Sun Blade™ 150 Refresh Workstation

Just the Facts

Sun
microsystems

Copyrights

Table of Contents

Positioning

Figure 1. Sun Blade™ 150 workstation

The Sun Blade150™ refresh workstation is the lowest priced 64-bit workstation in the world. Its cost is even lower than the Itanium -based™ PCs. In addition, the Sun Blade 150 workstation comes with a full set of workstation-class features, such as large memory capacity and high-performance graphics that support multiple displays, and highly integrated I/O connections. The entry-level Sun Blade™ 150 refresh workstation meets this definition by providing the following features:

- 550-MHz or 650-MHz UltraSPARC™ IIi processor with 512-KB integrated L2 cache

- Up to 2-GB ECC error correcting SDRAM (PC133) memory

- Support for Sun™ XVR-600 professional-level 3D graphics with high- image quality and functionality for technical computing customers

- Full 64-bit hardware and software support

- Support for up to two 80-GB internal disk drives

- Integrated I/O features on the motherboard, such as:

  - 10/100BASE-T Ethernet connection

  - Four USB ports

–   Two IEEE 1394 (also called FireWire®) ports

–   On-board, 24-bit, 2D Sun PGX64 graphics

In addition, the Sun Blade 150 workstation comes with the Solaris™ 8 HW 5/03 (PSR2)and Solaris™ 9 4/03 (S9U3) Operating Environment and the StarOffice™ 6.0 productivity suite preinstalled , which makes it ready to run right out of the box.

Original Sun Blade 150 and Sun Blade 150 refresh Workstation Comparison

The Sun Blade 150 refresh workstation is the latest addition to Sun's desktop workstation product family. This system is the follow on product to the original Sun Blade 150 workstation, which it replaces. The Sun Blade 150 refresh workstation has the same architecture as the original Sun Blade 150 workstation. All applications run unchanged from applications qualified on the original Sun Blade 150 workstation. The differences between these two systems are highlighted in the table below.

Feature	Original Sun Blade 150	Sun Blade 150 Refresh	Difference
CPU	550-MHz and 650-MHz,UltraSPARC[R] IIi	550-MHz and 650-MHz,UltraSPARC [R] IIi	Same
L2 Cache	512 KB	512 KB	Same
Memory	Up to 2-GB	Up to 2-GB	Same
Hard Drive	40 GB (two supported)	80 GB (two supported)	2x more
Graphics	• Sun PGX64 on board • Sun XVR-100 (up to three supported) • Sun XVR-600 (one supported)	• Sun PGX64 on board • Sun XVR-100 (up to three supported) • Sun XVR-600 (one supported)	Same
Solaris Operating Environment	Solaris 8 release 02/02 Solaris 9 supported	Solaris 8 HW 5/03 (PSR2)and Solaris 9 4/03 (S9U3) or newer	Latest release is pre-installed
StarOffice Software Version	StarOffice 6.0	StarOffice 6.0	Same

Features, Functions, and Benefits

Features	Functions	Benefits
• 550-MHz or 650-MHz UltraSPARC[R] IIi processor with 512-KB L2 cache	• A highly integrated, low-cost, high-performance 64-bit CPU	• Allows cost of 64-bit system to be quite low without sacrificing performance

Sun
microsystems

Features	Functions	Benefits
• Solaris 8 and Solaris 9 Operating Environment preinstalled	• A robust and well-supported 64-bit UNIX environment that retains full binary compatibility with previous versions • Supported throughout Sun's product line • Binary compatibility with the 12,000 Solaris applications	• Provides extensive virtual memory addressing for those applications that require 64-bit addressability • Develop on the Sun Blade 150 workstation, deploy in a Solaris Operating Environment-based datacenter
• Up to 2-GB (November 2003) of 168-pin JEDEC DRAM with error correction	• Large memory to support demanding applications	• Provides excellent expandability, beyond what is provided by most PCs at this time
• Up to two 80-GB internal disk drive, 7200-rpm IDE hard drives	• Provides large internal storage and expansion	• Excellent expandability for investment protection
• Three PCI slots	• Provides access to a variety of graphics cards, SCSI expansion cards, and audio/video input cards	• Provides excellent flexibility, system expansion, and support for both Sun and third-party PCI cards
• SunPCi III coprocessor card supported	• X-option available	• Allows customers and OEMs to run PC applications at native speed
• Built-in Sun PGX64 graphics with 8 MB of SDRAM	• Up to 1280 x 1024 resolution at 85 Hz in 8-bit and 24-bit mode and up to 1920 x 1200 resolution at 75 Hz in 8-bit-only mode	• Provides excellent quality 2D graphics without additional cost
• Sun XVR-100 graphics support	• X-option available • Up to 1920 x 1200 resolution at 75 Hz in simultaneous 8-bit and 24-bit mode	• Provides excellent quality 2D graphics
• Sun XVR-600 graphics support	• X-option available • Up to 2048 x 1536 at 72 Hz 2D/3D resolution and up to 1280 x 1024 @ 112 Hz 3D stereo resolution	• Provides professional-quality 3D graphics for a very low cost
• Built-in USB and IEEE 1394 (FireWire) ports	• Provides access to some of the newer I/O peripherals, such as video conferencing cameras	• Able to use state-of-the art I/O devices (when Solaris Operating Environment drivers are available) without having to purchase additions to system
• FastEthernet, 10/100BASE-T autosensing and autoswitching	• Built-in high-performance Ethernet connection	• Aids performance and helps eliminate the need to add a card to support Ethernet connectivity

Sun microsystems

Product Family Placement

Sun's desktop product family scales from the lowest entry-priced Sun Blade 150 workstation up to the multiprocessing Sun Blade 2500 workstation. Sun Blade workstations and their predecessors, the Ultra™ systems, have several things in common, including:

• The SPARC™ processor

• 100 percent binary compatibility

The table below shows a feature comparison between the four Sun Blade workstations.

Feature	Sun Blade 150	Sun Blade 1500	Sun Blade 2000	Sun Blade 2500
Placement	Entry Workstation	Entry-Level 64-bit Workstation	Performance Workstation	Performance Workstation
CPU	One UltraSPARC[R] IIi with 512-KB L2 cache (on die)	One UltraSPARC-IIIi with 1-MB L2 cache (on die)	Up to two UltraSPARC[R] III Cu with 8-MB L2 cache	Up to two UltraSPARC-IIIi with 1-MB L2 cache (on die)
Processor Speeds	550 MHz 650 MHz	1.062 GHz	900 MHz 1.2 GHz	1.2 GHz
Memory Capacity	2 GB	4-GB	8 GB	8 GB
Drive Capacity	Up to two 80 GB internal disk drive	Up to two 80-GB internal disk drives	Up to two 73 GB standard	Up to two 36GB standard
Drive Type	ATA66 EIDE	ATA 100 EIDE	Fibre Channel	Ultra 320 SCSI operating according to the 160 specification
Graphics Supported	Sun XVR-100, Sun XVR-500, Sun XVR-600	Sun XVR-100, Sun XVR-500, Sun XVR-600	Sun XVR-100, Sun XVR-500, Sun XVR-1000, Sun XVR-1200	Sun XVR-100, Sun XVR-500, Sun XVR-600, Sun XVR-1200
Solaris Operating Environment Support	Solaris 8 HW 5/03 and Solaris 9 4/03 (S9U3) or newer	Solaris 8 HW 5/03 or newer	Solaris 8 (2/02) or newer	Solaris 8 HW 5/03 or newer
OBP Revision	4.6.10 or newer	4.5.10 or newer	4.5.X or newer	4.5.10 or newer

Target Users and Markets

Sun Blade 150 systems are ideal for the following users:

• Software developers who require an extremely flexible, low cost development platform that supports 32-bit and 64-bit environments, multiple operating systems and is 100 percent binary compatible with Sun's entire system product line. When combined with the SunPCi III coprocessor card, the Sun Blade 150 workstation allows software developers to compile and test code for Microsoft Windows and Solaris Operating Environments simultaneously.

- System administration/IT departments which require a low cost system that offers compatibility with their server and storage management applications on the Solaris Operating Environment to manage their enterprise networks and servers.

- Education markets where price is highest importance followed by supporting the latest development tools and operating systems.

- Financial services requiring low-cost seats for customer call centers, and commodity traders requiring up to four 2D displays.

- Entry 3D markets, including MCAD. The Sun Blade 150 workstation with the optional Sun XVR-600 graphics is targeted at price-sensitive segments of Sun's traditional and emerging technical 3D markets. Sun XVR-600 graphics provides the performance and capabilities demanded by professionals in many of the technical markets including MCAD/MCAE, geo-technical engineering/GIS, visualization, and health care.

Compatibility

The Sun Blade 150 workstation is delivered with the robust 64-bit Solaris 8 HW 5/03 (PSR2) and Solaris 9 4/03 (S9U3) Operating Environment preinstalled. The latest version of the Solaris Operating Environment is binary compatible with previous versions — applications compiled on other versions run without the inconvenience of recompiling. 32-bit applications run perfectly well on the Sun Blade 150 workstation.

The Sun Blade 150 workstation only boots using the 64-bit kernel. In addition, customers with 32-bit-only drivers must migrate to 64-bit drivers to use this workstation.

Market Value Proposition

- Scalability: Sun's vision of technical enterprise computing delivers binary compatibility and the architecture to develop on the workstation and deploy to the datacenter.

- Sun re-emphasizes its leadership workstation position with the Sun Blade 150 refresh workstation, the lowest cost 64-bit workstation in the world.

- With the exceptional price point of the Sun Blade 150 workstation, customers in software development who require low cost yet flexible workstations to develop cross-platform applications should see a marked improvement in their productivity and efficiency by reducing their system expenditures while maximizing the capability of their systems by running several operating systems simultaneously. This helps reduce the number of systems required on their desk and helps reduce the time to develop and test their software.

- With the 64-bit capabilities of the Sun Blade 150 workstation, customers in complex data environments should see a marked increase in value by being able to load and view their data-sets on a very low cost system.

Availability

The Sun Blade 150 workstation is scheduled for revenue release on November 11, 2003 and for General Availability on November 20, 2003.

Sun
microsystems

UltraSPARC[R] IIi Processor

The Sun Blade™ 150 workstation uses the UltraSPARC[R] IIi processor. This process technology is the key to the UltraSPARC[R] IIi processor's higher clock rates and increased performance. The core voltage at 1.7 volts reduces power consumption and allows the chip to operate at higher frequencies without increasing total power requirements or heat dissipation, both major design issues in today's high-performance systems.

Sun™ XVR-100 2D PCI-based Graphics Accelerator

The Sun(tm) XVR-100 2D PCI-based Graphics Accelerator, installed in a 33MHz PCI slot, provides the customer with a very low-cost, flexible 24-bit, 2D graphics board. Sun Blade 150 supports up to three XVR-100 boards.

The Sun XVR-100 provides the following features:

- 8+24 bit simultaneous multiple colormaps for 2D

- 1920 x 1200 at 75 Hz 2D resolution

- Support for all Sun monitor products released since 1997, including support for Sun's new 24" Flat Panel Monitor

- 32-MB DDR SDRAM provides

- HD15 and DVI-I video connector

- Dual display capability with up to 1920 x 1200 resolution for each display

- Solaris 8 and Solaris 9 support

- FBPM support

- 33-MHz, 32-bit, 5-volt PCI card, short form factor (< 7-inch length)

- Low power consumption (< 8 watts)

- Compatible with OpenWindows™ environment and CDE windowing, and supports the following APIs: X11, Motif, JDK and OpenGL API via a software pipeline.

- Backward compatibility with Sun's PGX64™ Graphics Accelerator

Sun XVR-600 Graphics Accelerator

The Sun XVR-600 graphics accelerator provides a very affordable graphics solution for demanding 3D graphics applications that require fast geometry performance and reasonable texture mapping performance. Key markets for the Sun XVR-600 graphics accelerator are MCAD, MCAE, medical imaging, high- EDA, GIS, and energy markets. This product for Sun workstations and workgroup servers provides an integrated solution for compute-intensive modeling applications.

The Sun XVR-600 graphics accelerator is a 64-bit board and is supported in both 33- and 66-MHz PCI bus slots. It provides the following advanced features:

- 32/64 bit slots frame buffer memory

- 32-MB on-board texture mapping memory and acceleration

- Support for resolutions up to 2 megapixels (**2048 x 1536**, double-buffered/Z-buffered)

- 32-bit Z-buffering at all supported resolutions

- Synchronization of two to four displays at 1280 x 1024 @ 112 Hz stereo

- Performance up to 17M triangles per second (10-pixel, smooth, lit) and a trilinear texture fill rates of 88 Mpixels/second with Z-buffering or 166 Mpixels/second without Z-buffering

- Hardware acceleration for the features listed above in OpenGL applications using Sun OpenGL for Solaris API versions 1.2.3 and later

 In the Sun Blade 150, you cannot install a SunPCi III card and Sun XVR-600 graphics card in the system at the same time, there is not enough power allocated to the PCI slots
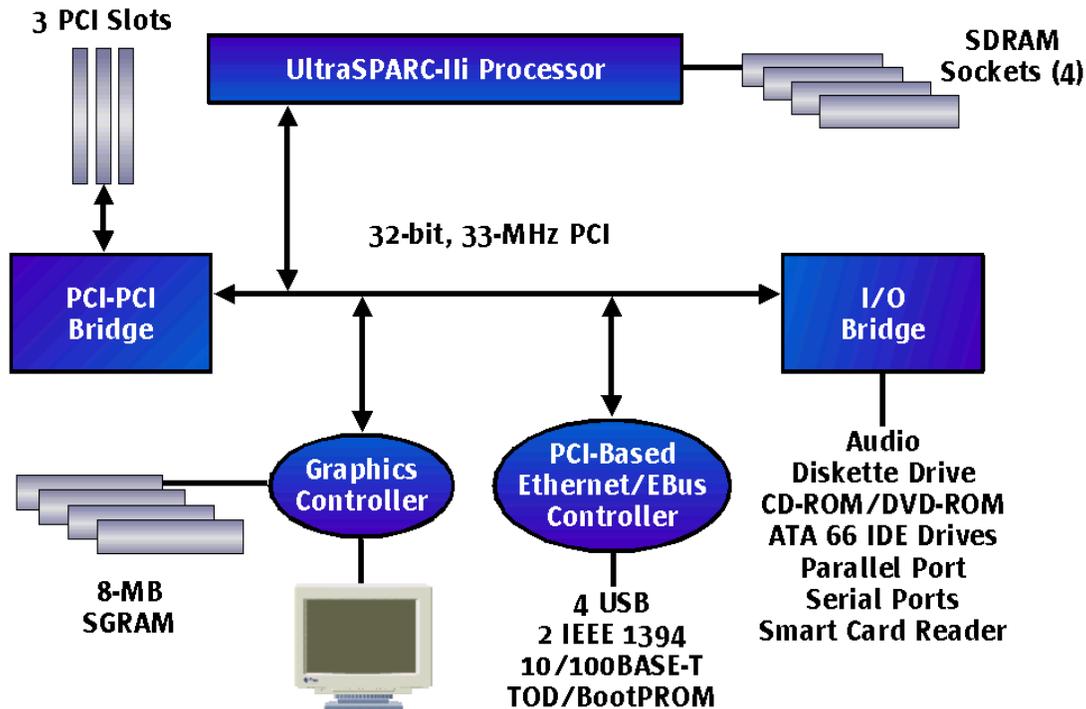
Illustration 1

Figure 2. Sun Blade™ 150 refresh workstation system block diagram

The Sun Blade™ 150 workstation is designed to provide high-performance, scalability, and flexibility at a low cost. The use of high-volume components and application-specific integrated circuits (ASICs) have resulted in a greatly reduced part count, high reliability, and low cost without compromising access to a full complement of expansion options through standardized high-performance interfaces.

On the Sun Blade 150 workstation, a single LPX-sized motherboard is used. Features integrated into or supported by the motherboard include:

• 550-MHz or 650-MHz UltraSPARC[R]IIi processor with integrated 512-KB L2 cache

• Sun™ PGX64 on-board graphics with 8-MB SDRAM video RAM (HD15 connector)

• Four DIMM sockets, 168-pin JEDEC DRAM with error correction

• Riser card connector to support three full length, 32-bit, 33-MHz, 5/3.3-volt PCI slots

• 10BASE-T/100BASE-T Fast Ethernet, self-sensing

• Two ATA 66 MB/second EIDE connectors for hard drive and DVD

• One D-sub 9-pin, asynchronous serial port

• One Centronics-compatible, IEEE-1284, DB25 parallel-port interface

• Two IEEE 1394 (FireWire®) ports

• Four USB1.1-compliant ports
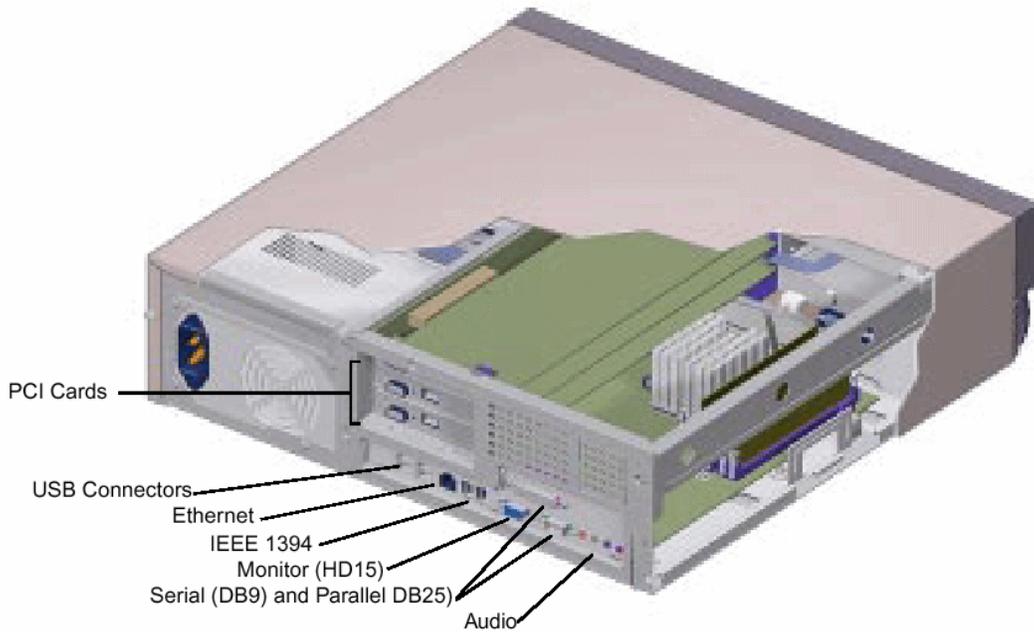
Figure 3. Rear view of Sun Blade 150 workstation, showing connectors

UltraSPARC[R] IIi Processor

The UltraSPARC[R] IIi processor supports both 2D and 3D graphics as well as image processing, video compression and decompression, and video effects through the sophisticated visual instruction set (VIS™ software). VIS provides high levels of multimedia performance, including real-time H.261 video compression and decompression and two streams of MPEG-2 decompression at full broadcast quality with no additional hardware support.

The UltraSPARC[R] IIi processor interfaces have been optimized to the "sweet spot" of typical uniprocessor system requirements. This provides a balanced price-performance solution delivering the power and features that the majority of high- applications need, optimizing power utilization and supporting manufacturability and ease of use.

Features	Benefits
• Integrated VIS instruction set	• Ready for increased performance on multimedia and networking operations
• Uses 0.22-micron process technology which greatly decreases the die size	• Results in a significant increase in performance and a decrease in power consumption (due to a low core voltage of 1.7 volts)
• CPU is mounted on a field-installable module card with associated UPA data buffers and external cache	• Facilitates easy system service and upgrades

Memory

The Sun Blade 150 workstation supports up to 2-Gb (4-GB in Novemebr 2003) of 168-pin ECC JEDEC DRAM with error correction. The Sun Blade 150 refresh workstation supports 256-MB-, 512-MB and 1-GB DIMM modules (in November 2003).

The Sun Blade 150 workstation uses standard PC133 DIMMs. The memory sold with the workstation in factory configurations or as X-options has gone through extensive testing and qualification before being added to Sun's approved vendor list. Note that not all vendors perform equally, and some third-party memory does not provide the reliability and quality Sun customers expect. Sun recommends that customers use only Sun qualified memory.

Features	Benefits
• Lower cost, industry-standard memory modules	• Less expensive, allowing customers to move up to higher levels of memory at lower cost
• ECC memory	• Outstanding error code correction and system reliability, superior to parity error correction
• 64-bit architecture	• Extensive memory addressability

Storage

Internal data storage for the Sun Blade 150 workstation is provided by a high-capacity, internal, 80-GB, 3.5-inch enhanced IDE hard drive running at 7200 rpm.

- A 1.6-inch, 16X DVD-ROM drive is standard.

- A 1.44-MB, 3.5-inch, manual-eject floppy drive is standard.

- A second 80-GB, 7200-rpm EIDE disk drive can be installed optionally.

- A CD-RW drive is optional

Although the Sun Blade 150 workstation uses ATA 66 EIDE internal drives (and does not have an external SCSI connector), the user can employ one of the PCI-SCSI host adapter cards to access Sun's external SCSI storage options. The four Sun SCSI hardware cards that have been tested for the Sun Blade 150 workstation are shown in the table below.

Part Number	Description
X5010A	PCI adapter single channel SCSI card
X6540A	PCI adapter Sun single-channel, single-ed UltraSCSI
X6541A	PCI adapter Sun dual-channel differential UltraSCSI

With the use of these cards, users have the option of using one of several Sun StorEdge products,`

There are several Sun StorEdge UniPack and MultiPack systems available for external storage up to 218 GB. See the Options section later in this document for a complete list of compatible storage products.

System I/O

System I/O for the Sun Blade 150 workstation is provided by the industry-standard peripheral component interconnect (PCI) data bus. The PCI bus in the Sun Blade 150 workstation complies with the 2.1 revision of the PCI specification, released in March 1995. To provide maximum expandability, the Sun Blade 150 workstations feature three full length 32-bit, 33-MHz, 5-volt PCI slots (with 3.3 V power supplied).

Sun supports a variety of PCI-based adapter cards, including Ethernet, token ring, ATM, and FDDI networking cards, video and audio input, SCSI adapters, and high-speed serial and parallel interfaces. In addition, Sun is working with a host of third-party partners to develop PCI hardware and software that is certified for operation on Sun's entire line of workstations, including the Sun Blade 150 workstation.

USB 1.1 Interface

The Sun Blade 150 workstation provides four USB ports for interface with a variety of devices. USB devices supported by the Solaris 8 (5/03) and Solaris 9 4/03 Operating Environment include:

• Human interface devices including the Sun USB keyboard and Sun USB mouse.

• USB storage devices, as indicated in the table below

Device Name	Medium Capacity
• Iomega™ Zip USB 100	• 100-MB Zip disks
• Iomega Zip USB 250	• 100/250-MB Zip disks
• Iomega™ Jaz 1-GB drive	• 1-GB Jaz disks
• Iomega Jaz 2-GB drive	• 1-/2-GB Jaz disks
• Castlewood™ ORG 2.2-GB external USB drive	• 2.2-GB ORB disks
• Hagiwara™ Sys-Com FlashGate (SmartMedia Reader/Writer USB version)	• 2/4 MB (5 volt) • 2/4/8/16/32/64 MB (3.3 volt)
• Hagiwara™ Sys-Com FlashGate CF (CompactFlash Reader/Writer USB Version)	• 8/16/32/48/64/96/128 MB (3.3 volt or 5 volt)

• Four and seven port expansion USB hubs (either bus or self-powered) are supported.

• Select Lexmark and Xerox USB printers are supported. Printers compliant with the USB printer class standards should function properly. Refer to the Solaris Ready program for details. The following PostScript™ printers are supported:

• Lexmark™ Optra E310	• Lexmark Optra W810
• Lexmark Optra M410	• Lexmark Optra Color45
• Lexmark Optra T616	• Xerox™ DocuPrint N2125

Sun PGX64 Graphics on board

Sun PGX64 graphics is the low-cost PCI graphics product in the PGX™ family. Sun PGX64 graphics provides Sun with a very low-cost, flexible 24-bit, 2D graphics board.

Sun PGX64 graphics include the following features:

- ATI's RageXL graphics processor
  - 2D graphics acceleration
  - 8-MB SDRAM
  - 24-bit-only true color video support up to 1920 x 1200
  - 8-bit-only pseudo color video support up to 1600 x 1000
- Low power consumption (< 8 watts)
- HD15 video connector on the motherboard supports composite and separate video sync timing
- Compatible with OpenWindows™ environment, CDE windowing, and supports the following APIs: X11, Motif, JDK, XGL, XIL, and OpenGL API via a software pipeline.
- Backwards compatibility with Sun's PGX24™ graphics accelerator (including MUX support, support for VESA/Sun resolutions, flexibility, and so on)
- Support for selected Sun monitor products released since 1995
- A HD15-to-13W3 video connector cable is included to connect to monitors with the 13W3 interface.

Sun PGX64 graphics supports the resolutions shown in the table below.

Display Resolution	Vertical Refresh Rate	Sync Standard	Aspect Ratio	Color Depth
1920 x 1200	75 Hz	Sun	16:10	8-bit
1920 x 1080	72 Hz	Sun	16:9	24-bit
1600 x 1280	76 Hz	Sun	5:4	24-bit
1600 x 1200	75 Hz	VESA	4:3	8-bit
1600 x 1000	66, 76 Hz	Sun	16:10	24-bit
1440 x 900	76 Hz	Sun	16:10	24-bit
1280 x 1024	60, 75, 85 Hz	VESA	5:4	24-bit
1280 x 1024	67, 76 Hz	Sun	5:4	24-bit
1280 x 800	76 Hz	Sun	16:10	24-bit
1152 x 900	66, 76 Hz	Sun	5:4	24-bit
1152 x 864	75 Hz	VESA	4:3	24-bit
1024 x 768	60, 70, 75, 85 Hz	VESA	4:3	24-bit
800 x 600	56, 60, 72, 75, 85 Hz	VESA	4:3	24-bit
720 x 400	85 Hz	VESA	9:5	24-bit
640 x 480	60, 72, 75, 85 Hz	VESA	4:3	24-bit

SunPci™ III Coprocessor Card

The SunPci™ III card is a cost-effective hardware and software product that allows customers to share data, peripherals, and network connections between Microsoft Windows and Solaris Operating Environment systems. The SunPci III card allows popular PC productivity applications to run on Sun systems side by side with Solaris Operating Environment applications at native speeds, saving valuable

desk space and helping to improve personal productivity. Best of all, the SunPCi III card leverages Sun's biggest strength, reliable and robust network computing.

The SunPCi III card integrates a PC motherboard into a SPARC-processor-based system along with software to run Microsoft Win98, Win/NT (3 flavors), Win2000 (2 flavors), and Win XP. (Microsoft Windows licenses are sold separately). Unlike software emulators such as Wabi™ and Insignia's SoftWindows, the SunPCi III card uses a 1.4GHz AMD Athlon XP Mobile processor. Applications run natively and at Athlon-class speeds on the SunPCi III card.

The card fits into a single PCI slot. Three full-size 32-bit or 64-bit PCI slots are required for full installation. If installed, the serial/parallel port second PCI backplate (included with the SunPCi III card) obstructs access to the adjacent PCI slot and the USB 2.0/1394A Firewire second PCI backplate(included with the SunPCi III card) obstructs access to the adjacent PCI slot . One SunPCi III coprocessor card is supported on a Sun Blade 150 workstation. In the Sun Blade 150, you cannot install a SunPCi III card and Sun XVR-600 graphics card in the system at the same time, there is not enough power allocated to the PCI slots. It is recommended that the Sun Blade 150 have at least 256 MB of memory installed to properly run the SunPCi III Card.

Sun Blade 150 Workstation System Configuration

Feature	Specifications
Dimensions	
• Height	• 118 mm (4.6 inches)
• Width	• 457 mm (18 inches)
• Depth	• 446 mm (17.6 inches)
• Weight	• 12.2 kg (26.9 lb.)
CPU	
• Architecture	• UltraSPARC[R] IIi
• Clock rate	• 550 MHz or 650 MHz
• External cache	• 512KB
• SPECint_2000	• 550MHz: 217, 650MHz:246
• SPECfp_2000	• 550MHz: 254, 650MHz:276
Memory	
• Memory type	• 168-pin JEDEC, error correction
• Number of slots	• Four
• Capacity	• 2- GB (4-GB in November 2003) max. error correction SDRAM
• DRAM speed	• PC133 DIMMs
• DIMM sizes	• 256MB, 512MB and 1 GB (DIMMs can be mixed and matched)
Storage	
• Maximum internal	• One or two 80-GB, 7200-rpm EIDE hard disk (standard configurations)
Graphics	
• On-board, 24-bit, Sun PGX64 2D graphics	• Accelerated text, windowing, 2D and 3D wireframe • 1280 x 1024 resolution • Support for Sun color monitors up to 24-inch (in 8-bit mode)

Sun microsystems

Feature	Specifications
• Sun XVR-100 2D graphics accelerator	Optional: • Accelerated text, windowing, 2D and 3D wireframe • 1920 x 1200 resolution • Support for Sun color monitors up to 24-inch (in 8-bit mode)
• Sun XVR-600 graphics	Optional: • 3D imaging; hardware accelerated texture mapping • 2048 x 1536 max. 2D and 3D resolution • 1280 x 1024 max. stereo resolution • Support for Sun color monitors up to 24-inch (in 8-bit mode)
I/O Interfaces	
• PCI I/O bus	• Three full-size PCI slots, 33 MHz, 5 volt (3.3V power supplied)
• Serial port	• One D-Sub 9-pin, asynch
• Parallel port	• One D-Sub 25-pin, IEEE 1284 bidirectional
• Smart card	• Fully supported by Solaris 8 and Solaris 9 Operating Environment
• Audio	• Four audio ports: line in/line-out
• USB	• Four USB 1.1 compliant
• IEEE 1394a draft 2.0	• Two ports
Networking Ports	10BASE-T/100BASE-T Fast Ethernet, self-sensing, twisted pair
Backup and Distribution	
• Floppy	• 1.44-MB, 3.5-inch, manual-eject floppy
• CD-RW	Optional • 48X-speed EIDE, Kodak photo-CD™ compatible standard
• DVD-ROM	• 16X speed
Operating Environment	Solaris 8 HW 5/03 (PSR2) and Solaris 9 4/03 (S9U3) or newer Operating Environment preinstalled

Specifications and Regulations

Environment

Feature	Specifications
AC Power	100-240VAC 50-60Hz, 5.0A (surge), 0.35kVA (max continuous)
Operating	5° to 35° C (40° to 95° F) IEC 60068-2-1, IEC 60068-2-2 Test Bb 10% to 90% relative humidity, noncondensing, 27°C maximum wet bulb
Nonoperating	-40° to 65° C (-40° to 150° F) IEC 60068-2-1, IEC 60068-2-2 Test Bb Up to 93% relative humidity, noncondensing, 38°C maximum wet bulb
Acoustic Noise • Operating • Idling	 • 5.5 bels • 4.8 bels
Operating Shock	6G, 11msec, trapezoidal pulse, 3 pulses/face, 6 faces, IEC 60068-2-27
Non Operating Shock	20G, 11msec, trapezoidal pulse, 3 pulses/face, 6 faces, IEC 60068-2-27
Operating Vibration	0.001G^2/Hz random, 5 to 500Hz (0.70Grms), 60 min. dwell per axis, 3 axes, IEC 60068-2-64; 0.5G/1.5mm flat spectrum swept-sine, 5 to 500 Hz, 5 sweep cycles per axis, 3 axes, IEC 60068-2-6
Non Operating Vibration	0.0025G^2/Hz random, 5 to 500Hz (1.11Grms), 60 min. dwell per axis, 3 axes, IEC 60068-2-64; 1.0G/3.5mm flat spectrum swept-sine, 5 to 500 Hz, 5 sweep cycles per axis, 3 axes, IEC 60068-2-6
Non Operating Humidty	93%RH, 45C, 10day dwell, IEC 60068-2-56

Regulations

The Sun Blade™ 150 workstation meets or exceeds the following requirements.

Feature	Specifications
Safety	UL/CSA-60950, EN60950, IEC950 CB Scheme with all country deviations, IEC825-1, 2, and CFR21 part 1040
Ergonomics	EK1-ITB-2000
RFI/EMU	EN55022/CISPR22 Class B, FCC CFR47 Part 15 Class B, EN61000-3-2, EN61000-3-3
Immunity	EN55024
X-ray	DHHS 21 Subchapter J; PTB German X-ray Degree
Power Management	Energy Star compliant on all standard configurations

Regulatory Markings   CE, FCC, ICES-003, C-tick, VCCI, GOST-R, BSMI, EK, UL/cUL, TUV-GS, E-Star, CCC

Sun microsystems

Sun Blade™ 150 Workstation Plug-and-Play Systems

The Solaris™ Desktop Edition is preinstalled on all Sun Blade™ 150 workstations. This plug-and-play feature provides users with a ready-to-run workstation right out of the box. Customers are up and running within minutes.

- Preinstalled on Sun Blade 150 workstations:
    - Solaris 8 HW 5/03 (PSR2) and Solaris 9 4/03 (S9U3) or newer Operating Environment
    - StarOffice™ 6.0 productivity suite
    - Common Desktop Environment
    - Apache ᴹ Web Server
    - Adobeᴹ Acrobat Reader
    - Caldera ᴹ Graphics CameleoLIGHT
    - Java 2™ SDK
    - Netscape™Navigator
    - Java 3D™ and Sun™ OpenGL® for Solaris™ graphics drivers
    - Sun One Studio
    - Sun Grid Engine
    - Gnome
- The Solaris Operating Environment preinstalled software comes with the following languages:
    - English
    - French
    - German
    - Italian
    - Spanish
    - Swedish
    - Traditional Chinese
    - Simplified Chinese
    - Korean
    - Japanese

The Solaris Operating Environment

The Solaris 9 Operating Environment is the latest release of one of the industry's leading enterprise operating environments. The Solaris 9 Operating Environment contains the complete functionality required for all supported Sun workstations. The Solaris 9 Operating Environment is a solid, scalable 64-bit operating environment that also supports 32-bit applications. The Solaris 9 Operating Environment includes:

• Reliable, Internet-ready operating environment for 64-bit SPARC™ processor-based platforms

• Enhanced ease of use and PC-interoperability features

• Integrated, high-performance Java™ technology and tools

• Robust software developer environment

• Advanced, standards-based networking

• Improved systems installation and management tools

• Enterprise-class directory services

• Enhanced desktop tools, I/O standards, and security

The Solaris Operating Environment delivers a competitive advantage to businesses through networked computing, scalability, and multiarchitecture support. The Solaris Operating Environment provides an advanced, superior solution for all customer IT needs, both technical and business. With its strength in enterprise-class reliability, scalability, and performance, the Solaris Operating Environment is an industrial-grade solution with the quality and robustness required to deliver mission-critical computing.

Solaris Operating Environment Features and Benefits

Features	Benefits
• 100 percent binary compatibility	• Software investment protection — all of today's Solaris Operating Environment-certified 32-bit applications continue to run on Solaris 8 and 9 Operating Environment without modification
• Reliability, availability, and serviceability (RAS)	• Less downtime, more productivity, and faster project completion
• 64-bit computing	• Higher performance, capacity, and precision on 64-bit SPARC processor-based systems and Intel systems with 32-bit binary compatibility
	• Compliant with UNIX® 98 and Aspen Group LP64 standards
• 64-bit compilers	• Quickly develop and certify 64-bit applications for SPARC and IA-64 processors using Solaris Operating Environment APIs, 64-bit C/C++ and FORTRAN compilers, and ABI certification tools
• Java 2 SDK	• Provides a high-performance, scalable Java virtual machine
	• Offers improved memory management, optimized JIT compiler and faster Java thread synchronization

Features	Benefits
• IPv6/IPsec/Mobile IP	• Helps increase addressing range, provides better authentication and privacy, and enables new quality of service capabilities. Mobile IP permits intermittent connection to the Internet with no data loss.
• Scale from 1 to 512 processors per node	• Helps increase compute resources as a customer's needs grow. Expand to four processors on the desktop, or use up to 64 processors per server, with up to eight servers per cluster.
• LDAP directory services	• High-speed, enterprise-class directory service, using the Solaris 8 and 9 Operating Environment LDAP client and the iPlanet™ Directory Server, supports complex, data intensive network applications. Includes Microsoft Active Directory support.
• System management tools	• Helps reduce the time spent on system administration duties using Web-based wizards and Java technology-powered graphical interfaces.
• Desktop management and productivity tools	• Helps increase productivity with intuitive Desktop, Printer, PDA sync, HotKey, and CDE 1.4 control panel tools. The StarOffice™ productivity suite easily handles Microsoft Office documents, and creates complex documents, spreadsheets, and presentations. Use PC Launcher and the SunPCi™ IIpro coprocessor card to run Windows, Lotus 1-2-3, and AutoCAD applications on Sun workstations.
• Exted device and support	• I/O Connect with Sun, using the customer's favorite devices, including DVD, ZIP, and JAZ drives, and USB, 1394, SCSI, UPA, and PCI buses.
• Internationalization	• The Solaris 8 and 9 Operating Environment is a comprehensive global product that supports 37 languages and over 90 locales, the euro currency symbol, and complex text formats for the Arabic, Thai, and Hebrew languages. Additional language installation tools, expanded Unicode support, and improved data interoperability utilities greatly simplify the development and testing of applications for international markets.
• X11R6.4	• Runs X applications . Provides single logical screen across multiple display devices
• Real Time application	• Offers scalable, fixed-priority, and fully preemptive scheduling using multiple high-resolution, per-CPU interval timers. Provides priority inheritance for synchronization by multi-threaded realtime applications, such as simulation, telemetry, data acquisition, signal processing, and video-on-demand.
• Enhanced security features	• Increased support for security protocols and technologies including IPSec, AMI, Kerberos v5, and smart cards reduce the chance of security-related downtime

Sun microsystems

Solaris 9 Operating Environment Features

The Solaris 9 Operating Environment is Sun's latest release in this product family. The Solaris 9 Operating Environment continues the tradition of reliability, availability, and scalability (RAS) of the earlier operating environment releases, including features IPv6/IPsec/Mobile IP, realtime application support, filesystem logging, and remote console.

Existing applications that adhere to the Solaris application binary interface (ABI) will run unmodified with Solaris 9 software on both SPARC processor-based platforms and Intel platforms. In addition, Sun provides an easy-to-use AppCert testing tool for developers, so they can verify existing Solaris application binaries and report on any potential incompatibilities.

- **Productivity features**

  Solaris 9 software offers enhanced diagnosing capabilities, availability, scalability, performance, Java technology, and graphics. With the Solaris 9 Operating Environment, the customer gets a full suite of integrated tools for browsing, collaborating, and interoperating with PCs. The Solaris 9 Operating Environment provides a 32-bit and 64-bit UNIX platform that provides customizable workspaces, graphical system monitoring, and business/office productivity tools, including the StarOffice productivity suite.

- **Advanced networking**

  Support for IPv6 in the Solaris 9 Operating Environment is integrated into NFS, RPC, NIS, NIS+, and DNS. IPsec enables secure virtual private networks and network access control. Mobile IP provides Internet disconnect/reconnect capabilities with no data loss.

- **Bundled software**

  The Solaris Media kit includes: Oracle 8i Enterprise Edition, Apache Webserver, Netscape™ Communicator, iPlanet Directory Server, `gzip`, `bash`, and `tcsh`.

  The Solaris 9 Operating Environment ships with support for a number of software components that increase overall availability including Solaris Resource Manager software for fine-grained control of system resources, Solaris Bandwidth Manager software for enhanced network resource availability, and Sun Cluster 3.0 software for even greater application availability through a clustered file system, scalable data services, and built-in load balancing.

- **Enhancements to the Common Desktop Environment (CDE)**

  The latest generation of the Common Desktop Environment (CDE) comes standard, providing workstation users with an easy-to-use, open, secure platform. Personal Digital Assistant (PDA) support synchronizes data from most Palm Computing devices with the CDE calar, mail, memo, and address book. CDE now features streaming video using MPEG1, MPEG2, Quicktime, and AVI formats as well as MIDI audio using the Java Media Framework.

- **Improved system error messages, system debugging capabilities, and remote console capability**

  Allows the customer to apply scarce system expertise remotely across the enterprise.

- **File system logging**

  Logging file system features and parallel SCSI probes make rebooting faster.

- **Live Upgrade**

  Allows Solaris 9 software to be installed on a separate partition from the currently running version of the operating environment. When installation is complete, a simple reboot enables the Solaris 9 Operating Environment to take control. Since Live Upgrade includes a version migration and fallback feature, the customer can also fallback to the previous release — through a simple reboot — without losing administration information.

- **Real-time video creation and broadcast support**

   A Java Media Framework (JMF) player provides access to the latest industry-standard audio and video files, including MPEG1/2, Quicktime, VIVO, AVI, AIFF, GSM, WAV, RMF, AU, and MIDI.

Graphics Software Interfaces

The Sun Blade 150 system supports all Solaris 8 and 9 Operating Environment graphics and window system APIs, including OpenGL® and Display PostScript™. A large number of Sun and third-party graphics APIs are also supported, including IRIS GL, OpenGL, GKS, HOOPS, and Java 3D™ software. Industry-standard X-extension libraries, such as Xlib and PEXlib, are available.
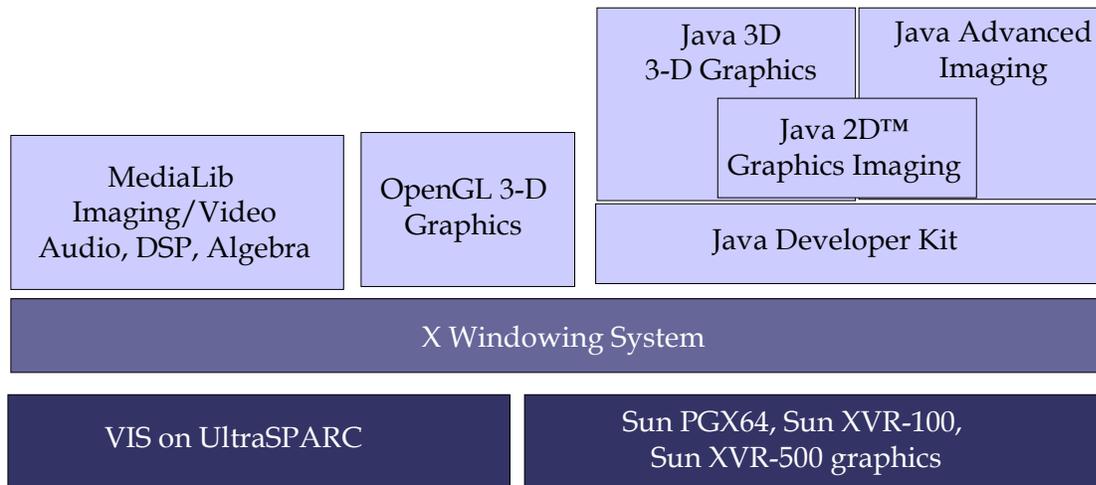
Figure 4. Graphics software interfaces

The Solaris Operating Environment System Requirements

Feature	Specification
• Memory	At least 64 MB
• Disk space	Typically 600 MB to 1 GB

Note: *Required disk space will vary based on OS packages selected, desktop or server use, desired swap tmp space, localization or translations, online documentation, and applications installed.*

The Solaris Operating Environment Licensing and Usage

Under the Free Solaris Binary License Program program, Sun is making the binary (runtime) version of its Solaris 8 and 9 Operating Environment available to everyone who accepts the terms of the Solaris 8 and 9 Binary Code License (BCL) and the Free Solaris Binary License Program. There are no fees for the right to use the software on computers with a capacity of eight or fewer processors; just a small charge for the media kit.

Refer to http://www.sun.com/software/solaris for current licensing details. Some features of the Solaris Operating Environment license include the following:

- No longer a distinction between desktop and server licenses

- Free binary (runtime) license for all systems of 8 or fewer CPUs for customers who accept the terms of the Solaris 8 and 9 Binary Code License and the free Solaris Binary License Program

- Solaris 8 and 9 Operating Environment software is provided via the Solaris 8 and 9 Media Kit available for purchase on-line at `http://www.sun.com/solaris/binaries`

- Single Solaris Media Kit can be used to install multiple systems

- Solaris Media Kit contains additional bundled software

- Solaris Supplemental CD of bundled user and system management tools

- Oracle 8i Enterprise Edition (with development license)

- StarOffice 6.0 productivity suite

- Solaris Software Companion CD of popular freeware

- iPlanet Advantage Software (with development licenses)

System Management

Many of the Sun™ workstations deliver the kind of power and graphics needed by the customers who use heavy compute-intensive applications in markets such as MCAE, oil and gas, simulation, visualization, and animation. Customers who run these compute-intensive applications generate and handle critical technical and scientific data, and require an operating environment that can deliver highly reliable, available, fast, and safe desktop computing environment. Built into the Solaris™ 8 Operating Environment are systems management and security features that help deliver the computing environment demanded by these customers. These features are described below.

Sun Grid Engine Software

As organizations grow, matching user's computing requirements to the most appropriate resource becomes increasingly difficult. The constantly varying priorities of users, teams, projects, groups, departments, and divisions, combined with the pressures for efficient utilization of computing resources, can make increasingly disproportionate demands on managers and staff.

In a typical network that does not have distributed resource-management (DRM) software, workstations and servers are used from 5 to 20 percent of the time. For example, machines sit idle most nights and weeks. Even technical servers are generally less than fully utilized. This means that there are many cycles that can be used productively if only users know where they are, can capture them, and put them to work.

Sun™ Grid Engine 5.2 software finds a pool of idle resources and harnesses it productively, so an organization gets as much as five to ten times the usable power out of systems on the network. It can help increase utilization to as much as 98 percent.

Sun Grid Engine software aggregates available compute resources and delivers compute power as a network service. Sun Grid Engine load management software is targeted to optimize utilization of all software and hardware resources in heterogeneous networked environments. Sun Grid Engine software distributes the computational workload across multiple systems (workstations or servers), increasing the productivity of machines and application licenses while helping to maximize the number of jobs that can be completed. Designed for high-performance, flexibility, and scalability, Sun Grid Engine software provides robust load sharing and sophisticated batch scheduling.

Sun Grid Engine software supports the Sun Blade 150 workstation. This software helps users get even more value from their workstations.

Admintool

Admintool is a GUI-based administration tool that provides local systems administration. Admintool can be used to manage user accounts, groups, hosts, printers, serial ports, and installation/removal of software.

Sun Management Center Software

Sun Management Center software is a GUI-based system management tool for Sun systems. Sun Management Center software enables system administrators to proactively monitor and manage the health and status of many Sun workstations from a central location. Sun Management Center software simplifies the management of many workstations, establishing highly stable and reliable workstation computing environment for running business-critical applications. In addition, Sun Management Center software is also scalable enough to run entirely on a workstation as a stand-alone application.

Sun microsystems

Key Features

- **Performance monitoring and management**

  Provides proactive monitoring and management of workstation hardware and the Solaris Operating Environment, by detecting imping failures

- **Predictive failure analysis**

  Enables administrators to predict potential memory and disk hardware failures on a statistical bases, thereby enhancing the decision making process and increasing machine availability

- **Fault and event management**

  Collects alarms and events, and then helps users identify the root cause of the problems

- **Physical view of workstations**

  Provides enhanced serviceability with visual view that highlights failed hardware components

Solstice AutoClient™ Software

Solstice AutoClient™ software reduces the cost of Sun workstation management by enabling centralized administration. This centralization eliminates the need to do backups, installations, and software management on the workstation itself. Solstice AutoClient software caches the Solaris Operating Environment, required applications, and user data onto the workstation's disk from a network server.

Key Features

- **Centralized software management model**

  Reduces workstation administration costs by allowing workstations to be managed from a server

- **Hands-off installation**

  When an application is needed, Solstice AutoClient automatically pulls the software from the server and loads it onto the workstation disk, resulting in built-in software distribution

- **Workstations become field replaceable units**

  Sun workstations can be replaced easily in the event of hardware failure, minimizing user down time

- **No workstation backups required**

  Solstice AutoClient workstations only have cached data, so there is no need to back up the workstation; the backup occurs on the server, saving considerable time and resources

Performance Meter

This GUI-based performance meter enables users to quickly monitor some of the key system resources such as CPU, load, disk, page, context, job swaps, interrupts, packets, collisions, and errors.

SunVTS™ Software

The SunVTS™ system exerciser is a graphically oriented UNIX® application that permits the continuous exercising of system resources and internal and external peripheral equipment. Used to determine if the system is functioning properly, SunVTS software incorporates a multifunctional stress test of the system through operating-system-level calls, and allows the addition of new tests as they become available.

ShowMe How™: State-of-the-Art Installation and Maintenance Instruction

ShowMe How™ is a documentation system that presents information in a highly understandable multimedia format. Installation and service tutorials as well as reference information provide users with comprehensive, easy-to-use instruction. ShowMe How streamlines installation and maintenance for lower service costs and maximum system uptime.

Key Features

- Distributed on CD-ROM with every system

- Movies of installation and replacement procedures played through ShowMe TV™ software

- Photo sequences with narrated installation and replacement procedures

- Text-based instructions, taken from standard Sun documentation that can be viewed on-line and printed

- Photos with active callouts link to more detailed photos and text-based reference information

AnswerBook2™: System Administration Guide

The AnswerBook2™ product is Sun's on-line documentation system. It uses a web-browser interface that lets the customer view and print a variety of Solaris information, including SGML-based AnswerBook™ collections, Display PostScript™ AnswerBook collections, and man pages.

The AnswerBook2 product provides a search engine that lets the customer find information throughout the documentation library. Users can install AnswerBook2 document collections on a centralized documentation server or on a local server.

Features and Functions

- Uses a web-browser-based interface so that the customer can view on-line documentation from any platform (running any operating system), provided that their web browser supports HTML 3.2

- Contains support for multimedia (video and audio) content

- Provides a search engine for finding words and word phrases throughout the documentation library

- Lets the user define a subset of document collections (a personal library) to be displayed when using a specific documentation server

- Lets users copy information from AnswerBook2 documents and paste it into other locations, such as the command line, deping on the web browser's functionality

- Gives users the ability to print sections and books directly from the AnswerBook2 interface in a PostScript™ format that is near print-quality output

- Allows the user to choose a language in which to view on-screen instructions and Help information

- Provides a command-line interface (CLI) and a browser-based interface (GUI) for performing documentation server administration functions

Ordering Information

Sun Blade 150 Workstation Part Numbers

Part Number	System
A41-UPA19C-256M-DL	Sun Blade 150 Workstation 550-MHz UltraSPARC-IIi, 512-KBOn-chip L2 Cache, PGX64 Onboard Graphics, 256-Mbyte SDRAM (1*256MB DIMM),1 * 80GB 7,200 RPM Internal Disk, DVD-ROM, SmartCard Reader, 1.44MB Floppy, 1 * 10/100 BaseT Ethernet port, 1 *serial port, 1 * Parallel port, 4* USB ports, 2 * IEEE1394a ports, 3 8 PCI slots, No keyboard included, Solaris 8 HW 5/03 and Solaris 9 4/03 pre-installed,Standard Configuration
A41-UTA19C-512M-DL	Sun Blade 150 Workstation 650-MHz UltraSPARC-IIi, 512-KB On-chip L2 Cache, PGX64 Onboard Graphics, 512-Mbyte SDRAM (1*512MB DIMM),1 * 80GB 7,200 RPM Internal Disk, DVD-ROM, SmartCard Reader, 1.44MB Floppy, 1 * 10/100 BaseT Ethernet port, 1 *serial port, 1 * Parallel port, 4* USB ports, 2 * IEEE1394a ports, 3 8 PCI slots, No keyboard included, Solaris 8 HW 5/03 and Solaris 9 4/03 pre-installed,Standard Configuration

Ordering Guidelines and Notes

- **Software**
    - The Solaris 8 HW 5/03 (PSR2), Solaris 9 4/03 (S9U3) Operating Environment and StarOffice™ 6.0 productivity suite are preinstalled on all Sun Blade 150 systems.
    - The Solaris 8 and 9 media kit is not included. Order it using one of the media kit part numbers given in the Options section of this document (or in Sun's Pricebook). Country kits, monitors, and other options such as PCI cards and external storage also need to be ordered separately.
- **Memory**
    - The Sun Blade 150 workstation supports up to 2-GB of SDRAM with ECC error correction with 256-MB and 512-MB modules.
    - The workstation can accommodate up to four DIMM modules. Sizes can be mixed.

Part Number	Memory Expansion Options
X6180A	256-MB single DIMM
X6181A	512-MB single DIMM

- **Keyboard**

  Keyboards are not included in the Sun Blade 150 workstation configurations. The appropriate Type 6 USB country kit must be ordered with the system.

- **External SCSI devices**

  A PCI SCSI adapter card is required to attach any external SCSI device since SCSI is not a feature of the Sun Blade 150 workstation. In addition, all internal SCSI options are not compatible with the Sun Blade 150 workstation.(See list of PCI expansion cards in the Options section of this document.)

- **Monitors**

  Monitors are not included in the Sun Blade 150 workstation configurations. Customers are not required to order a monitor. Monitors are ordered as a separate line item. The Sun Blade 150 workstation supports the Sun monitors listed below. For some monitor and frame-buffer combinations, a video adapter cable may be required; consult the table below.

Supported Monitors	Video Adapter Required for On-board 24-bit PGX64
17-inch color (X7147A)	none
19-inch TFT LCD color (X7144A)	none
22-inch color (X7149A)	none
24-inch LCD color(X7134A)	X471A

- **SunPCi III coprocessor card support:**

  The SunPCi coprocessor card ships with the following:

  – SunPCi III Installation Guide

  – SunPCi III Product Update Note

  – SunPCi III serial/parallel cable backplate

  – SunPCi III USB 2.0/1394A daughter card

  – Anti-static wrist band

  Microsoft Windows licenses are not included.

Assemble To Order (XATO) Program

Through the X-Option Assemble To Order (XATO) program, customers can configure a Sun Blade 150 workstation to suit their needs.

Starting with a base configuration (Chassis, customers can choose/add the following options:

- A 550-MHz or 650-MHz CPU
- Disk drive (adding a second 80-GB HDD)
- Memory (256-MB, 512-MB, up to 2-GB.
- Graphics Sun PGX64 on the motherboard (optional Sun XVR-100 or Sun XVR-600 graphics)
- CD-RW or DVD-ROM
- SunPCi III CoProcessor Card

Sun microsystems

Options

Below is a comprehensive list of system expansion, networking, graphics, and multimedia options that are supported by Sun Blade 150 systems. Refer to the Sun Price Book and configuration guides for currently available option listings, configuration notes, and ordering information. When no maximum number is listed, refer to ordering or configuration notes for that option. Options in italics are discontinued and are presented here for reference purposes only.

Part Number	Option Description	Maximum Number Supported	Comments
Memory			
X6180A	256-MB single DIMM	4	
X6181A	512-MB single DIMM	4	
Mass Storage Internal			
X6185A	Internal 80-GB, 7200-rpm EIDE hard disk drive	2	
X6175A	Internal 16X-speed DVD-ROM	1	
X6187A	Internal 48X-speed CD-RW	1	
Mass Storage UniPack			
SG-XDSK010C-36G	36-GB UniPack Disk	4	SCSI cables required
Mass Storage Sun StorEdge™ MultiPack			
SG-XDSK020C-72G	72-GB MultiPack (2 X 36-GB, 10000-rpm) UltraSCSI	1	
SG-XDSK060C-218G	218-GB MultiPack (6 x 36-GB, 10000-rpm) UltraSCSI	1	
X5242A	36-GB UltraSCSI 10000- rpm disk (for Packs)		
Mass Storage - Sun StorEdge FlexiPack			

Part Number	Option Description	Maximum Number Supported	Comments
X6175A	16X DVD-ROM		
Mass Storage - Sun StorEdge S1 Arrays			
Tape Libraries			
PCI Expansion Cards			
X1034A	PCI Quad FastEthernet controller PCI adapter	1	
X1150A	GigaSwift Ethernet (UTP)	1	
X1155A	High-speed serial – 4 port	3	
X1157A	Sun ATM™/P-155 MMF	1	
X6762A	Crypto 1000	1	
X4011A/X4012A	Crypto 4000	1	
X3150A	GigaSwift UTP	1	
X1151/X3151A	GigaSwift MMP	1	
X4444A	Quad Giga Ethernet	1	
X1141A	Gigabit 2.0	1	
X2222A	2FE + 2 SCSI	1	
X4422A	Dual Fast Ethernet/Dual SCSI	1	
X2156A	Serial Asyn interface – 8 port	3	
X5010A	Single channel SCSI	3	
X6540A	Dual-channel, single-ed UltraSCSI adapter	3	

Part Number	Option Description	Maximum Number Supported	Comment
X6541A	Dual-channel, differential UltraSCSI controller	3	
X2134A	SunPCi™ III coprocessor card	1	
X7066A	256-MB DIMM memory expansion for SunPCi IIpro card	2	
X7067A	512-MB DIMM memory expansion for SunPCi IIpro card	2	
Monitors and Graphics			
X7147A	17-inch entry color monitor		
X7144A	19-inch TFT LCD color monitor		
X7149A	22-inch color monitor		
X7134A	24.1-inch LCD color monitor		
X471A	13W3F-to-HD15M video adapter cable		
X3872A	HD15F-to-13W3 video adapter		
X3780A	Sun™ XVR-600 graphics	1	
X3770A	Sun™ XVR-100 graphics	3	
Other Options	A PCI SCSI adapter card is required to attach any external SCSI device to the Sun Blade 150 workstation		
X901A	0.8-meter wide-to-narrow 68-68-pin UltraSCSI		
X902A	2.0-meter wide-to-narrow 68-68-pin UltraSCSI	1	
X903A	1.2-meter wide-to-narrow 50-68-pin SCSI adapter cable	1	
X904A	2.0-meter wide-to-narrow 50-68-pin SCSI adapter cable	1	
X3856A	Fast-wide 68 to 68 pin SCSI cable and GEO-specific power cord		
X3857A	Fast-narrow 50 to 68 pin SCSI cable and GEO-specific power cord		
Solaris 8 Media Kit	Customer must order media kit to get recovery CD and Solaris documentation		
SOLZS-080B9AY9	English Kit		
SOLZS-080B9AY9A	French Kit		
SOLZS-080B9AY9B	German Kit		
SOLZS-080B9AY9C	Japanese Kit		
SOLZS-080B9AY9D	Simplified Chinese Kit		
SOLZS-080B9AY9E	Italian Kit		
SOLZS-080B9AY9F	Spanish Kit		
SOLZS-080B9AY9G	Swedish Kit		
SOLZS-080B9AY9H	Korean Kit		
SOLZS-080B9AY9J	Traditional Chinese		
SOLZS-080B9AY9M	English (Worldwide)		
Type 6 USB Country Kits			

Part Number	Option Description	Maximum Number Supported	Comment
X3531A	North American Universal ("PC style")	1	
X3532A	French	1	
X3533A	German	1	
X3534A	Swiss-French	1	
X3535A	Swiss-German	1	
X3536A	Swedish	1	
X3537A	United Kingdom	1	
X3538A	United States UNIX	1	
X3539A	Japanese UNIX	1	
X3554A	Taiwanese	1	
X3555A	Korean	1	
X3556A	Japanese	1	
X3558A	United Kingdom UNIX	1	
X3559A	European UNIX	1	
X3560A	Norwegian	1	
X3561A	Portuguese	1	
X3562A	Spanish	1	
X3563A	Danish	1	
X3564A	Italian	1	
X3565A	Dutch (Netherlands)	1	
X3566A	Australian	1	
X3567A	Finnish	1	
X3568A	European Universal	1	
X3582A	Chinese	1	
X3583A	Euro UNIX (Power Cordless)	1	

Upgrade Information

Sun™ upgrades offer customers superior investment protection for their existing Sun equipment.

Key Messages

- Sun offers customers a variety of flexible upgrade paths to the most popular Sun systems

- Choose from specific configurations of chassis upgrades

- Existing investments in non-Sun hardware can be leveraged by upgrading to Sun through competitive upgrades

Sun Upgrade Allowance Program (Sun UAP)

The Sun UAP program offers customers a simple, flexible, and easy-to-understand way of ordering desktop workstation upgrades. This program uses a percentage-based upgrades model. This model simplifies the upgrades process by providing a trade-in value as a percentage allowance. This percentage allowance can then be applied to the list price of a regular Sun system configuration.

Under the Sun UAP program, allowance codes or part numbers have been created and the percentage allowance is built into this part number (see below). These allowance codes replace the previous UG/CU marketing codes used for all desktop upgrades.

Allowance codes can be found in SunWin document #94726. Please note that allowance codes apply to configured systems and **cannot be applied to X-options, other than monitors** (see ordering notes below).

Allowance Code Numbering Scheme

Below is an example allowance code, along with a breakdown of the components.

Allowance code = ALW-15-T-D-A41-P2

- **ALW** = Upgrade identifier (All allowance codes start with ALW.)

- **15** = Allowance percentage, which is the percentage applied to the list price of a standard marketing part number. "15" means 15% off of list price, "08" means 8% off of list price, and so on.

   (Note: Any other discounts such as volume discounts should also be taken off the list price and not the net of the above.)

- **T** = Desktop upgrades, S for server upgrades, and D for storage upgrades.

- **D** = Indicates the residue group, a way of grouping system in the Sun installed base. The letters A through X are reserved for Sun systems. The letter Z is used for competitive systems.

- **A41** = Identifies the product family that the customer is purchasing.

- **P2** = Promotion code, used for tracking corporate sponsored and other types of promotions.

Sun
microsystems

How to Determine the Right Allowance Code

Scenario: My customer has a SPARCstation™ 10 workstation and would like to upgrade to a Sun Blade™ 150 workstation. What allowance part number should I select?

1. From left hand column select the platform the **customer has.**

2. From the top row select the platform the customer would like to **UPGRADE TO.**

3. Where the UPGRADE FROM column and the UPGRADE TO row intersect (noted with **) is the allowance part number that is applied to the list price of the standard marketing part number.

    <mark>*This is for example only. For current allowance code information, please see SunWin Document #94726</mark>

DESKTOP SYSTEM MIGRATION AND ALLOWANCE MATRIX		
UPGRADE TO: **FROM:**	**Sun Blade 150 (A41)**	**Sun Blade 2000 (A29)**
Early Sun SPARCstation™ systems	ALW-04-T-A-A41	ALW-03-T-A-A29
4, 5, 10, or 20 SPARCstation workstations	ALW-04-T-B-A41	ALW-03-T-B-A29
Ultra™ 1, 5, 10, and 30 workstations	ALW-06-T-C-A41	ALW-03-T-C-A29
Ultra 2 and 60 workstations	ALW-06-T-D-A41	ALW-05-T-D-A29
Non-Sun workstations	ALW-06-T-Z-A41	ALW-05-T-Z-A29

Answer: Allowance part number ALW-04-T-B-A41 should be selected. The customer gets a 12 percent allowance off the list price of any Sun Blade 150 workstation configuration for returning the SPARCstation 10 system.

Ordering Notes

• No disks, memory, or CD-ROM drives migrate to the Sun Blade 150 workstation.

• Country kits (keyboard and localized manuals)

    – Country kits (keyboards) are not provided with upgrades. If the user requires a keyboard, they can order the correct X option.

    – The Sun Blade 150 workstation does not support non-USB keyboards.

• Monitors

    – Monitors are not included with any Sun Blade 150 workstation upgrades. If a monitor is needed, order the appropriate X-option or refer to monitor upgrade section of the Pricebook and apply the appropriate allowance code.

    – Sun-branded 17-inch and 20-inch monitors migrate from previous generation Sun systems; however, the customer may need to purchase a monitor adapter X471A.

    – For some monitors, a video adapter may be required. Please order correct adapter (example: a 21-inch color monitor with on-board 8-bit graphics requires X471A). Adapter choices are:

        • X3872A — HD15F-to-13W3 video adapter
        • X471A — 13W3F-to-HD15M video adapter (10-inch cable)

– N1 (Sony GDM 17E10), N2 (Sony GDM 20E20, GDM 17E20), P4 (Sony GDM20D10) are supported monitors on Sun Blade 150 workstation. Customer may migrate any of these monitors. However, an adapter is required for operation.

Original Sun Blade 150 Workstation EOL

The original Sun Blade 150 workstation is being discontinued, and the Sun Blade 150 (refresh) workstation takes its place in the product line. The schedule for the discontinuation of the original Sun Blade 150 system is as follows:

• End Of Life announcement	11/11/03
• Last Order date	02/13/03
• Last Ship Date	05/14/03

Service and Support

Sun Enterprise Services Offerings

Sun Enterprise Services now provides two service offerings: SunClient℠ program or low-level, low-cost support and SunSpectrum℠ program for high-level support and mission-critical response. Both support programs are available to service Sun Blade™ 150 workstations.

SunClient Program

There is a way to reduce hardware and software support costs for network computers and Sun workstations. The SunClient support program is a suite of offerings that is separate, yet complementary to the SunSpectrum program. SunClient Support provides:

• A choice for optimizing low-cost workstation support

• Flexibility to select only the services needed

• Administrative simplicity, saving time and money

• Access to world-class UNIX® networking experts

Feature	SunClient Maintenance	SunClient Central Maintenance	SunClient Software Tech Support Option*
Systems approach coverage	*	*	—
Solaris™ and unbundled software technical support	—	—	*
9 a.m.-5 p.m., M-F telephone coverage	*	*	*
8 a.m.-5 p.m., M-F on-site coverage	*†‡	*‡	—
Response times (phone/onsite)	4-hour callback/next business day response	4-hour callback/second business day response	4-hour callback
Centralized on-site repair of multiple units	—	*	Not Applicable
Patches	Not Applicable	Not Applicable	*
SunSolve℠ license	Not Applicable	Not Applicable	*
SunSolve EarlyNotifier℠ Service	Not Applicable	Not Applicable	*
Software Updates	Not Applicable	Not Applicable	Not Applicable

* Can only be sold as an option to SunClient Maintenance or SunClient Central Maintenance.
† Next business day on-site response requires that the request for service be received by 3:00 p.m. If the call is received after 3:00 p.m., service will be provided on the second business day.
‡ Customers located more than 50 miles from an authorized service provider or reseller will be charged an additional fee for service activity.

![Sun Microsystems logo]

Features and Benefits of the SunClient Program

Features	Benefits
• Unbundled hardware and software support	• **Flexibility**: Select the type and amount of coverage needed for desktop systems, so service dollars are targeted where they are needed most. • **Cost savings**: Pay only for the support services needed.
• Next business day (SunClient Maintenance) or second business day (SunClient Central Maintenance) on-site response	• **Cost efficiency**: Because Sun can more efficiently manage spare inventory and labor scheduling, the savings can be passed on to the customer.
• Single contract with choice of automatic warranty upgrade	• **Simplicity**: One contract covers a predefined number of systems at one low price. New systems acquired can be upgraded to the SunClient service level.
• SunClient Central Maintenance	• **Cost savings**: Sun realizes an economy of scale by repairing multiple systems with one visit and leverages existing support infrastructures, so cost efficiency is maximized while duplication of effort is minimized.
• Service delivery by Sun experts	• **Consistency**: Selected desktops can be deployed anywhere with assurance of cost-effective, quality service and support.

For more information, visit the SunClient Support (external) web site at:
`http://www.sun.com/service/support/sunclient`

The SunSpectrum Program

The SunSpectrum program is an innovative and flexible service offering that allows customers to choose the level of service best suited to their needs, ranging from mission-critical support for maximum solution availability to backup assistance for self-support customers. The SunSpectrum program provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the Solaris Operating Environment software, and telephone support for Sun℠ software packages. The majority of Sun's customers today take advantage of the SunSpectrum program, underscoring the value that it represents. Customers should check with their local Sun Enterprise Services representatives for program and feature availability in their areas.

SunSpectrum program support contracts are available both during and after the warranty program. Customers may choose to uplift the service and support agreement to meet their business needs by purchasing a SunSpectrum contract.

The four levels of SunSpectrum support contracts are outlined below.

Program	Description
Mission-Critical **SunSpectrum Platinum℠ Support**	Designed to support client-server, mission critical solutions by focusing on failure prevention, rapid recovery and year round technical services planning. Support is provided 24 x 7.
Business-Critical **SunSpectrum Gold℠ Support**	Includes a complete package of proactive and responsive services for customers who require maximum uptime for their strategic business-critical systems. Support is provided 24 x 7.
System Coverage **SunSpectrum Silver℠ Support**	Combines the service expertise, responsive on-site support and technical support by telephone and SunSolve™ CD/on-line services. Support is provided 8 a.m. to 8 p.m. Mon. through Fri.
Self-Directed **SunSpectrum Bronze℠ Support**	Provided for customers who rely primarily upon their own in-house service capabilities. Enables customers to deliver high quality service by giving them access to UNIX® expertise, Sun certified replacement parts, software releases and technical tools. Support is provided 8 a.m. to 5 p.m. Mon. through Fri.

Sun
microsystems

Glossary

3D-RAM	Dual-ported video memory with graphics functionality built into the memory chip.
100BASE-T	*See* Fast Ethernet.
Antialiasing	A graphics technique that greatly enhances the quality of images by eliminating many of the inaccuracies (jaggies) inherent to rering on a raster display. Typically found only in high- graphics systems.
DIMM	Double inline memory module. A memory unit that can come in a variety of sizes, such as 16, 32, 64, and 128 MB.
Fast Ethernet	IEEE standard for 100-Mb Ethernet.
MII	Media indepent interface. Used for connecting external transceivers to Fast Ethernet.
ODBC	Open database connectivity.
OpenGL®	A standard software interface for graphics hardware that allows programmers to create interactive 3D applications. OpenGLprovides a full-featured, network-transparent application programming interface.
PCI	Peripheral component interconnect. An industry standard for connecting peripherals such as disk drives, tapes drives, and other devices used in the PCs.
Sun™ XVR-100	Sun XVR-100 graphics. A very low-cost cost, flexible 24-bit, 2D graphics board supporting the widest range of Sun systems and supporting up to 4 heads in a single system (3 boards+ 1 on board)
V9	Version 9 of the SPARC™ definition.
VIS™	Visual instruction set. The UltraSPARC[R]processor implements a special instruction set that is aimed primarily at image and video processing. Some of the instructions allow the CPU to directly access and operate on image data with a high degree of parallelism. Other instructions provide facilities for formatting and moving data at very high rates of speed both within the CPU, and between the CPU and the other system components.
XGL™	A foundation geometry-oriented 2D/3D graphics library that provides high functionality and performance to geometry applications and application program interfaces (APIs).

Materials Abstract

All materials are available on SunWIN, except where noted otherwise.

Collateral	Description	Purpose	Distribution	Token # or COMAC Order #
Just the Facts				
– *Sun Blade™ 150 Workstation: Just the Facts*	Reference Guide (this document)	Training Sales Tool	SunWIN, Reseller Web	352606
– *SunPCi™ IIpro Coprocessor Card: Just the Facts*	Reference Guide	Training Sales Tool	SunWIN, Reseller Web	92629
– *Sun™ PGX64 Graphics, Just the Facts*	Reference Guide	Training Sales Tool	SunWIN, Reseller Web	301866
– *XVR-100, Just the Facts*	Reference Guide	Training Sales Tool	SunWIN, Reseller Web	373333
– *XVR-600, Just the Facts*	Reference Guide	Training Sales Tool	SunWIN, Reseller Web	397282
References				
– *Sun Blade 150 Workstation Technical White Paper*	Technical Brief	Sales Tool	SunWIN	125032
– *SunPCi III Coprocessor Card White Paper*	Technical Brief	Training Sales Tool	SunWIN, Reseller Web	92632
Quick Reference Cards				
– *Quick Reference Card Desktop Graphics*	Technical Reference	Sales Tool	SunWin	24507
Product Collateral				
– *Sun Blade 150 Workstation Data Sheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web,	352611
– *SunPCi III Coprocessor Data Sheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web, COMAC	123626 DE1243-0
– *XVR-100 Graphics Datasheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web	373334
– *XVR-600 Graphics Datasheet*	Data Sheet	Sales Tool	SunWIN, Reseller Web	397283
Product Presentations				
– *Introducing the Sun Blade 150 Workstation*	Customer Presentation	Sales Tool	SunWIN, Reseller Web	352609
– *SunPCi Coprocessor Card Presentation*	Customer Presentation	Sales Tool	SunWIN, Reseller Web	125036

Sun microsystems

External Web Sites	
– *Sun Blade 150 Workstation Site*	`http://www.sun.com/desktop/sunblade150`
– *SunPCi Coprocessor Card Site*	`http://www.sun.com/desktop/products/sunpci/index.html`
– *Sun™ Store System Purchases*	`http://store.sun.com/`
- *Product Documentation*	`http://www.sun.com/products-n-solutions/hardware/docs/`