MHz | Sys. max. |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------|----------------------|
| X9279A/ 9279A | Single-port, 2-GB/Sec FC-AL QLA 2340 Low Profile PCI-X Card, (6.7"x2.5")full-length, half-height, 133 MHz card (Qlogic QLA2340) | Yes | Yes | Yes | Yes | 7 |
| X9884/ 9884A | RAID Controller PCI-X card with battery backup for the Sun Fire V20Z and Sun Fire V40z | No | No | No | Yes | 1 |
| SG- XPCI1FC -QLC | Sun StorEdge 2 Gb FC Entry-Level Single Channel PCI-X Card, 33/66/100/133 MHz card | Yes | Yes | Yes | Yes | 7 |
| SG- XPCI1FC -QL2 | Sun StorEdge 2 Gb Single Channel PCI-X Card, RoHS Compliant | Yes | Yes | Yes | Yes | 7 |
| SG- XPCI1FC -QF2 | Sun StorEdge 2 Gb FC Single Channel PCI-X Card, 33/66/100/133 MHz card | Yes | Yes | Yes | Yes | 7 |
| SG- XPCI2FC -QF2 | Sun StorEdge 2Gb FC PCI Single Channel Adapter card, (6.6"x4.2") half-length, full-height, 66-MHz. | Yes | Yes | Yes | Yes | 7 |
| SG- XPCI1FC -EM2 | Sun StorEdge Enterprise 2 Gb FC Single Port Host Bus Adapter, RoHS Compliant | Yes | Yes | Yes | Yes | 7 |
| SG- XPCI2FC -EM2 | Sun StorEdge Enterprise 2 Gb FC Dual Port Host Bus Adapter, RoHS Compliant | Yes | Yes | Yes | Yes | 7 |
| SG- XPCI1FC -QF4 | Sun StorEdge Enterprise 4 Gb FC Single Port Host Bus Adapter ,RoHS Compliant | TBD | TBD | TBD | TBD | TBD |
| SG- XPCI2FC -QF4 | Sun StorEdge Enterprise 4 Gb FC Dual Port Host Bus Adapter, RoHS Compliant | TBD | TBD | TBD | TBD | TBD |
| SG- XPCI1SC SI-LM320 | Sun StorEdge PCI/PCI-X Single-Channel Ultra320 SCSI Host Bus Adapter, Low profile, includes standard and low profile brackets | Yes | Yes | Yes | Yes | 5 |
| SG- XPCI2SC SI-LM320 | Sun StorEdge PCI/PCI-X Dual-Channel Ultra320 SCSI Host Bus Adapter, (7.3" x 5") half-length,full-height, 33/66/133/MHz. | Yes | Yes | Yes | Yes | 5 |
| PCI cards (not PCI-X) | | | | | | |

| X-option/ XATO | PCI-X/PCI card description | Four Full- length slots hot- swap 100¹ MHz | One Full- length slot 100 MHz | One Half- length slot 100 MHz | One Half- length slot 66 MHz | Sys. max. |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------|----------------------|
| X3150A | Sun GigaSwift Ethernet UTP PCI Adapter, full-height/half-length. <i>PCI, not PCI-X.</i> | Yes | Yes | Yes | Yes | 2 |
| X3151A | Sun GigaSwift Ethernet MMF PCI Adapter, full-height/half-length. <i>PCI, not PCI-X.</i> | Yes | Yes | Yes | Yes | 2 |
| X4150A | Sun GigaSwift Ethernet UTP PCI Adapter, (Single-port Gigabit Ethernet), (6.6"x 2.5"), 33/66Mhz, Full-height bracket. <i>PCI, not PCI-X.</i> | Yes | Yes | Yes | Yes | 5 |
| X4151A | Sun GigaSwift Ethernet MMF PCI Adapter, (Single-port Gigabit Ethernet), (6.6"x 2.5"), 33/66Mhz, Full-height bracket. <i>PCI, not PCI-X.</i> | Yes | Yes | Yes | Yes | 5 |
| X4422A | Sun Dual Gigabit Ethernet (UTP) + Dual SCSI (80 Mbps Wide-Ultra2 SE/LVD) PCI Adapter, half-length card. <i>PCI, not PCI-X.</i> | Yes² | Yes | Yes | Yes | 3 |
| X4444A | Sun Quad GigaSwift Ethernet UTP Adapter (Quad GbE) PCI card, full-length. <i>PCI, not PCI-X.</i> | Yes² | Yes | No | No | 2 |

¹ These slots reduced from 133 MHz due to AMD Errata #56.

² BIOS upgrade allows this to operate in the 100 MHz slots.

Sun Fire V40z PCI-X card support by OS

Part numbers are designated as X-option/XATO. For more information on individual PCI-X cards, please visit: <http://www.sun.com/servers/entry/v40z/optioncards.html>

| <i>Option Card</i> | <i>Solaris 9 4/04 x86 and 9/04 x86</i> | <i>Solaris 10 on x64</i> | <i>Red Hat RHEL 3.0 (32-/64- bit)</i> | <i>Red Hat RHEL 4.0 (64-bit)</i> | <i>Novell SUSE SLES 8 (64-bit)</i> | <i>Novell SUSE SLES 9 (64-bit)</i> | <i>Windows 2003 (32-/64- bit)</i> |
|--------------------|----------------------------------------------------|------------------------------|---------------------------------------------------|------------------------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| X1233A | N/A | Included in OS | Yes | Yes | Yes | Yes | N/A |
| X4445A | Included in OS | Included in OS | Yes | Yes | Yes | Yes | N/A |
| X5544A | N/A | Yes | Yes | Yes | Yes | Yes | N/A |
| X7285A | Included in OS | Included in OS | Yes | Yes | Yes | Yes | Yes |
| X7286A | Included in OS | Included in OS | Coming Soon | Coming Soon | Coming Soon | Coming Soon | Coming Soon |
| X9265A | Included in OS | Included in OS | Yes | Yes | Yes | Yes | Yes |
| X9269A | N/A | Included in OS | Yes | Yes | Yes | Yes | Yes |
| X9270A | N/A | Included in OS | Yes | Yes | Yes | Yes | N/A |
| X9271A | Included in OS | Included in OS | Yes | Yes | Yes | Yes | Yes |
| X9272A | Included in OS | Included in OS | Yes | Yes | Yes | Yes | Yes |
| X9273A | Included in OS | Included in OS | Yes/No solution for V20Z | Yes | Yes | Yes | Yes |
| X9279A | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| SG-XPCI2SCSI-LM320 | Included in OS | Included in OS | Yes | Yes | Yes | Yes | Yes |
| SG-XPCI1SCSI-LM320 | Included in OS | Included in OS | Yes | Yes | Yes | Yes | Yes |
| SG-XPCI1FC-QLC | N/A | Included in OS | Yes | Yes | Yes | Yes | Yes |
| SG-XPCI1FC-QL2 | 09/04 only | NA | NA | NA | NA | NA | NA |
| SG-XPCI1FC-QF2 | N/A | Included in OS | Yes | Yes | Yes | Yes | Yes |
| SG-XPCI2FC-QF2 | Yes | Included in OS | Yes | Yes | Yes | Yes | Yes |

| Option Card | Solaris 9 4/04 x86 and 9/04 x86 | Solaris 10 on x64 | Red Hat RHEL 3.0 (32-/64- bit) | Red Hat RHEL 4.0 (64-bit) | Novell SUSE SLES 8 (64-bit) | Novell SUSE SLES 9 (64-bit) | Windows 2003 (32-/64- bit) |
|-----------------------|----------------------------------------------------|------------------------------|---------------------------------------------------|------------------------------------------|------------------------------------------------|------------------------------------------------|-----------------------------------------------|
| SG-XPCI1FC-EM2 | N/A | Included in OS | Yes | Yes | Yes | Yes | Yes |
| SG-XPCI2FC-EM2 | N/A | Included in OS | Yes | Yes | Yes | Yes | Yes |
| SG-XPCI1FC-QF4 | SDLC for Solaris 9 4/04 x86 | N/A | N/A | N/A | N/A | N/A | N/A |
| SG-XPCI2FC-QF4 | SDLC for Solaris 9 4/04 x86 | N/A | N/A | N/A | N/A | N/A | N/A |
| X3150A | Yes | Yes | N/A | N/A | N/A | N/A | N/A |
| X3151A | Yes | Yes | N/A | N/A | N/A | N/A | N/A |
| X4150A | Included in OS | Included in OS | Yes | TBD | Yes | TBD | N/A |
| X4151A | Included in OS | Included in OS | Yes | TBD | Yes | TBD | N/A |
| X4422A: | Included in OS | N/A | Yes | TBD | Yes | TBD | N/A |
| X4444A: | Included in OS | Included in OS | Yes | TBD | Yes | TBD | N/A |

Storage Support by OS and PCI/PCI-X cards

Part numbers are designated as X-option/XATO – (X)9265A represents X9265A and 9265A (X-option and XATO option respectively)

| Storage Device | Solaris 10 on x64 | RHEL 3 (32-/64-bit) | RHEL 4 (64-bit) | SLES 9 (64-bit) | Windows 2003 (32-/64-bit) |
|--------------------------------|------------------------------|--------------------------------|----------------------------|----------------------------|--------------------------------------|
| Workgroup Storage | | | | | |
| StorEdge 3120 SCSI (JBOD/RAID) | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| StorEdge 3310 SCSI (JBOD/RAID) | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| StorEdge 3320 SCSI (JBOD/RAID) | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |

| Storage Device | Solaris 10 on x64 | RHEL 3 (32-/64-bit) | RHEL 4 (64-bit) | SLES 9 (64-bit) | Windows 2003 (32-/64-bit) |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|------------------------|----------------------------------|
| StorEdge 3510 FC Array (JBOD/RAID) | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QLC/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| StorEdge 3511 FC (RAID-SATA) | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QLC/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Midrange Storage | | | | | |
| Sun StorEdge 6120 | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun StorEdge 6130 | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun StorEdge 6320 | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun StorEdge 6920 | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Data Storage | | | | | |
| Sun stooge 9990 System | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun stooge 9980 System | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun stooge 9970 | SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| NAS Storage | | | | | |
| Sun StorEdge 5210 | Ethernet | | | | |
| Sun StorEdge 5310 | Ethernet | | | | |
| Tape Backup and Restore | | | | | |
| LTO 2 SCSI Desktop | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| DAT 72 SCSI Desktop and 1 RU rackmount | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| AutoLoader C2 (2rU) SCSI | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| Tape Library (4rU) SCSI and FC | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| LTO 3 SCSI Desktop and 2 RU rackmount | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |

| Storage Device | Solaris 10 on x64 | RHEL 3 (32-/64-bit) | RHEL 4 (64-bit) | SLES 9 (64-bit) | Windows 2003 (32-/64-bit) |
|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|------------------------|--------------------------------------------------|
| SDLT 320 SCSI Desktop | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| SDLT 600 SCSI Desktop and 2 RU rackmount | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 | SG-XPCI1SCSI-LM320 |
| Sun StorEdge L500 SCSI and FC | SG-XPCI1SCSI-LM320 SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QLC/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun StorEdge L180 SCSI and FC | SG-XPCI1SCSI-LM320 SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QLC/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun StorEdge L700 SCSI and FC | SG-XPCI1SCSI-LM320 SG-XPCI2FC-QF2/ SG-XPCI2FC-EM2/ SG-XPCI1FC-EM2/ SG-XPCI1FC-QLC/ SG-XPCI1FC-QL2/ SG-XPCI1FC-QF4/ SG-XPCI2FC-QF4 | | | | |
| Sun StorEdge L8500 FC | TBD | TBD | TBD | TBD | TBD |
| Tape Backup Storage Applications | | | | | |
| Legato Sun StorEdge EBS/ESG NetWorker 7.2 SU1 | Client Only | Client/Server 32-bit | Not Supported | Not Supported | Client /Server 32-bit only 64-bit :Not Supported |
| Legato Sun StorEdge EBS/ESG NetWorker 7.3 (7.2 SU 2) | Server: Q1CY06 | Client/Server 32-bit | Q1CY06 | Q1CY06 | Client/Server 32-bit only 64-bit:TBD |
| Symantec Netbackup 6.0 | Client Only | Not Supported | Not Supported | Server/Client | Client/Server 32-bit only 64-bit:Not Supported |
| Symantec Netbackup 6.0 MP1 | Server: 2HCY06 | 2HCY06 | 2HCY06 | Server/Client | Client/Server 32-bit only 64-bit:2HCY06 |

Please see <http://www.sun.com/servers/entry/v20z/storage.html> for more details.

Service and Support

Warranty Support

The Sun Fire V40z 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

Solaris OS Support is available as follows

- Sun Software Support Standard: business hours
- Sun Software Support Premium: 7x24

For Linux support, Red Hat Enterprise Linux and SUSE subscriptions are available.

Sun Service Plans

Sun Global Customer Services offers a full range of services to assist customers who deploy the Sun Fire V40z Server. Whether it is architecture services, implementation services, or services to help customers manage the servers once released to production, Sun has the right services during every phase of the project's life cycle.

Sun provides a service plan to meet every customer's needs: the SunSpectrumSM Service Plan for full system support ranging from basic to mission critical service levels, the Sun Hardware Only Service Plan, and Sun Software Service Plan. All three Service Plans are available for the Sun Fire V40z Server.

- SunSpectrumTM Service Plans: Get integrated hardware and Solaris support via the support program acclaimed by industry analysts*
- Hardware Service Plans: Provide an affordable, convenient way to maintain your Sun systems. With easy access to Sun technical support and quick system repair or replacement.
- Sun Software Service Plans: For fundamental software services such as technical phone or web-based support and software maintenance (updates and upgrades), Sun offers two levels of service for your production system software.

* Prognostics report 2004, Forrester report 2005

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 operating system support for Sun systems as well as comprehensive storage system support. For each Sun system, customers can choose the service plan that best fits their needs. Customers benefit from lower SunSpectrum Instant Upgrade (SIU) pricing when purchasing support at time of system sale. More information at: www.sun.com/service/support/sunspectrum

SunSpectrum Service Plan Highlights:

- Integrated whole-system support
- All the essentials for one great price
- Priority service
- No "per incident" limits
- Includes Solaris™ 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.

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

| Part Number | Description |
|--------------------|-------------------------------------------------------------------|
| W9D-A57-1S | Upgrade to 1 year SunSpectrum Silver for Sun Fire V40z Server |
| W9D-A57-2S | Upgrade to 2 years SunSpectrum Silver for Sun Fire V40z Server |
| W9D-A57-3S | Upgrade to 3 years SunSpectrum Silver for Sun Fire V40z Server |
| W9D-A57-1G | Upgrade to 1 year SunSpectrum Gold for Sun Fire V40z Server |
| W9D-A57-2G | Upgrade to 2 years SunSpectrum Gold for Sun Fire V40z Server |
| W9D-A57-3G | Upgrade to 3 years SunSpectrum Gold for Sun Fire V40z Server |
| W9D-A57-24-1G | Upgrade to 1 year SunSpectrum Gold 7x24 for Sun Fire V40z Server |
| W9D-A57-24-2G | Upgrade to 2 years SunSpectrum Gold 7x24 for Sun Fire V40z Server |
| W9D-A57-24-3G | Upgrade to 3 years SunSpectrum Gold 7x24 for Sun Fire V40z Server |
| W9D-A57-1P | Upgrade to 1 year SunSpectrum Platinum for Sun Fire V40z Server |
| W9D-A57-2P | Upgrade to 2 years SunSpectrum Platinum for Sun Fire V40z Server |
| W9D-A57-3P | Upgrade to 3 years SunSpectrum Platinum for Sun Fire V40z Server |

Sun Hardware Only Service Plan

If you are purchasing a Sun Fire V40z Server from Sun that uses Red Hat Linux or SUSE Linux, the SunSpectrum Service Plan outlined above is not the best choice. In it's place, Sun offers multiple on-site Hardware Service Plans (next business day, same business day and 4 hrs (24/7)) as well as support and updates for the operating system through Sun Software Service Plans (see Software Support section). Sun Hardware Service Plans should be offered in the following situations :

- If the customer solution includes Linux/Windows as the OS
- If the customer requires support for ONLY their hardware

With the Sun Hardware Only Service Plan, Sun Fire V40z customers benefit from the choice of three levels of service to best match their business needs corresponding to three coverage hours and response times for technical support. With a focus on Sun's entry-level server products, these features offer unbundled hardware support for these servers at a competitive price.

Warranty Upgrade to Sun HW Only Service for Sun Fire V40z Server

The following are part numbers and descriptions for the warranty upgrade to Sun HW Only Service:

| Part Number | Description |
|--------------------|--------------------------------------------------------------|
| W9D-A57-SD-1H | Upgrade to 1 year Sun HW Only SBD for Sun Fire V40z Server |
| W9D-A57-SD-2H | Upgrade to 2 years Sun HW Only SBD for Sun Fire V40z Server |
| W9D-A57-SD-3H | Upgrade to 3 years Sun HW Only SBD for Sun Fire V40z Server |
| W9D-A57-24-1H | Upgrade to 1 year Sun HW Only 7x24 for Sun Fire V40z Server |
| W9D-A57-24-2H | Upgrade to 2 years Sun HW Only 7x24 for Sun Fire V40z Server |
| W9D-A57-24-3H | Upgrade to 3 years Sun HW Only 7x24 for Sun Fire V40z Server |

Sun Services is providing unbundled software and hardware support for added flexibility and choice. Support offerings for the Sun Fire V40z server include Sun Software Support Services for all Sun software.

SunSM Software Standard Support

The Sun Software Standard Support offering provides customers with a comprehensive support plan. Features include:

- Extended local business hours (12 hour) for telephone and online support (5x12)
- Four (4) business hour response on Priority 1 (Urgent) requests
- Two (2) authorized contacts
- Online incident submission and tracking
- Software updates and patches
- Access to online self-solve resources

SunSM Software Premium Support

The SunSM Software Premium Support offering is designed for critical environments where high availability is a priority and round-the-clock support is a customer requirement. In addition to all of the features of the Standard support level, this level of service offers:

- 24/7 coverage with live call transfer for Priority 1 (Urgent) requests
- Sun Vendor Integration Program (Sun VIP[SM] Program)
- Three (3) authorized contacts per 8-hour shift

Optional Services

Both the Standard and Premium offerings give customers the option to purchase the following to enhance their service plans:

- Dedicated or Assigned Service Account Manager (SAM)
- Dedicated Technical Support Engineer (TSE)
- Additional authorized contacts

The Online Support Center

The Online Support Center (OSC) provides Web-based solutions anytime, anywhere. Providing high-quality availability services has always been a top priority at Sun. As a pioneer in Web-based customer solutions, Sun continues to utilize the power and versatility of the Internet to offer customers a broad variety of online service offerings.

The online answer/transaction process can save customers valuable time by eliminating the time spent waiting on the phone for a customer service representative. The Online Support Center empowers the user by offering anywhere, anytime access to Web-based support, training, and consulting solutions for Sun hardware and software products. The site serves as a portal for proactive service offerings, systems support features, and resource links.

For more information on the above support offerings, please visit:

<http://www.sun.com/service/support>.

Glossary

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| 1U or RU | One rack unit as defined by the Electronic Industries Alliances (EIA). A vertical measurement equal to 1.75 inches. |
| AC | Alternating Current. |
| ChipKill™ | 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. |
| Density | Number of units in a given amount of space. |
| EAL4 | Evaluation Assurance Level 4. EAL4 is on of the Common Criteria Evaluation Assurance Levels for evaluating the security of IT products and systems. These levels from from 0 (lowest) to 7 (highest). EAL4 provides a high level of assurance and guarantees that the certified products is methodically designed, tested, and reviewed. |
| Ecache | External cache. Memory cache external to the CPU chip. Under some CPU architectures referred to as L2 cache. The AMD Opteron device integrates 1 MB of L2 cache per CPU. |
| 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. |
| General-purpose server | A server designed to perform any type(s) of function(s). General-purpose servers typically require skilled IT professionals and system administrators to maintain them. |
| Host ID | The unique identifier assigned to the host computer. |
| 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. |
| 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. |

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| IPMI | Intelligent Platform Management Interface. System management architecture for providing an industry-standard interface and methodology for system management. |
| L2 cache | The AMD Opteron processor integrates 1 MB of L2 cache per CPU. See also Ecache. |
| MTBF | Mean Time Between Failures. The average time a component works without failure. |
| MTTR | Mean Time To Repair. The average time it takes to repair a component. |
| RAM | Random Access Memory. |
| SCSI | Small Computer Systems Interface. Pronounced "scuzzy." A 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 AMD and others. |
| x64 | Refers to 64-bit based systems using the AMD Opteron 64-bit or Intel EM64T 64-bit technology. |

Materials Abstract

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

| Collateral | Description | Purpose | Distribution | Token # or COMAC Order # |
|----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------------|--------------------------|
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Just the Facts</i> | Reference Guide for the Sun Fire V40z server (this document) | Training, Sales Tool | SunWIN, Reseller Web | 407577 |
| Product Literature | | | | |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Datasheet</i> | Datasheet | Sales Tool, Training | SunWIN, COMAC | 407575 |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Pocket Facts</i> | Pocket Facts | Sales Tool, Training | SunWIN, COMAC | 407576 |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Reviewer's Guide</i> | Review Guide | Sales Tool, Training | SunWIN, COMAC | 407581 |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Java Application Server Solution Brief</i> | Solution Brief | Sales Tool, Training | SunWIN, COMAC | |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server NDA Customer Presentation</i> | Customer Presentation | Sales Tool, Training | SunWIN, COMAC | 407578 |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Sales Presentation</i> | Sales Presentation | Sales Tool, Training | SunWIN, COMAC | 407579 |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Technical Presentation</i> | Technical Presentation | Sales Tool, Training | SunWIN, COMAC | 407580 |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Architecture White Paper</i> | White Paper | Sales Tool, Training | SunWIN, COMAC | |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Application Brief</i> | Application Brief | Sales Tool, Training | SunWIN, COMAC | |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server One Pager</i> | One Pager | Sales Tool, Training | SunWIN, COMAC | |
| <ul style="list-style-type: none"> <i>Solaris 9 Operating System Datasheet</i> | OS Datasheet | Sales Tool, Training | SunWIN | Token # DE1684-3 |
| External Web Sites | | | | |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Web Site</i> <i>Solaris OS x86 Platform Edition</i> | http://www.sun.com/servers/entry/v40z http://www.sun.com/software/solaris | | | |
| Internal Web Sites | | | | |
| <ul style="list-style-type: none"> <i>Sun Fire V40z server Internal Web Site</i> | http://vsp.eng/entry/fire/v40z | | | |
| Reseller Web Site | | | | |
| <ul style="list-style-type: none"> <i>Sun Reseller General Information</i> | http://reseller.sun.com | | | |

Internal Information

Sun Proprietary—Confidential: Internal Use Only

Competitive Information

Competitive analysis reports are posted quarterly to <http://vsp.eng/competitive/products>. These reports contain information about competitor's products, the strengths and weaknesses of the Sun Fire V40z server versus competitors' products, and positioning information.

A summary of the Sun Fire V40z server versus the leading competition is shown below.

| | <i>Sun Fire V40z</i> | <i>HP ProLiant DL585</i> | <i>HP ProLiant DL580 G2</i> | <i>IBM eServer x365</i> |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|
| Number of processors | 4 | 4 | 4 | 4 |
| CPU | 844 (1.8 GHz), 848 (2.2 GHz), (2.4 GHz), 852(2.6 GHz), 870 (dual core 2.0 GHz), 875 (dual core 2.5 GHz) AMD Opteron processors | 842 (1.6 GHz), 844 (1.8 GHz), 848 (2.2 GHz), 850 (2.4 GHz), 852 (2.6 GHz) AMD Opteron processors | Intel Xeon | Intel Xeon |
| Predicted cache size (L2) | 1 MB | 1 MB | 1MB,2MB(2.8 GHz), 4MB (3.0 GHz) | 1MB,2MB(2.8 GHz), 4MB (3.0 GHz) |
| CPU interconnect | 3 available HyperTransport links per CPU* | 3 available HyperTransport links per CPU* | 533 MHz FSB | 533 MHz FSB |
| Min/max memory | 2 GB–32 GB (DDR1/333: 2-32GB) (DDR1/400: 2-24GB- slot dependent) | 2GB–64 GB | 1GB–32 GB | 1GB–32 GB |
| O/S | Solaris OS (x86 Platform Edition)/ Linux/Windows | Windows/Linux** | Windows/Linux | Windows/Linux |
| Disk number | 6 (Ultra320 SCSI) | 4 (Ultra320 SCSI) | 4 (Ultra320 SCSI) | 6(Ultra320 SCSI) |
| RAID | RAID 1 | RAID 5 | Optional | Yes |

| | <i>Sun Fire V40z</i> | <i>HP ProLiant DL585</i> | <i>HP ProLiant DL580 G2</i> | <i>IBM eServer x365</i> |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------|
| PCI-X slots | 7(4 full-length/full height at 100 MHz [reduced to from 133 MHz due to AMD Errata #56],1 full-length/full height at 100 MHz, 1 half-length/full height at 100 MHz, and 1 half-length/half height (low profile) at 66 MHz) | 6 (2 full-length at 133 MHz and 4 half-length at 100 MHz) | 6 (6 full-length at 100 MHz) | 6(4 full-length at 133 MHz, 2 full-length at 100 MHz and 1 half-length at 33 MHz) |
| Ethernet ports | 2 x 10/100/1000 | 2 x 10/100/1000 | 2 x 10/100/1000 | 2 x 10/100/1000 |
| Height | 3U | 4U | 4U | 3U |
| Power consumption | 760W | 800 W | 800 W | 0 |
| Remote management | LOM | Yes | Yes | Yes |
| Warranty | 3 year next business day onsite | 3 year limited | Varies | 3 year onsite |

* Currently, each HyperTransport link is 16 x 16 bits at 800 MHz (1 GHz planned in the future).

** IBM has not publicly announced support for Windows.

Sun Fire V40z Server vs. IBM eServer 325

- 25% greater memory expansion capacity for memory-hungry 64-bit applications. The IBM 325 comes with 4 memory slots for 1 processor and only 2 memory slots for the second processor. This is an unbalanced system design, especially for the Opteron based system.
- CD-floppy disk drives standard with every system for easy system updates and application provisioning
- Shorter system depth (26 in. vs. 28 in.) enables better cable and rack management

Sun Fire V40z Server vs. HP ProLiant DL 585

- Six vs. four disk advantage for Sun Fire V40z
- Faster DDR1/400 MHz ECC Registered (PC3200) memory vs. slower PC2100 memory on HP DL 585

