SPARCstation™ 20

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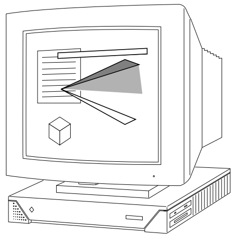
The SPARCstation™ 20 System: The Industry's Most Expandable Desktop System



The Industry's Most Expandable Desktop

The SPARCstation™ 20 system is the most expandable desktop system in the industry offering unmatched architecture and system balance, powerful multiprocessing, and high performance graphics and imaging. The expandability, upgradability, networking, and connectivity further enhance the performance of the SPARCstation 20 system.

- The SPARCstation 20 provides unmatched architecture and system balance
  - Choice of powerful processors: 75-MHz SuperSPARC™-II, and 150-MHz hyperSPARC™
  - MBus: Separate, high-speed CPU memory bus
  - Fast, large memory and disk technologies
- Powerful multiprocessing
  - Two-way MP systems include Models 712MP and 152MP
- High performance graphics and imaging technologies
  - SX integrated 24-bit true color graphics and imaging standard on every system
  - Options for fast 2-D 8-bit graphics acceleration (TurboGX™ and TurboGXplus™ frame buffer) and industry-leading 3-D graphics (ZX frame buffer)
  - Freedom series graphics accelerators for the highest performance 3-D graphics available in the market
- Industry-leading expandability and upgradability
  - A modular processor and multiprocessing design make it easy to upgrade processors. Expanding disk, memory, networking, and graphics is easy through the SPARCstation 20 options.
  - Upgrading from the SPARCstation 5 to the SPARCstation 20 is as easy as swapping a board.
- Choice of networking and connectivity options
  - Each SPARCstation 20 has integrated twisted-pair and AUI Ethernet, plus other I/O ports, including serial and parallel ports.
  - Advanced networking options include 100-Mbps Fast Ethernet, ATM, FDDI, and ISDN.

The SPARCstation 20 System: The Industry's Most Expandable Desktop System *(cont.)*

The Industry's Most Expandable Desktop System *(cont.)*

- Fast throughput
  - The 50-MHz MBus and 25-MHz SBus deliver more than 400-MB/sec. system throughput, providing industry-leading system bandwidth
  - Enables advanced networking and growth to higher performance processors and multiprocessing

SPARCstation 20 System Models

	SPARCstation 20	**Model 71**	**Model 151**
Uniprocessor systems	Processor speed	75 MHz	150 MHz
	External cache	1 MB	512 KB
	No. of processors	One	One
	MBus/SBus speed	50/25 MHz	50/25 MHz
	SPECint_92	125.8	169.4
	SPECfp_92	121.2	208.2
	SPECrate_int92	2984	4018
	SPECrate_fp92	2875	4938

	SPARCstation 20	**Model 712MP**	**Model 152MP**
Multiprocessor systems	Processor speed	75 MHz	150 MHz
	External cache	1 MB/CPU	512 KB/CPU
	No. of processors	Two	Two
	MBus/SBus speed	50/25 MHz	50/25 MHz
	SPECint_92	n/a	n/a
	SPECfp_92	n/a	n/a
	SPECrate_int92	5726	7310
	SPECrate_fp92	5439	8758

The SPARCstation 20 System: The Industry's Most Expandable Desktop System *(cont.)*

Entry Markets

- The SPARCstation 20 offers advanced desktop performance and features for cost-sensitive markets. No other entry desktop system offers the integration of advanced technologies with the performance and expansion capabilities of the SPARCstation 20.
  - Features the compute and graphics performance, multiprocessing, and system expansion potential of advanced desktop technology
  - Complete desktop system is superior to other entry performance desktop systems and high-end PC systems (integrated networking, advanced graphics and options, high disk and memory capacities)
  - Offers SX 24-bit true color graphics and imaging, and 1280 x 1024 resolution at entry prices

Traditional Markets

- Price/performance for traditional workstation requirements
  - The industry's most popular multiprocessing workstation

Advanced Markets

- Industry-leading graphics, compute, and multiprocessing performance requirements
  - Compute performance requirements: The Power of MP
  - Most cost-effective method to increase system performance

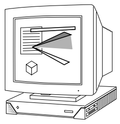
The SPARCstation 20 System: The Industry’s Most Expandable Desktop System *(cont.)*

Target Applications for Sun™ SPARCstation Desktop Systems

	SPARCstation 4	SPARCstation 5	SPARCstation 20
Application Areas	• Software dev. • Tech pubs • Entry-level drafting • Document authoring	• Software dev. • 2-D mech. CAD • 3-D wireframe • Schematic capture • HDL design • Architectural design • Medical imaging • Graphic design • GIS: 2-D mapping • Color imaging • Document authoring	• 3-D wireframe • 3-D MCAD • Mechanical eng. analysis • FEA preprocessing • Solid modeling • Styling/ industrial design • Animation preview/scripting • Medical imaging • Seismic visualization • Scientific visualization • Photo retouching • Color imaging • Digital effects • Technical illustration • PCB routing • EDA: circuit simulation • EDA: synthesis simulation • Color imaging • Seismic analysis • Financial modeling
Example Applications	• Interleaf • FrameMaker • Island • Workshop • Cadre • Centerline • Xyvision • AutoCAD	• AutoCAD • Pro/JR • Medical Imaging Resellers • Adobe Illustrator • CorelDraw • Cadre • Centerline	• Marc & Mentat • CDRS • I-DEAS • PV-Wave • Pro-Engineer • CADDS5 • EDS/ Unigraphics • Adobe Photoshop • Adobe Illustrator • Electrogig • Landmark • NASTRAN • Dracula • Checkmate • VCS • MT SpeedWare • Landmark • Spice

Building on the Industry’s Most Expandable Desktop

The SPARCstation 20 System at a Glance

Product Specifications	 **SPARCstation 20 and SPARCserver™ 20 systems**	
Dimensions	417 mm x 409 mm x 77 mm	
Weight	12.7 kg	
CPU		
Architecture	SuperSPARC-II	hyperSPARC*
Cache on chip	36 KB per CPU	8 KB per CPU
External cache	1 MB per CPU	512 KB per CPU for Models 151 and 152MP
Multiprocessing	Expandable to two	Expandable to two
Memory	32–512 MB	
Memory type	ECC	
DRAM speed	60 ns	
Bus width	144 bits	
SIMM sizes	16, 32, or 64 MB	
Storage	10-MB/sec. SCSI	
Maximum internal	4.2 GB	
Maximum external	353 GB with SPARCstorage™ Array	
I/O architecture	SBus	
SBus slots	Four 25-MHz slots	
Serial ports	Two	
Parallel port	One	
Networking ports	Twisted-pair Ethernet AUI Ethernet (requires optional AUI adapter cable) Optional ISDN, ATM, FDDI, Fast Ethernet	
Backup and distribution		
Internal	Optional 3.5-inch floppy Optional SunCD™ 4 drive	
External	2.5-GB.25-inch tape 14-GB 8-mm tape 5.0-GB 4-mm DAT 20-GB 4-mm DAT autoloader 140-GB SPARCstorage Library	
Operating system	Solaris™ 1.1.1 version B or 1.1.2# Solaris 2.3, 2.4##, or 2.5	

*100 MHz hyperSPARC is available as server configuration

Model 151 requires Solaris 1.1.2 or Solaris 2.4: Hardware 11/94 or Solaris 2.5 operating system

Model 152MP requires Solaris 2.4: Hardware 11/94 or Solaris 2.5 operating system

Components of the Industry's Most Expandable Desktop

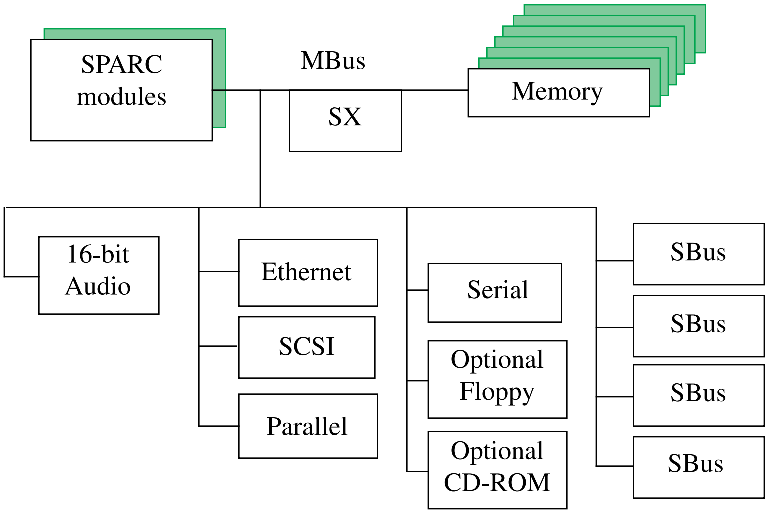


Figure 1. More Than Just a Fast Chip

Technology Overview

The SPARCstation™ 20 system is designed to offer balanced system performance and provide benefits from future performance improvements and cost-effective upgrades.

Architecture

• **Features**	• **Benefits**
– SuperSPARC™-II, and hyperSPARC™ processors and multiprocessing	– Compute performance beyond levels where many systems peak, plus the ability to increase system performance and add multiprocessing power
– High system memory and disk expansion available on the desktop	– Advanced features for increasingly demanding compute requirements
– Greatest number of high-performance expansion slots on the desktop	– Affordable desktop power with uncompromised expansion potential. Options include advanced graphics, video, multimedia, and networking options
– Fast disk technology	– Disk performance that will keep up with current and future increasingly powerful processors
– Integrated 24-bit SX advanced graphics and multimedia technologies	– High-performance graphics at a lower cost

Components of the Industry's Most Expandable Desktop *(cont.)*

Key Facts

- High-performance Model 71 and Model 712MP using 75-MHz SuperSPARC-II processor
- High-performance Model 151 and Model 152MP using 150-MHz hyperSPARC processor
- Integrated 24-bit SX graphics available on all system configurations

Tech Facts

- High-performance processors and high-bandwidth bus technologies
  - 75-MHz SuperSPARC-II
  - 150-MHz hyperSPARC
  - Two 50-MHz MBus slots (320–400 MB/sec.)
  - Four 25-MHz SBus slots, 32- or 64-bit compatible (200 MB/sec.)

Note: *64-bit SBus support is available in Solaris 2.4 Hardware: 11/94*

- Advanced system memory and disk capacities
  - Up to 512 MB of system memory using 16-, 32-, or 64-MB 60-ns SIMMs
  - Up to 4.2 GB of internal disk
  - Up to 353-GB external disk capacity with the SPARCstorage™ Array. The 25-MB/sec. full-duplex Fibre Channel interface provides throughput superior to even fast/wide, half-duplex, 20-MB/sec. SCSI
- Designed for powerful graphics and interactive media
  - 50-MHz 24-bit SX graphics and imaging are available
  - Available Freedom series graphics accelerators deliver world's fastest graphics performance
- Expansion to advanced networking
  - 10-BASE-T and AUI Ethernet integrated into all SPARCstation 20 systems (optional adapter cable required for AUI)
  - SunATM™ and SunFastEthernet™ adapters available utilizing SPARCstation 20 high-performance SBus
- System enclosure delivers additional integration
  - Expanded internal options: Two 2.1-GB disks, 1.44-MB floppy, 644-MB SunCD™ 4 CD-ROM drive
  - CD-quality audio with chassis-mounted speaker and audio connections
  - Two serial ports, parallel port, twisted-pair Ethernet (AUI with adapter), SCSI-2 port
- Cost effective upgrade to the Ultra™ desktop system
  - Same memory, disk, peripherals, and SBus boards

SPARCstation™ 20 Graphics

SPARCstation 20: Powerful Graphics and Multimedia

• **Features**	• **Benefits**
– Designed for powerful interactive media	– High-performance processors, memory, disk storage, networking, and multiple bus technologies deliver powerful graphics performance
– Broad range of powerful graphics options	– Graphic solutions are available for virtually any requirement, providing fast, high-quality graphics
– Powerful, integrated 24-bit color imaging	– Provides advanced true color graphics, imaging, and multimedia functions at affordable prices
– Freedom series graphics accelerators	– Accelerator enables the highest performance graphics in the world

SPARCstation™ 20 Graphics Options

Product Highlights	**TurboGX™**	**TurboGXplus™**	**SX 4MB**	**SX 8MB**	**ZX**	**Multimedia (x487A)**
Color monitors	17- and 20-inch	20-inch	17- and 20-inch	20-inch	20-inch	N/A
Resolution/ color planes and visual capabilities	1152 x 900 8-bit	1152 x 900 8-bit 1280 x 1024 8-bit 1600 x 1280** 8-bit	1152 x 900 24-bit + 8-bit overlay 1280 x 1024 8-bit	1152 x 900 24-bit + 8-bit overlay 1280 x 1024 24-bit + 8-bit overlay	1152 x 900 24-bit + 8-bit overlay 1280 x 1024 24-bit + 8-bit overlay, NTSC/PAL Stereo (960 x 680)	1152 x 900 24-bit + 8-bit overlay 1280 x 1024 8-bit, NTSC/PAL
Double buffer	4-bit	8-bit			24-bit	
Z-buffer			Programmable	Programmable	24-bit	Programmable
Multimedia			24-bit true color accelerated video playback	24-bit true color accelerated video playback		24-bit accelerated video playback video capture and compression, video camera
Graphics market positioning:						
Windowing & 2-D	●	❍	●	❍	❍	❍
3-D wireframe	●	●	❍	❍		❍
24-bit and imaging			●	●	❍	●
3-D solids			❍	❍	●	❍
Multimedia	❍	❍	❍	❍	❍	●

● Primary Application ❍ Secondary Application **Note: 1600 x 1280 resolution not supported on Sun™ monitors

Graphics Applications for Sun SPARCstation Desktop Systems

	SPARCstation 4	SPARCstation 5	SPARCstation 20
Application Areas	• Entry-level drafting	• 2-D mech. CAD • 3-D wireframe • Schematic capture • Architectural design • Medical imaging	• 3-D wireframe • 3-D MCAD • Mechanical eng. analysis • FEA preprocessing • Solid modeling • Styling/industrial design • Animation preview/ scripting • Medical imaging • Seismic visualization • Scientific visualization
Example Applications	• AutoCAD	• AutoCAD • Pro/JR	• Marc & Mentat • CDRS • I-DEAS • PV-Wave • Pro-Engineer • CADDS5 • EDS/Unigraphics • Electrogig • Landmark • NASTRAN

SPARCstation™ 20 Software

Solaris™ Operating Environment

The SPARCstation™ 20 system offers compatibility with the industry's leading enterprise operating system. For maximum application flexibility, the SPARCstation 20 operates on Solaris™ 1.1.1 Version B, Solaris 2.3, or subsequent releases[1]. Built on the latest UNIX® technology, the Solaris environment delivers unparalleled scalability and performance. With enterprise integration by design, Solaris provides easy access to a wide range of computing environments and network technologies.

• **Features**	• **Benefits**
– Solaris 2 operating environment	– Compatibility with the industry leading enterprise operating system. Functionality includes support for SX 24-bit graphics and imaging, video playback, multiprocessing, and ZX 3-D graphics
– Solaris 1 compatible	– Backward-compatible to all SPARCstation Solaris 1.x-based applications
– MP: Symmetric multiprocessing	– Accelerates application throughput for multiple CPU-intensive tasks
– Workgroup server: High NFS™ transaction performance	– Strong workgroup server performance
– Graphics: Foundation-layer libraries	– Compatibility to feature-rich and industry-standard graphics libraries
– Networking: Multi-networking integration	– Transparent access to powerful networking technologies (COSE-ONC+™, DCE, and NetWare™ environments)
– Objects technology	– OMG compliant with current and future object-orientation standards

Tech Facts

- The Solaris environment continues to deliver increasing scalability and performance
  - Symmetric multiprocessing (SMP) delivers higher throughput in environments with multiple applications or multiple processes
  - Multithreading (MT) provides faster execution and better overall system response for single applications
- The Power of MP
  - Accelerates the entire operating environment
  - Accelerates parallelized applications
  - Increases system responsiveness
  - Increases overall task throughput
  - Most cost-effective method to increase system performance

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[1] Model 151 requires Solaris 1.1.2 or Solaris 2.4: Hardware 11/94 or Solaris 2.5 operating system. Model 152MP requires Solaris 2.4: Hardware 11/94 or Solaris 2.5 operating system.

SPARCstation 20 Software *(cont.)*

Tech Facts *(cont.)*

- The Solaris environment connects users to the enterprise
  - Provides connectivity to and/or integration with other enterprise resources
  - Supports the applications, tools, and services to retrieve, process, and manage information
  - Provides a user interface to present information; facilitates communication through a graphical user interface and graphics, imaging, and other technology

SPARCstation 20/SPARCserver™ 20 Software Support Matrix

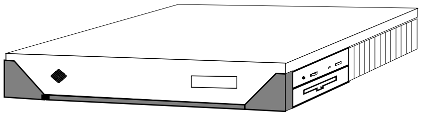
SPARCstation 20/ SPARCserver 20	Solaris 1.x		Solaris 2.3			Solaris 2.4		Solaris 2.5
	1.1.1 vB	1.1.2	2.3	5/94	8/94	11/94	3/95	11/95
Uniprocessor models:								
71	●	●			●	●	●	●
151		●				●	●	●
Multiprocessor models:								
712					●	●	●	●
152MP						●	●	●

The SPARCserver™ 20 System
Multiprocessing Power for the Workgroup

A Whole New Level of Performance

The SPARCserver™ 20 system, Sun's high-end workgroup and small departmental server, strengthens its lead as a powerful workgroup database server with the support of the SPARCstorage™ Array Model 200. The SPARCserver 20 coupled with the SPARCstorage Array Model 200 is well suited for applications such as data warehousing, imaging databases, or any application requiring huge on-line storage capacities. In addition, the SPARCstorage Array Model 200 provides lower price per MB, increased performance, and 144 percent increase in system capacity on the SPARCserver 20. The scalability, expandability, and upgradability are what make the SPARCserver 20 the perfect choice as your gateway server to the enterprise.

Overview



The SPARCserver 20 system is Sun's most affordable multiprocessing server, providing new levels of performance and storage scalability all within a single box.

The SPARCserver 20 is designed for workgroups and small departments of 40 to 70 users with an average of 50 GB of disk storage. The power and scalability of the SPARCserver 20 make it the ideal solution to handle database applications, increase small or mid-size workgroups' file-sharing throughput, off-load printing tasks, and run any of more than 12,000 SPARC™ solutions, ranging from spreadsheets to CAD packages.

The SPARCserver 20 system is perfect as a high-performance connectivity server, giving PC and Macintosh systems access to applications and resources in other departments, anywhere on the network.

Key Facts

- The SPARCserver 20 delivers high performance from a well-balanced design that includes fast system (50-MHz MBus) and I/O (25-MHz SBus) bus architectures, and highly scalable SuperSPARC™-II and hyperSPARC™ processors. The new hyperSPARC models offer a significant boost in compute performance, and a modest increase in file server and database performance over the Models 71 and 712MP.
- The SPARCserver 20 provides even greater scalability and investment protection than the SPARCserver 5, with over 100 percent more memory capacity (512 MB maximum), a 144 percent increase in disk storage capacity (353 GB maximum), 33 percent more network connectivity (four SBus slots), and allowance for multiprocessing scalability. In addition, the SPARCserver 20 comes standard with CD-ROM and optional floppy drive capabilities.

The SPARCserver 20 System
Multiprocessing Power for the Workgroup *(cont.)*

Key Facts *(cont.)*

- The SPARCserver 20 includes generous room for growth, with storage capacities ranging from 2 to 353 GB, using the latest in storage technology—Sun's SPARCstorage Array.
  - The SPARCstorage Array is built around a 25-MB/sec. full-duplex Fibre Channel interface, providing throughput superior to even fast/wide, half-duplex, 20-MB/sec. SCSI.
- The SPARCserver 20 Models are built around twodifferent processor speeds:
  - 75-MHz SuperSPARC-II: Models 71 and 712MP
  - 150-MHz hyperSPARC: Models 151 and 152MP
- Models 71 and 712MP come with processor-resident 1-MB Ecache; the hyperSPARC models have 512KB cache per processor.
- Models71 and 712MP are ideal for database and compute-intensive applications
- Models 151 and 152 offer the fastest compute performance, especially for floating point-intensive applications
- Entry configurations on the SPARCserver 20 system start with:
  - Uniprocessor configurations: 32 MB of memory and 2-GB disk
  - Multiprocessor configurations: 64 MB of memory and two 2-GB disks
- Standard features on the SPARCserver 20 system include four SBus slots, two synchronous serial ports, one parallel port, SCSI and Ethernet (twisted-pair and AUI) ports, support for up to four internal devices (including up to two 2.1-GB pluggable disk drives), and eight SIMM slots for added ECC memory capacity (16-, 32-, and 64-MB 60-ns SIMMS)
- Networking connectivity support includes Token Ring, high-speed serial interface, SBus and NVRAM Prestoserve™, SBus Fast SCSI/Buffered Ethernet, SBus SCSI/Buffered Ethernet, Serial Parallel Controller, ISDN, Fast Ethernet, ATM, FDDI, SCSI host adapter, and SBus Quad Ethernet.
- Operating system support includes Solaris ™1.1.1 Version B or higher and Solaris 2.3 Hardware: 5/94 or later release.
- With a simple processor module swap, users can easily upgrade to faster and higher performing processors within the SPARCserver 20 product family.

A Solaris 2.x server license comes standard with every SPARCserver 20 system. Every server license comes bundled with Solaris 2.x System Administrator Answer book, Solstice™ Backup™, or Solstice™ DiskSuite™ products, which are included in Solaris 2.x Server Media Kits.

The SPARCserver 20 System
Multiprocessing Power for the Workgroup *(cont.)*

SPARCserver 20 System Models

SPARCstation™ 20		**Model 71**	**Model 151**
Uniprocessor systems	Processor speed	75 MHz	150 MHz
	External cache	1 MB	512 KB
	No. of processors	One	One
	MBus/SBus speed	50/25 MHz	50/25 MHz
	SPECrate_int92	2984	40018
	SPECrate_fp92	2875	4938
	SPECnfs (CADDIS)	n/a	n/a
	tps (Estimate)	n/a	n/a

SPARCstation 20		**Model 712MP**	**Model 152MP**
Multiprocessor systems	Processor speed	75 MHz	150 MHz
	External cache	1 MB/ CPU	512 KB/CPU
	No. of processors	Two	Two
	MBus/SBus speed	50/25 MHz	50/25 MHz
	SPECrate_int92	5726	7310
	SPECrate_fp92	5439	8758
	SPECnfs (CADDIS)	n/a	n/a
	tps (Estimate)	n/a	n/a

SPARCstation™ 20 System Configurations

SPARCstation 20 Uniprocessor Systems—Model 71

Part Number	**System**
	Model 71 workstations with one 75-MHz SuperSPARC™-II processor with 1-MB SuperCache™ and TurboGX™ 8-bit accelerated graphics
S20FX1-71-32-P17	– 17-inch color monitor, TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
S20TX1-71-32-P17	– 20-inch color monitor, TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
	Model 71 workstations with one 75-MHz SuperSPARC-II processor with 1-MB SuperCache and TurboGXplus™ 8-bit accelerated graphics
S20TX4-71-32-P17	– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
	Model 71 workstations with one 75-MHz SuperSPARC-II processor with 1-MB SuperCache and SX 24-bit color accelerated graphics and imaging
S20SX-71-32-P17	– 20-inch color monitor, SX 4-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
S20SX8-71-32-P17	– 20-inch color monitor, SX 8-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
	Model 71 workstations with one 75-MHz SuperSPARC-II processor with 1-MB SuperCache and ZX 24-bit color accelerated 3-D graphics
S20ZX-71-32-P17	– 20-inch color monitor, ZX frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk

SPARCstation 20 System Configurations *(cont.)*

SPARCstation 20 Uniprocessor Systems—Model 151

Part Number	**System**
	Model 151 workstations with one 150-MHz hyperSPARC™ processor with 512-KB cache and TurboGX 8-bit accelerated graphics
S20FX1-151-32-P17	– 17-inch color monitor, TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
S20TX1-151-32-P17	– 20-inch color monitor, TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
	Model 151 workstations with one 150-MHz hyperSPARC processor with 512-KB cache and TurboGXplus 8-bit accelerated graphics
S20TX4-151-32-P17	– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
	Model 151 workstations with one 150-MHz hyperSPARC processor with 512-KB cache and SX 24-bit color accelerated graphics and imaging
S20SX-151-32-P17	– 20-inch color monitor, SX 4-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
S20SX8-151-32-P17	– 20-inch color monitor, SX 8-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
	Model 151 workstations with one 150-MHz hyperSPARC processor with 512-KB cache and ZX 24-bit color accelerated 3-D graphics
S20ZX-151-32-P17	– 20-inch color monitor, ZX frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk

SPARCstation 20 Multiprocessor Systems—Model 712MP

Part Number	**System**
	Model 712MP workstations with two 75-MHz SuperSPARC-II processors with 1-MB SuperCache per processor and TurboGX or TurboGXplus 8-bit accelerated graphics
S20TX1-712-64-P17	– 20-inch color monitor, TurboGX 1-MB frame buffer, 64 MB, 2.1-GB internal SCSI-2 disk
S20TX4-712-64-P17	– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 64 MB, 2.1-GB internal SCSI-2 disk
	Model 712MP workstations with two 75-MHz SuperSPARC-II processors with 1-MB SuperCache per processor and SX 24-bit color accelerated graphics and imaging
S20SX8-712-64-P17	– 20-inch color monitor, SX 8-MB frame buffer, 64 MB, 2.1-GB internal SCSI-2 disk
	Model 712MP workstations with two 75-MHz SuperSPARC-II processors with 1-MB SuperCache per processor and ZX 24-bit color accelerated 3-D graphics
S20ZX-712-64-P17	– 20-inch color monitor, ZX frame buffer, 64 MB, 2.1-GB internal SCSI-2 disk

SPARCstation 20 System Configurations *(cont.)*

SPARCstation 20 Multiprocessor Systems—Model 152MP

Part Number	System
	Model 152MP workstations with two 150-MHz hyperSPARC processors with 512-KB cache per processor and TurboGX or TurboGXplus 8-bit accelerated graphics
S20TX1-152-64-P17	– 20-inch color monitor, TurboGX 1MB frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
S20TX4-152-64-P17	– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
	Model 152MP workstation with two 150-MHz hyperSPARC processors with 512-KB cache per processor and SX 24-bit color accelerated graphics and imaging
S20SX8-152-64-P17	– 20-inch color monitor, SX 8-MB frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
	Model 152MP workstation with two 150-MHz hyperSPARC processors with 512-KB cache per processor and ZX 24-bit color accelerated 3-D graphics
S20ZX-152-64-P17	– 20-inch color monitor, ZX frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk

SPARCserver™ 20 System Configurations

SPARCserver 20 Uniprocessor Workgroup Servers

Part Number	System
	Model 71 with one 75-MHz SuperSPARC-II processor and 1-MB SuperCache
S20S-71-32-P18	– 32-MB memory, 2.1-GB internal SCSI-2 disk, 644-MB internal SunCD™ 4
	Model 151 with one 150-MHz hyperSPARC processor and 512KB cache
S20S-151-32-P18	– 32-MB memory, 2.1-GB internal SCSI-2 disk, 644-MB internal SunCD 4

SPARCserver 20 Multiprocessor Workgroup Servers

Part Number	System
	Model 712MP with two 75-MHz SuperSPARC-II processors with 1-MB SuperCache per processor
S20S-712-64-P19	– 64 MB memory, two 2.1-GB internal SCSI-2 disks, 644-MB internal SunCD 4
	Model 152MP with two 150-MHz hyperSPARC processor and 512KB cache
S20S-152-64-P19	– 64 MB memory, two 2.1-GB internal SCSI-2 disks, 644-MB internal SunCD 4

SPARCstation™ 20 and SPARCserver™ 20 System Options

Options

Below is a partial list of system expansion, networking, graphics, and multimedia options available for SPARCstation™ 20 and SPARCserver™ 20 systems. Refer to the Sun Price Book for complete option listings, configuration notes, and ordering information.

- All SPARCstation 20 and SPARCserver 20 desktop configurations include:
  - One or two 150-MHz hyperSPARC™ processors with 512-KB of cache
  - 32- or 64-MB 60-ns system memory with 1.05- or 2.1-GB internal disk
  - TurboGX™, TurboGXplus™, SX, or ZX graphics with 17- or 20-inch color monitor
  - SunMicrophone™ II, Type 5 localized keyboard, Sun™ Type 5 mouse

Part number	Option description	Maximum number supported per system
Processors		
X1175A	75-MHz SuperSPARC™–II processor with SuperCache module	2
X1185A	150-MHz hyperSPARC processor with 512-KB cache module	2
Memory		
X116P	16-MB 60-ns SIMM memory expansion	8
X132P	32-MB 60-ns SIMM memory expansion	8
X164P	64-MB 60-ns SIMM memory expansion	8
X178A	2-MB NVRAM Prestoserve™ NFS Accelerator	1
Mass storage		
X6002A	3.5-inch 1.44-MB internal floppy drive	1
X6154A	644-MB internal SunCD™ 4 drive	1
X6151A/ X6151A	SunCD 4 Unipack	2
X6101A/ X6102A	2.5GB 0.25-inch tape Unipack	4
X659A	2.1-GB 5400-rpm single connector internal disk	2
X580A	535-MB external desktop disk pack	20
X822A	5-GB 4-mm DAT desktop backup pack	10
X827A	20-GB 4-mm DAT autoloader desktop storage module	10
X841A	14-GB 8-mm tape desktop storage pack	10
X1057A	25-MB/sec. Fibre Channel SBus adaptor (FC25/S)	4
X847A	40-GB SPARCstorage™ Library Model 8/140, Tower	2
X738A	7200-rpm 4.2-GB Multidisk pack (2 x 7200-rpm 2.1-GB Fast SCSI-2 drives)	5
X739A	7200-rpm 8.2-GB Multidisk pack (4 x 7200-rpm 2.1-GB Fast SCSI-2 drives)	5
X737A	7200-rpm 2.1-GB Fast SCSI-2 desktop disk pack	20
X844A	14-GB 8-mm tape desktop storage pack	10
X845A	14-GB 8-mm tape drive for the SPARCstorage Library Model 8/140	1
X420A	Barcode Reader for the SPARCstorage Library Model 8/140	1

Options *(cont.)*

Part number	Option description	Maximum number supported per system
Networking		
X1053A	SBus Fast SCSI-2/buffered Ethernet card (FSBE/S)	4
X1054A	SBus SCSI-2/buffered Ethernet card (SBE/S)	4
X1055A	SBus SCSI Host Adaptor	1
X1057A	25-MB/sec. Fibre Channel SBus card (FC25/S)	1
X1058A	SBus Quad Ethernet controller	4
X1062A	FDDI single-attach SBus interface card	4
X1015A	SBus Differential Fast/Wide SCSI-2 host adapter	1
X1016A	FDDI dual-attach SBus interface card	1
X1019A	High-speed serial interface/SBus (HSI/S)	2
X1021A	Sun SBus Prestoserve NFS Accelerator	1
X1014A	Token Ring interface/SBus (TRI/S)	1
X1056A	SunFastEthernet SBus adapter	4
X1060A	SunATM™ 155/MFiber SBus adapter	4
X1061A	SunATM-155/UTP5 SBus adapter	4
X1012A	SunISDN™ SBus expansion kit	1
X1030A	PCMCIA interface/SBus card	1
Graphics and multimedia		
X1085A	SunVideo™ video capture and compression SBus board	1
X487A	Sun multimedia kit: SunVideo SBus board, color camera, CDware™ CD	1
X322A	TurboGX frame buffer with 17-inch color monitor	2
X327A	4-MB (60-ns) SX frame buffer with 17-inch color monitor	1
X325A	4-MB (60-ns) SX frame buffer with 20-inch color monitor	1
X326A	8-MB (60-ns) SX frame buffer with 20-inch color monitor	1
X359A	1-MB TurboGX frame buffer with 20-inch color monitor	2
X367A	4-MB TurboGXplus frame buffer with 20-inch color monitor	2
X1094A	SPARCstation ZX 3-D graphics SBus board	1
Other options		
X1126A	SunPC™ Accelerator SX and SunPC 4.0 software	1
X1127A	SunPC Accelerator DX and SunPC 4.0 software	1
X2051A	Server Storage Option Pack with 2.1-GB Fast SCSI-2 desktop disk pack, 5-GB 4-mm tape desktop storage pack, SunCD 2Plus desktop storage pack	1
X2053A	Server Storage Option Pack with 2.1-GB Fast SCSI-2 desktop disk pack, 14-GB 8-mm tape desktop storage pack, SunCD 2Plus desktop storage pack	1
Printers		
CPRN360	NeWSprinter CL+™ color printer	4
NPRN20	NeWSprinter™ 20 laser printer	4
SPRN600	SPARCprinter™ II	4

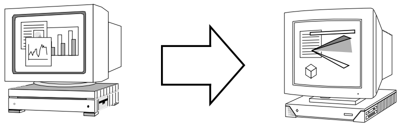
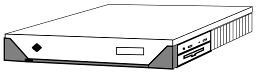
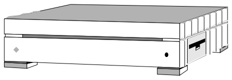
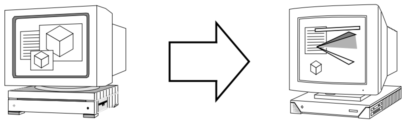
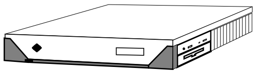
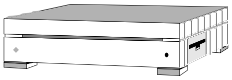
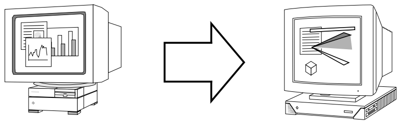
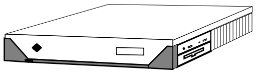
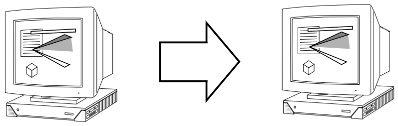
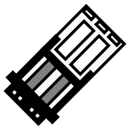
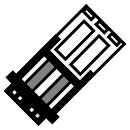
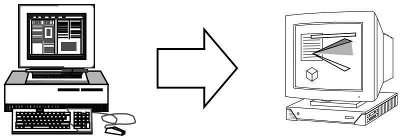
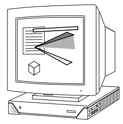
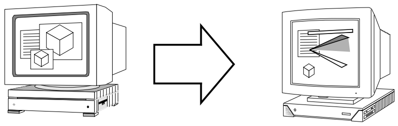
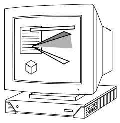
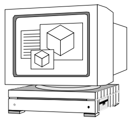
SPARCstation 20 and SPARCserver 20
System Options *(cont.)*

Configuration Guidelines

- All uniprocessor TurboGX and TurboGXplus systems, except hyperSPARC processor-based systems, are supported by Solaris™ 1.1.1 Version B or later Solaris 1.x system software release, and Solaris 2.3 or later Solaris 2.x release. All hyperSPARC processor-based TurboGX and TurboGXplus systems require Solaris 1.1.2 or later Solaris 1.x system software release, and Solaris 2.4: Hardware 11/94 or later Solaris 2.x release. All SX and ZX multiprocessing systems require Solaris 2.x operating system.
- All SPARCstation 20 systems include a Solaris 2.x desktop license. Solaris 1.x media and sidegrade license must be ordered separately.
- All SPARCserver 20 systems include the Solaris 2 Workgroup Server license, which comes co-packaged with Solstice DiskSuite and Solstice Backup. Solaris 1 sidegrade system license and media may be ordered separately.
- The SPARCstation 20 system supports up to two SX monitors. Each SX graphics monitor reduces total maximum system memory by 1 SIMM slot (64 MB). The second SX graphics monitor occupies one SBus location.
- The SX 4-MB frame buffer supports 1152 x 900 resolution in 32-bit color (with 8-bit overlay), and 1280 x 1024 resolution in 8-bit color. The SX 8-MB frame buffer supports 1152 x 900 or 1280 x 1024 resolutions in 32-bit color (with 8-bit overlay).

SPARCstation™ 20 Upgrades

Upgrade Paths

Upgrade	Customer receives	Customer returns
 SPARCstation™ 10 to SPARCstation 20 system	 SPARCstation 20 system chassis	 SPARCstation 10 system chassis
 SPARCstation 2 to SPARCstation 20 system	 SPARCstation 20 system chassis	 SPARCstation 2 system chassis
 SPARCstation IPX™ or SPARCstation LX system to SPARCstation 20 system	 SPARCstation 20 system chassis	 SPARCstation IPX or SPARCstation LX system chassis
 SPARCstation 20 Model 50, 60, 61, HS11, or HS21to SPARCstation 20 system Model 151 or Model 71	 Model 151 or 71 module	 Model 50, 51, 61, HS11 or HS21 module
 Sun-3™ or Sun386*i*™ to SPARCstation 20 system	 SPARCstation 20 system	 Full Sun-3 or Sun386*i* system
 SPARCstation 1/1+, 2, IPX, or LX full system to SPARCstation 20 system	 SPARCstation 20 system	 SPARCstation 1/1+, 2, IPX, or LX full system

SPARCstation 20 Upgrades *(cont.)*

Upgrades to SPARCstation 20 Modules

Part Number	System
	SPARCstation10 Module Upgrades
UG-S10-M71-M151	– Any SPARCstation 10 module to M151 hyperSPARC™ with 512-KB cache
UGS10M71/MXXX-M152	– One or two SPARCstation 10 M51/61/71 SuperSPARC™ modules or HS11/21 hyperSPARC Modules to two hyperSPARC 151 modules with 512 KB cache
UG-S10-MXX-M71	– Any SPARCstation 10 module to one M71 SPARC™ module with SuperCache
UGS10MXX/MXXX-M712	– One or two SPARCstation 10 40/50/51/61 SuperSPARC modules or HS11 hyperSPARC modules to two M71 SuperSPARC modules with SuperCache
	SPARCstation 20 Module Upgrades
UG-S20-M71-M151	– Any SPARCstation 20 module to M151 hyperSPARC with 512 KB cache
UGS20M71/MXXX-M152	– One or two SPARCstation 20 M51/61/71 SuperSPARC modules or HS11/21 hyperSPARC modules to two hyperSPARC 151 modules with 512 KB cache
UG-S20-MXX-M71	– Any SPARCstation 20 module to one M71 SPARC module with SuperCache
UGS20MXX/MXXX-M712	– One or two SPARCstation 20 50/51/61/ modules or HS11 hyperSPARC modules to two M71 SuperSPARC modules with SuperCache

SPARCstation 20 Enabling Upgrades

Part Number	System
	SPARCstation 20 Enabling Upgrades
UG-S5-S20	– SPARCstation 5 system board upgrade: SX 4-MB frame buffer and 32 MB memory included; SPARC module must be ordered separately

SPARCstation 20 Upgrades *(cont.)*

Upgrades to SPARCstation 20 Model 71

Part Number	**System**
	Model 71 with one 75-MHz SuperSPARC processor with 1-MB SuperCache
UG-NS-S2071TX4-P17	– Sun386*i* full system upgrade: TurboGXplus™ 4-MB frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
UG4/15/40/6X-71-P17	– SPARCclassic, SPARCstation IPC™, or SPARCstation 1/1+ chassis upgrade: TurboGX™ 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UG-FS-S2071TX1-P17	– Full SPARCstation 1/1+, SPARCstation IPC, SPARCstation 2, or SPARCstation IPX/LX upgrade: TurboGX 1-MB frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
UGSS2-S2071TX1-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2-S2071TX4-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: TurboGXplus frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2-S2071SX4-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: SX 4-MB graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2-S2071SX8-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: SX 8-MB graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2-S2071ZX-P17	– SPARCstation 2 chassis upgrade: ZX 3-D graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGS10-S2071-32P17	– SPARCstation 10 (non-SX) chassis upgrade: 32 MB memory, 2.1-GB internal SCSI-2 disk ***Note:*** *No graphics frame buffer provided on UGS10-S2071-32P46; customer retains frame buffer from SPARCstation 10 system*
UG-S10SX-71-SX4-P17	– SPARCstation 10SX chassis upgrade: SX 4-MB graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UG-S-S2071S-32P18	– SPARCserver™ upgrade to SPARCserver 20: 32 MB memory, 644-MB internal SunCD™ 4, 2.1-GB disk SCSI-2 disk
CU-S20-71TX1-P17	– Non-Sun system full system upgrade: TurboGX 1-MB frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-71TX4-P17	– Non-Sun system full system upgrade: TurboGXplus frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk

Upgrades to SPARCstation 20 Model 71 *(cont.)*

Part Number	System
	Model 71 with one 75-MHz SuperSPARC processor with 1-MB SuperCache *(cont.)*
CU-S20-71SX4-P17	– Non-Sun full system upgrade: SX 4-MB graphics frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-71SX8-P17	– Non-Sun full system upgrade: SX 8-MB frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-71ZX-P17	– Non-Sun full system upgrade: ZX 3-D graphics frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20S-71-32-P18	– Non-Sun full system upgrade to SPARCserver 20: 32 MB memory, 644-MB internal SunCD 4, 2.1-GB internal SCSI-2 disk

SPARCstation 20 Upgrades *(cont.)*

Upgrades to SPARCstation 20 Model 712

Part Number	**System**
	Model 712 with two 75-MHz SuperSPARC processors with 1-MB SuperCache
UGSS2S20712TX1-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: TurboGX 1-MB frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20712TX4-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: TurboGXplus frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20712SX8-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: SX 8-MB frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UGS10-S20712-64P17	– SPARCstation 10 (non-SX) chassis upgrade: 64 MB, 2.1-GB internal SCSI-2 disk
	Note: *No graphics frame buffer provided on UGS10-S20712-64P95; customer retains frame buffer from SPARCstation 10 system*
UGSS2-S20712ZX-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: ZX frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UG-S-S20712S-64P19	– SPARCserver upgrade to SPARCserver 20: 64 MB memory, 644-MB internal SunCD 4, two 2.1-GB internal SCSI-2 disk
CU-S20-712TX1-P17	– Non-Sun full-system upgrade: TurboGX 1-MB frame buffer, 64 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-712TX4-P17	– Non-Sun full-system upgrade: TurboGXplus frame buffer, 64 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-712SX8-P17	– Non-Sun full-system upgrade: SX 8-MB frame buffer, 64-MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-712ZX-P17	– Non-Sun full-system upgrade: ZX frame buffer, 64 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CUS20S-712-64-P19	– Non-Sun full-system upgrade to SPARCserver 20: 64 MB memory, 644-MB internal SunCD 4, two 2.1-GB internal SCSI-2 disks

Upgrades to SPARCstation 20 Model 151

Part Number	**System**
	Model 151 with one 150-MHz hyperSPARC processor
UG4/6X-S20-151-P17	– SPARCclassic, SPARCstation IPC, or SPARCstation 1/1+ chassis upgrade: M151 with TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20-151TX1P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M151 with TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20-151TX4P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M151 with TurboGX 1-MB frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20-151SX4P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M151 with 4-MB SX graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20-151SX8P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M151 with 8-MB SX graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20-151ZX-P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M151 with ZX 3-D graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UGS4-S20151TX1-P17	– SPARCstation 4 chassis upgrade: M151 with TurboGX 1-MB frame buffer, 32-MB memory, 2.1-GB internal SCSI-2 disk
UGS10-S20-151-P17	– SPARCstation 10 (non-SX) chassis upgrade: 32 MB memory, 2.1-GB internal SCSI-2 disk
	Note: *No graphics frame buffer provided on UGS10-S20-151-P46; customer retains frame buffer from SPARCstation 10 system*
UGS10SXS20151SX4P17	– SPARCstation 10SX chassis upgrade: M151 with SX 4-MB graphics frame buffer, 32 MB memory, 2.1-GB internal SCSI-2 disk
UG-S-S20151S-32P18	– SPARCserver chassis upgrade: M151 with no graphics, 32-MB memory, 2.1-GB internal SCSI-2 disk, CD ROM
CU-S20-151-TX1-P17	– Non-Sun full-system upgrade: M151 with TurboGX 1-MB frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-151-TX4-P17	– Non-Sun full-system upgrade: M151 with TurboGXplus frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-151-SX4-P17	– Non-Sun full-system upgrade: M151 with SX4-MB graphics frame buffer, 32 MB memory, 20-inch color monitor 2.1-GB internal SCSI-2 disk
CU-S20-151-SX8-P17	– Non-Sun full-system upgrade: M151 with SX8-MB graphics frame buffer, 32 MB memory, 20-inch color monitor 2.1-GB internal SCSI-2 disk
CU-S20-151-ZX-P17	– Non-Sun system full system upgrade: M151 with ZX 3-D graphics frame buffer, 32 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20S-151-32-P18	– Non-Sun system full system upgrade: M151 with no graphics, 32 MB memory, 2.1-GB internal SCSI-2 disk

SPARCstation 20 Upgrades *(cont.)*

Upgrades to SPARCstation 20 Model 152MP

Part Number	**System**
	Model M152MP with two 150-MHz hyperSPARC processors
UGSS2S20152-TX1P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M152MP with TurboGX 1-MB frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20152-TX4P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M152MP with TurboGXplus frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2S20152-SX8P17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M152MP with SX graphics frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UGSS2-S20152-ZXP17	– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: M152MP with ZX 3-D graphics frame buffer, 64 MB memory, 2.1-GB internal SCSI-2 disk
UGS10-S20-152-P17	– SPARCstation 10 (non-SX) chassis upgrade: 64-MB, 2.1-GB internal SCSI-2 disk
	Note: *No graphics frame buffer provided on UGS10-S20-152-P17; customer retains frame buffer from SPARCstation 10 system*
UG-S-S20152S-64P19	– SPARCserver chassis upgrade: M152MP with no graphics, 64 MB memory, two 2.1-GB internal SCSI-2 disks, CD ROM
CU-S20-152-TX1-P17	– Non-Sun system full system upgrade: M152MP with TurboGX 1-MB frame buffer, 64 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-152-TX4-P17	– Non-Sun system full system upgrade: M152MP with TurboGXplus frame buffer, 64 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20-152-SX8-P17	– Non-Sun system full system upgrade: M152MP with SX 8-MB graphics frame buffer, 64 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20152-ZX-P17	– Non-Sun system full system upgrade: M152MP with ZX 3-D graphics frame buffer, 64 MB memory, 20-inch color monitor, 2.1-GB internal SCSI-2 disk
CU-S20S-152-64-P19	– Non-Sun server full system upgrade: M152MP no graphics, 64 MB memory, two 2.1-GB internal SCSI-2 disks, CD-ROM

SPARCstation 20 Upgrades *(cont.)*

Configuration Guidelines

- System Software: SPARCstation 20 systems require Solaris™ 1.1.1 Version B operating environment or Solaris 2.3 or better (Solaris 2.3 is required for SX, ZX, Models 502MP, 612MP, 712MP, and 514MP systems). Models HS21, HS22, HS14, M151 and M152MP upgrades require Solaris 1.1.2 or 2.4 (Solaris 2.x is required for MP, SX graphics, and ZX graphics).
- Processors: The SPARCstation 20 SuperSPARC modules are supported on SPARCstation 10 systems. SuperSPARC modules from SPARCstation 10 are not currently supported on SPARCstation 20 systems.
- Internal Disk: The SPARCstation 20 and SPARCstation 5 systems share internal disk drives and do not support internal drives from SPARCstation 10, SPARCstation 2, or SPARCstation IPX systems.
- Memory: SPARCstation 20 memory (60 ns) is required; SPARCstation 10 memory (80 ns) is not supported.
- Monitors and frame buffers: All Sun monitors with an appropriate frame buffer are supported. GX, GXplus, TurboGX, TurboGXplus, and ZX SPARCstation 20 SX frame buffers are supported.

SunSpectrum^SM System Support Program

SunSpectrum^SM 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. SunSpectrum provides a simple pricing structure in which a single fee covers support for an entire system, including related hardware and peripherals, the Solaris™ operating system software, and telephone support for Sun™ software packages. The majority of Sun's customers today take advantage of the SunSpectrum program, underscoring the value it represents. Customers should check with their local SunService^SM representative for program/feature variance and availability in their area.

FEATURE	**PLATINUM** **Mission-Critical Support**	**GOLD** **Business-Critical Support**	**SILVER** **Systems Support**	**BRONZE** **Self Support**
Systems Features				
Systems approach coverage	Yes	Yes	Yes	Yes
System availability guarantee	Customized	No	No	No
Account Support Features				
Service account management team	Yes	No	No	No
Personal technical account support	Yes	Yes	No	No
Account support plan	Yes	Yes	No	No
Software release planning	Yes	No	No	No
On-site account reviews	Monthly	Semi-annual	No	No
Site activity log	Yes	Yes	No	No
Coverage / Response Time				
Standard telephone coverage hours	7 x 24	7 x 24	8–8, M–F	8–5, M–F
Standard on-site coverage hours	7 x 24	8–8, M–F	8–5, M–F	N/A
7 x 24 telephone coverage	Yes	Yes	Option	No
7 x 24 on-site coverage	Yes	Option	Option	N/A
Customer-defined priority setting	Yes	Yes	Yes	No
– Urgent (phone/on-site)	Live transfer/2 hour	Live transfer/4 hour	Live transfer/4 hour	4 hour/NA
– Serious (phone/on-site)	Live transfer/4 hour	2 hour/next day	2 hour/next day	4 hour/NA
– Not critical (phone/on-site)	Live transfer/ customer convenience	4 hour/customer convenience	4 hour/customer convenience	4 hour/NA
Additional contacts	Option	Option	Option	Option

SunSpectrum System Support Program *(cont.)*

FEATURE	**PLATINUM** **Mission-Critical Support**	**GOLD** **Business-Critical Support**	**SILVER** **Systems Support**	**BRONZE** **Self Support**
Enhanced Support Features				
Mission-critical support team	Yes	Yes	No	No
Sun Vendor Integration Program (SunVIP™)	Yes	Yes	No	No
Software patch management assistance	Yes	No	No	No
Field change order (FCO) management assistance	Yes	No	No	No
Remote Systems Diagnostics				
Remote dial-in analysis	Yes	Yes	Yes	Yes
Remote systems monitoring	Yes	Yes	No	No
Remote predictive failure reporting	Yes	Yes	No	No
Software Enhancements and Maintenance Releases				
Solaris enhancement releases	Yes	Yes	Yes	Yes
Patches and maintenance releases	Yes	Yes	Yes	Yes
Sun unbundled software enhancements	Option	Option	Option	Option
Internet and CD-ROM Support Tools				
SunSolve™ license	Yes	Yes	Yes	Yes
SunSolve EarlyNotifier℠ Service	Yes	Yes	Yes	Yes

SPARCstation™ 20 Glossary

hyperSPARC™	hyperSPARC is a high-performance, superscalar processor available on MBus SPARC™ modules for SPARCstation™ 20 and SPARCstation 10 systems. The hyperSPARC CPU is a superscalar RISC processor featuring an integrated integer unit/floating-point unit with an 8-KB, two-way, set-associative instruction cache and 256-KB or 512-KB second-level cache. The superscalar hyperSPARC supports dual-run back instruction launch for a majority of instruction combinations, and features several significant pipeline enhancements in both the integer unit and floating-point unit data paths. The hyperSPARC processor is fully compatible with SPARC™ version 8 architecture.
MBus	The SPARCstation 20 MBus supports a selectable synchronous, 40- or 50-MHz 64bit bus that is capable of peak transfer rates of 320 to 400 MB/sec. From a functional perspective, the MBus has four principal attributes: support of field-installable SuperSPARC™ processor modules, support for symmetric multiprocessing (SMP), high-bandwidth access to memory and I/O, and a nonproprietary MBus specification held by SPARC International, an independent industry organization.
SBus	The SBus is a high-performance I/O interconnect for options such as multimedia and graphics products, disk expansion, and high-performance networking products. SBus is an IEEE standard (1496 -1993). The SPARCstation 20 system supports four SBus slots.
SuperCache	SuperCache is a 1-MB external second-level cache memory and controller residing on the MBus processor module. SuperCache implements a 1-MB direct-mapped SRAM-based cache. Systems configured with SuperCache deliver the highest compute performance of SPARCstation 20 uniprocessor configurations, multiprocessor configurations, and compute servers.
SuperSPARC-II	The SuperSPARC-II microprocessor, the newest member of the SuperSPARC processor family, features increased clock speeds (starting at 75 MHz) and many other performance enhancements. Like its predecessors (SuperSPARC series processors), the SuperSPARC-II processor is fully SPARC version 8 compliant and completely compatible with SPARC applications. SuperSPARC-II SPARC modules are available for both SPARCstation 10 and SPARCstation 20 systems.
SuperSPARC module	The SuperSPARC module is a field-installable SuperSPARC processor daughter card; up to two may be installed in SPARCstation 20 systems. SuperSPARC modules are available with different processor speeds, with or without SuperCache 1-MB second-level cache memory; and as two processor version modules, for four-way multiprocessor configurations (with two modules installed).

SPARCstation™ 20 Materials Abstract

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

Collateral	Description	Purpose	Distribution	Token # or Hibbert order #
Power Pack				
– *Workstation Vision* customer presentation	Strategy of SPARCstation™ desktop systems; slide notes for presentation	Sales tool	SunWIN, Reseller Resource CD	47218 47222
– *SPARCstation 20:* customer presentation	SPARCstation 20 product details; slide notes for presentation	Sales tool	SunWIN, Reseller Resource CD	40537 40539
– *SPARCstation20 Just the Facts*	Reference guide for SPARCstation 20 system	Training	SunWIN, Reseller Resource CD	32039
– *SPARCserver™ Desktop Systems: Powerful Cost-Effective Solutions for Any Workgroup* customer presentation	Product details on SPARCserver 4, SPARCserver 5, and SPARCserver 20 systems; slide notes for presentation	Sales tool	SunWIN, Reseller Resource CD	40652 40654 40887
References				
– *Sun Intro, 5/95*	Introduction e-mail—SPARCstation 20 HS Series	Training	E-mail, SunWIN, Reseller Resource CD,	42809
– *Sun Intro, 1/96*	Introduction e-mail—SPARCstation 20 and SPARCserver 20 Models 71 and 712MP	Training	E-mail, SunWIN, Reseller Resource CD	40541
– *SPARCstation 20 Model HS11 hyperSPARC™ Technical Backgrounder*	Technical background on hyperSPARC-based model	Technical information	SunWIN, Reseller Resource CD	38483
– *Small/Medium/Large: SPARCstation 20*	Description of SPARCstation 20 in three lengths	Marketing tool	SunWIN, Reseller Resource CD	34206
– *Small/Medium/Large: Desktop SPARCserver Family*	Description of SPARCstation 4, SPARCstation 5, and SPARCstation 20 in three lengths	Marketing tool	SunWIN, Reseller Resource CD	41120