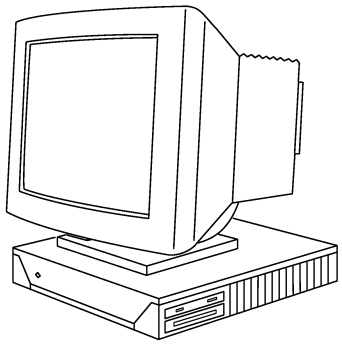
SPARCstation 20

Just the Facts

The product information contained in Just the Facts will be announced to the general public March, 29, 1994. Until that time, this information is considered Sun confidential. It may be used with customers who have signed nondisclosure agreements.

The SPARCstation 20™ System: The New Network Desktop Performance Leader



Building on the Momentum of the Industry's Most Successful Multiprocessing Network Desktop

The SPARCstation™ 20 system sets a new standard as the multiprocessing network desktop performance leader. The SPARCstation 20 is designed to build upon the momentum of the industry's desktop volume leader, the SPARCstation 10, with higher performance, standard 24-bit SX graphics, and lower prices. The SPARCstation 10 and SPARCstation 20 systems share similar architecture, with both featuring SBus and MBus technologies. However, the SPARCstation 20 delivers higher compute, graphics, and networking performance, with faster bus technologies, higher performance SPARC® modules, and advanced integrated graphics — at significantly lower system prices.

- The SPARCstation 20 boosts price/performance by more than 70 percent
  - More powerful multiple high-bandwidth bus technologies
  - New Model 50 and Model 61 SuperSPARC™ systems
  - Increased multiprocessing performance and growth potential
- Continues the success of the SPARCstation product line with more than 150,000 SPARCstation 10 systems shipped in the last 18 months
  - The SPARCstation 20 offers a similar system layout to the SPARCstation 10 (two MBus, four SBus slots) and supports most SPARCstation 10 SBus and external options
  - Future SuperSPARC module upgrades are compatible with both SPARCstation 20 and SPARCstation 10 systems
- New graphics, new technologies, powerful multimedia, and greater system expandability
  - SX integrated 24-bit true color graphics and imaging now standard
  - New internal CD-ROM option and new internal CD-quality audio
  - Same system package as SPARCstation 5 and most of the same disk options and SBus options. Sun also provides easier upgradability from the SPARCstation 5 to the SPARCstation 20
- New higher performance desktops at new entry prices
  - SuperSPARC desktop systems at new aggressive entry prices
  - All systems can be upgraded for multiprocessing (MP) with cost-effective performance growth options
- Industry-leading desktop performance: The Power of MP
  - Highest performance available on an enterprise network desktop system
  - Fastest processing power and graphics performance

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The SPARCstation 20 System: The New Network Desktop Performance Leader *(cont.)*

SPARCstation 20 System Models

SPARCstation 20	Model 50	Model 51	Model 61	Model 502MP	Model 612MP	Model 514MP
Processor speed	50 MHz	50 MHz	60 MHz	50 MHz	60 MHz	50 MHz
SuperCache	N	1 MB	1 MB	N	1-MB/CPU	1-MB/CPU
No. of processors	One	One	One	Two	Two	Four
MBus/SBus speed	50/25 MHz	40/20 MHz	50/25 MHz	50/25 MHz	50/25 MHz	40/20 MHz
SPECint_92	69.2	73.6	88.9	NA	NA	NA
SPECfp_92	78.3	84.8	102.8	NA	NA	NA
SPECrate_int92	1628	1731	2092	2833	3903	6034
SPECrate_fp92	1842	1995	2418	2995	4645	6752

Target Markets

As compared with today's SPARCstation 10 systems, the higher performance, lower price points, and new advanced graphics and multimedia capabilities of the SPARCstation 20 system increase market opportunities.

Entry Markets

- The SPARCstation 20 offers advanced destktop performance and features for cost-sensitive markets. No other entry desktop system or high-end PC can offer the integration of advanced technologies with the performance and expansion capabilities of the SPARCstation 20
  - Features the compute and graphics performance, MP, and system expansion potential of advanced desktop technology
  - Complete desktop system superior to entry-performance desktop systems and high-end PC systems (integrated networking, advanced graphics and options, high disk and memory capacities, and so on)
  - SX 24-bit true color graphics and imaging, and 1280 x 1024 resolution at entry prices
- Entry markets include
  - Entry MCAD wireframe
  - EDA small design
  - Workgroup server requirements
  - Document imaging, publishing, color prepress
  - Education
  - GIS
  - CASE
  - Multimedia authoring

The SPARCstation 20 System: The New Network Desktop Performance Leader *(cont.)*

Traditional Markets

- Powerful new price/performance for traditional workstation requirements
  - The industry's most popular workstation technology is now more affordable
  - New Model 50 and Model 61 with higher compute and graphics performance
- Traditional markets include
  - MCAD 3-D design
  - EDA large design
  - Financial services
  - Oil and gas industries

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
  - Highest performance available on the desktop
  - Performance for advanced graphics requirements
- Advanced markets include
  - Medical imaging and applications
  - MCAD solids and other 3-D advanced graphics and solids modelling
  - Advanced oil and gas industries and GIS
  - DBMS and performance server needs

Availability

- SPARCstation 20 Model 50, and Model 502MP systems begin shipping April 1994
- SPARCstation 20 Model 51 and Model 514MP systems begin shipping May 1994
- SPARCstation 20 Model 61 and Model 612MP systems begin shipping June 1994

Building on the Industry's Most Successful Desktop

The SPARCstation 20 and SPARCstation 10 Systems at a Glance

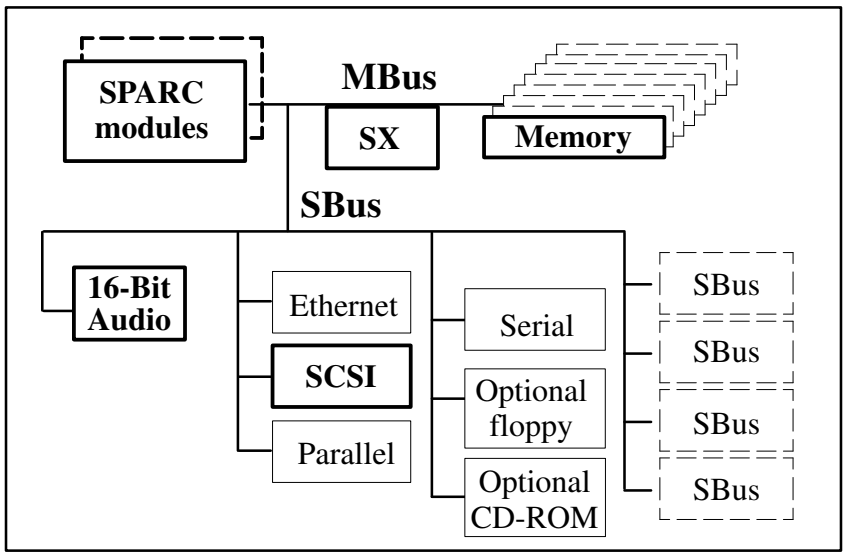
Product Specifications	SPARCstation 20 and SPARCserver™ 20 systems	SPARCstation 10 and SPARCserver 10 systems
Dimensions and weight	417 mm x 409 mm x 77 mm 12.7 kg	417 mm x 409 mm x 76 mm 12.7 kg
CPU		
Architecture	SuperSPARC	SuperSPARC
Cache on chip	36 KB per CPU	36 KB per CPU
External cache	Optional 1 MB per CPU	Optional 1 MB per CPU
MBus SPARC module slots	Two 50-MHz slots	Two 40-MHz slots
Multiprocessing	Expandable to four	Expandable to four
Memory	32 – 512 MB	32 – 512 MB
Memory type	ECC	ECC
DRAM speed	60 ns	80 ns
Bus width	144 bits	144 bits
SIMM sizes	16, 32, 64 MB	16, 64 MB
Storage	10-MB/sec. SCSI	
Maximum internal	2.1 GB	
Maximum external	138 GB with SPARCstorage™ Array	
I/O architecture	SBus	SBus
SBus slots	Four 25-MHz slots	Four 20-MHz slots
Serial ports	Two	Two
Parallel port	One	One
Networking ports	Twisted-pair Ethernet AUI Ethernet** Optional ISDN ** requires optional AUI adapter cable	Twisted-pair Ethernet AUI Ethernet** ISDN
Backup and distribution		
Internal	Optional 3.5-in. floppy Optional SunCD 2Plus™ drive	3.5-in. floppy
External	5.0-GB 8-mm tape .25-in. 150-MB tape. 5.0-GB 4-mm DAT 20-GB 4-mm DAT autoloader	SunCD 2Plus drive 5.0-GB 8-mm tape 25-in. 150-MB tape 5.0-GB 4-mm DAT 20-GB 4-mm DAT autoloader
Operating system	Solaris® 1.1.1 Version B Solaris 2.3	Solaris 1.1c Solaris 2.3

Key differences between the SPARCstation 20 system and the SPARCstation 10 system

- New system package
- 50-MHz MBus versus 40-MHz
- 25-MHz SBus versus 20-MHz
- Faster memory: 60 ns system memory required versus 80 ns
- New 32-MB system memory SIMM
- SX graphics standard on all systems
- Faster graphics: 60 ns SX video memory required versus 70 ns
- New 1-in. high single-connector disk drives versus 1.3-in. dual connector drives
- ISDN is optional on SPARCstation 20 systems through SBus option
- 3.5-in. floppy drive is optional on all systems
- New internal double-speed SunCD 2Plus (Included on server systems)
- CD-quality audio integrated internally with front-mounted speaker (no speaker box used)

Components of the Desktop Performance Leader

More Than Just a Fast Chip



Technology Overview

The SPARCstation™ 20 system leverages the best of the highly successful SPARCstation 10 technology and adds new performance and advanced system design. The continued commitment to the SuperSPARC™ processor allows both existing SPARCstation 10 systems and new SPARCstation 20 systems to benefit from with future performance improvements and cost-effective upgrades.

Architecture

• Feature	• Benefit
– SuperSPARC processor and multiprocessing	– Compute performance beyond levels where many systems peak, plus the ability to increase system performance and add multiprocessing power
– Highest 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 Desktop Performance Leader *(cont.)*

Key Facts

- Higher entry-performance Model 50 and Model 502MP using 50-MHz SuperSPARC processor
- New Model 61 and Model 612MP using 60-MHz SuperSPARC processor
- Integrated 24-bit SX graphics available on all system configurations
- New higher speed 50-MHz MBus and 25-MHz SBus

Tech Facts

- New higher performance high-bandwidth bus technologies
  - 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 will be available in a future Solaris® 2.x release

- Advanced system memory and disk capacities
  - Up to 512 MB of system memory using 16, 32, or 64-MB 60-ns SIMMs
  - Up to 2 GB of internal disk plus 69-GB 10-MB/sec. SCSI external disk
  - Up to 138-GB external disk capacity with the SPARCstorage™ Array. The 25-MB/sec. full duplex fiber channel interface provides throughput superior to even fast/wide, half-duplex, 20-MB/sec. SCSI
- Designed for powerful interactive media
  - New faster 50-MHz 24-bit SX graphics and imaging standard on SPARCstation 20
  - New 25-MHz SBus delivers higher performance TurboGX and ZX graphics performance
- Expansion to advanced networking
  - TP 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
- New system enclosure delivers additional integration
  - Expanded internal options: Two 1.05-GB disks, 1.44 floppy, 644-MB SunCD™ 2Plus CD-ROM drive
  - CD-quality audio with chassis-mounted speaker and audio connections (no speaker box used)
  - Two serial ports, parallel port, twisted-pair Ethernet (AUI with adapter), SCSI-II port
- Future SuperSPARC higher performance processor models for SPARCstation 10 and SPARCstation 20 systems

SPARCstation™ 20 Graphics

SPARCstation 20: Powerful Graphics and Multimedia

• Feature	• Benefit
– Designed for powerful interactive media	– SPARCstation™ 20 high-performance processors, memory, disk storage, networking, and multiple bus technologies deliver industry-leading graphics performance
– Broad range of powerful graphics options	– Graphic solutions for virtually any requirement, providing fast, high-quality graphics
– Powerful, integrated 24-bit color imaging	– The SPARCstation 20 provides advanced true color graphics, imaging, and multimedia functions at affordable prices

SPARCstation 20 Graphics Options

Product Highlights	TurboGX	TurboGXplus	SX 4-MB	SX 8-MB	ZX	M
Color monitors	17 and 20 inch	20 inch	17 and 20 inch	20 inch	20 inch	17 inch
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 features			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 and 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

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 current Solaris® versions 1.1.1 Version B, Solaris 2.3, or subsequent releases. 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.

• **Feature**	• **Benefit**
– Solaris 2.3 operating envrionment	– Compatibility with the industry-leading enterprise operating system. Functionality includes support for SX 24-bit graphics and imaging, Solaris LIVE!™ video playback, multiprocessing, and ZX advanced 3-D graphics
– Solaris 1.1.1 Version B	– 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
  - Multithreading (MT) performance provides better response for single applications with concurrent processing
- The Power of MP
  - Highest performance available on the UNIX desktop
  - Accelerates the entire operating environment
  - Increases network and multimedia responsiveness
  - Most cost-effective method to increase system performance
- The Solaris environment connects users to the enterprise
  - The Solaris environment 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

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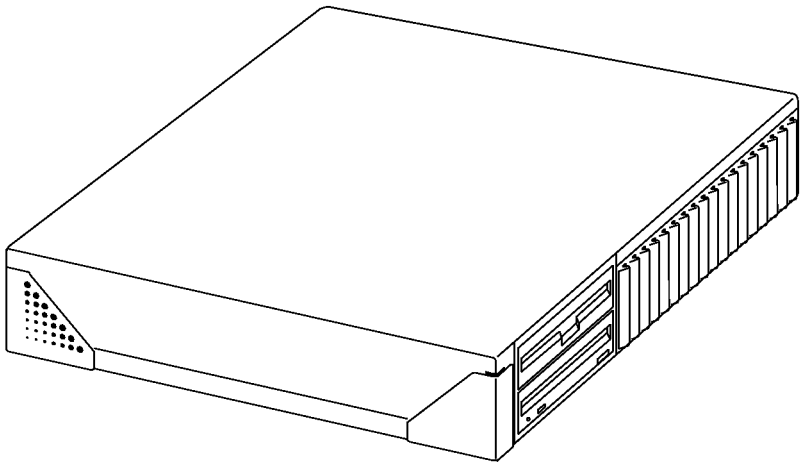
The SPARCserver™ 20 System: Multiprocessing Power for Workgroup Servers



Overview

The SPARCserver™ 20 system is Sun's most affordable multiprocessing workgroup server, providing new levels of performance and storage scalability.

The SPARCserver 20 is designed for workgroups and small departments to handle database applications, increase small or midsize workgroups' filesharing throughput, offload printing tasks, and run any of more than 8400 SPARC® solutions, ranging from spreadsheets to CAD packages. SPARCserver 20 systems can also act as connectivity servers, giving PC and Macintosh® systems access to applications and resources in other departments, anywhere on the network.

Key Facts

- The SPARCserver 20 offers improved price/performance with a 25 percent lower price than the SPARCserver 10, and 25 percent greater performance
- The SPARCserver 20 delivers increased performance from a well balanced system design that includes a faster MBus (at 50 MHz) and faster SBus (at 25 MHz). The system enclosure design permits a CD-ROM to fit inside the chassis
- SPARCserver 20 memory scales from 32 MB to 512 MB. It includes generous room for growth with storage that ranges from 1 to 136 GB, using the latest in storage technology — Sun's new SPARCstorage™ Array
- The SPARCserver 20 is offered in five models
  - Models 50, and 502MP are ideal for advanced NFS®, fileserver, and software development applications
  - Models 51, 61, 612MP, and 514MP are ideal for database and compute-intensive applications

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SPARCstation™ 20 System Configurations

SPARCstation 20 Uniprocessor Systems

	Part number
• Model 50 workstations with one 50-MHz SuperSPARC™ processor and TurboGX™ 8-bit accelerated graphics	
– 20-inch grayscale monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20MX1–50–32–P46
– 17-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 535-MB internal SCSI-2 disk	S20FX1–50–32–P44
– 17-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20FX1–50–32–P46
– 20-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 535-MB internal SCSI-2 disk	S20TX1–50–32–P44
– 20-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX1–50–32–P46
• Model 50 workstation with one 50-MHz SuperSPARC processor and TurboGXplus 8-bit accelerated graphics	
– 20-inch color monitor, TurboGXplus™ 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX4–50–32–P46
• Model 50 workstations with one 50-MHz SuperSPARC processor and SX 24-bit color accelerated graphics and imaging	
– 17-inch color monitor, SX 4-MB frame buffer, 32-MB, 535-MB internal SCSI-2 disk	S20FSX–50–32–P44
– 17-inch color monitor, SX 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20FSX–50–32–P46
– 20-inch color monitor, SX 4-MB frame buffer, 32-MB, 535-MB internal SCSI-2 disk	S20SX–50–32–P44
– 20-inch color monitor, SX 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20SX–50–32–P46
– 20-inch color monitor, SX 8-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20SX8–50–32–P46
• Model 50 workstations with one 50-MHz SuperSPARC processor and ZX 24-bit color accelerated 3-D graphics	
– 20-inch color monitor, ZX frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20ZX–50–32–P46

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SPARCstation 20 System Configurations *(cont.)*

SPARCstation 20 Uniprocessor Systems *(cont.)*

	• Part number
• Model 51 workstations with one 50-MHz SuperSPARC processor with SuperCache and TurboGX 8-bit accelerated graphics	
– 17-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20FX1–51–32–P46
– 20-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX1–51–32–P46
• Model 51 workstation with one 50-MHz SuperSPARC processor with SuperCache and TurboGXplus 8-bit accelerated graphics	
– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX4–51–32–P46
• Model 51 workstation with one 50-MHz SuperSPARC processor with SuperCache and ZX 24-bit color accelerated 3-D graphics	
– 20-inch color monitor, ZX frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20ZX–51–32–P46
• Model 61 workstations with one 60-MHz SuperSPARC processor with SuperCache and TurboGX 8-bit accelerated graphics	
– 17-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20FX1–61–32–P46
– 20-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX1–61–32–P46
• Model 61 workstation with one 60-MHz SuperSPARC processor with SuperCache and TurboGXplus 8-bit accelerated graphics	
– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX4–61–32–P46

SPARCstation 20 System Configurations *(cont.)*

SPARCstation 20 Uniprocessor Systems *(cont.)*

	Part number
• Model 61 workstations with one 60-MHz SuperSPARC processor with SuperCache and SX 24-bit color accelerated graphics and imaging	
– 20-inch color monitor, SX 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20SX–61–32–P46
– 20-inch color monitor, SX 8-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20SX8–61–32–P46
• Model 61 workstation with one 60-MHz SuperSPARC processor with SuperCache and ZX 24-bit color accelerated 3-D graphics	
– 20-inch color monitor, ZX frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20ZX–61–32–P46

SPARCstation 20 Multimedia System

• Model 50 workstation with one 50-MHz SuperSPARC processor and SX 24-bit color accelerated graphics and imaging	
– 17-inch color monitor, SX 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20FSX–50–32–tbd

NOTE: Includes multimedia kit (X487A) that provides monitor-mounted color video camera, SunVideo™ SBus video capture and compression card, and multimedia software on CD-ROM

SPARCstation 20 Multiprocessor Systems

• Model 502MP workstations with two 50-MHz SuperSPARC processors and TurboGX and TurboGXplus 8-bit accelerated graphics	
– 17-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20FX1–502–32–P46
– 20-inch color monitor, TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX1–502–32–P46
– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20TX4–502–32–P46

SPARCstation 20 System Configurations *(cont.)*

SPARCstation 20 Multiprocessor Systems *(cont.)*

	• Part number
• Model 502MP workstations with two 50-MHz SuperSPARC processors and SX 24-bit color accelerated graphics and imaging	
– 20-inch color monitor, SX 4-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20SX–502–32–P46
– 20-inch color monitor, SX 8-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20SX8–502–32–P46
• Model 502MP workstation with two 50-MHz SuperSPARC processors and ZX 24-bit color accelerated 3-D graphics	
– 20-inch color monitor, ZX frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	S20ZX–502–32–P46
• Model 612MP workstations with two 60-MHz SuperSPARC processors with 1-MB SuperCache per processor and TurboGXplus 8-bit accelerated graphics	
– 20-inch color monitor, TurboGX 1-MB frame buffer, 64-MB, 1.05-GB internal SCSI-2 disk	S20TX1–612–64–P46
– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 64-MB, 1.05-GB internal SCSI-2 disk	S20TX4–612–64–P46
• Model 612MP workstation with two 60-MHz SuperSPARC processors with 1-MB SuperCache per processor and SX 24-bit color accelerated graphics and imaging	
– 20-inch color monitor, SX 8-MB frame buffer, 64-MB, 1.05-GB internal SCSI-2 disk	S20SX8–612–64–P46
• Model 612MP workstation with two 60-MHz SuperSPARC processors with 1-MB SuperCache per processor and ZX 24-bit color accelerated 3-D graphics	
– 20-inch color monitor, ZX frame buffer, 64-MB, 1.05-GB internal SCSI-2 disk	S20ZX–612–64–P46

SPARCstation 20 System Configurations *(cont.)*

SPARCstation 20 Multiprocessor Systems *(cont.)*

	• Part number
• Model 514MP workstations with four 50-MHz SuperSPARC processors with 1-MB SuperCache per processor and TurboGXplus 8-bit accelerated graphics	
– 20-inch color monitor, TurboGX 1-MB frame buffer, 64-MB, 1.05-GB internal SCSI-2 disk	S20TX1–514–64–P46
– 20-inch color monitor, TurboGXplus 4-MB frame buffer, 64-MB, 1.05-GB internal SCSI-2 disk	S20TX4–514–64–P46
• Model 514MP workstation with four 50-MHz SuperSPARC processors with 1-MB SuperCache per processor and SX 24-bit color accelerated graphics and imaging	
– 20-inch color monitor, SX 8-MB frame buffer, 64-MB, 1.05-GB internal SCSI-2 disk	S20SX8–514–64–P46

SPARCserver™ 20 Uniprocessor Workgroup Servers

• Model 50 with one 50-MHz SuperSPARC processor	
– 32-MB, 1.05-GB internal SCSI-2 disk, 644-MB internal SunCD™ 2Plus	S20S–50–32–P69
• Model 51 with one 50-MHz SuperSPARC processor and 1-MB SuperCache	
– 32-MB, 1.05-GB internal SCSI-2 disk, 644-MB internal SunCD 2Plus	S20S–51–32–P69
• Model 61 with one 60-MHz SuperSPARC processor and 1-MB SuperCache	
– 32-MB, 1.05-GB internal SCSI-2 disk, 644-MB internal SunCD 2Plus	S20S–61–32–P69

SPARCserver 20 Multiprocessor Workgroup Servers

• Model 502MP with two 50-MHz SuperSPARC processors	
– 64-MB, two 1.05-GB internal SCSI-2 disks, 644-MB internal SunCD 2Plus	S20S–502–64–P70
• Model 612MP with two 60-MHz SuperSPARC processors and 1-MB SuperCache per processor	
– 64-MB, two 1.05-GB internal SCSI-2 disks, 644-MB internal SunCD 2Plus	S20S–612–64–P70

SPARCstation 20 System Configurations *(cont.)*

SPARCserver 20 Multiprocessor Workgroup Servers *(cont.)*

- Model 514MP with four 50-MHz SuperSPARC processors with 1-MB SuperCache per processor
  - 64-MB, two 1.05-GB internal SCSI-2 disks, 644-MB internal SunCD 2Plus

- Part number

  S20S–514–64–P70

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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 list for complete option listings, configuration notes, and ordering information.

- All SPARCstation 20 and SPARCserver 20 desktop workstation system configurations include
  - One or two 50-MHz processors or 60-MHz processors with SuperCache modules
  - 32 or 64 MB of 60-ns system memory with 535-MB or 1.05-GB internal disk
  - TurboGX™, TurboGXplus™, SX, or ZX graphics with 20-inch grayscale or 17- or 20-inch color monitor
  - SunMicrophone™ II, Type 5 localized keyboard, Sun Type 5 mouse

Part number	Option description	Maximum number supported	Comments
Processors			
Xtbd	50-MHz SuperSPARC processor module	2	per system
Xtbd	50-MHz SuperSPARC processor w/SuperCache module	2	per system
X1168A	60-MHz SuperSPARC processor w/SuperCache module	2	per system
Memory			
X116P	16-MB 60-ns SIMM memory expansion	8	per system
X132P	32-MB 60-ns SIMM memory expansion	8	per system
X164P	64-MB 60-ns SIMM memory expansion	8	per system
Mass storage			
X560A	3.5-inch 1.44 internal floppy drive	1	per system
X578A	644-MB internal SunCD™ 2Plus CD-ROM drive	1	per system
X649A	1.05-GB internal disk	2	per system
X589A	535-MB internal disk	2	per system
X580A	535-MB external desktop disk pack	20	per system
X545A	1.05-GB external desktop disk pack	20	per system
X567A	2.1-GB external desktop disk pack	5	per system
X547A	4.2-GB external multidisk pack	5	per system
X570A	8.4-GB external multidisk pack	5	per system
X822A	5-GB 4-mm DAT desktop backup pack	10	per system
X827A	20-GB 4-mm DAT autoloader desktop storage module	10	per system
X814A	5-GB 8-mm tape desktop backup module	10	per system
X592A	SPARCstorage™ Array Model 101 (6 x 1.05-GB)	4	per system
X593A	SPARCstorage Array Model 101 (18 x 1.05-GB)	4	per system
X655A	SPARCstorage Array Model 101 (30 x 1.05-GB)	4	per system
X1057A	25 MB/sec. fibre channel SBus adaptor (FC25/S)	4	per system
X595A	25 MB/sec. fibre channel optical mod. (FC25/OM)	4	per system

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

Options *(cont.)*

Part number	Option description	Maximum number supported	Comments
Networking			
X1052A	SBus SCSI-2/Ethernet card (DSBE/S)	4	per system
X1053A	SBus Fast SCSI-2/buffered Ethernet card (FSBE/S)	4	per system
X1054A	SBus SCSI-2/buffered Ethernet card (SBE/S)	4	per system
X1058A	SBus Quad Ethernet controller	4	per system
X1003A	FDDI single-attach SBus interface card	4	per system
X1004A	Token ring interface/SBus (TRI/S)	1	per system
X1056A	SunFastEthernet™ SBus controller	1	per system
X1050A	SunATM™–155/MFiber SBus adapter	1	per system
X1051A	SunATM–155/UTP5 SBus adapter	1	per system
X1012A	SunISDN SBus expansion kit	1	per system
Graphics and multimedia			
X1085A	SunVideo™ video capture and compression SBus	1	per system
X487A	board Sun multimedia kit: SunVideo SBus board, color camera, CDware™ CD	1	per system
X327A	4-MB (60 ns) SX graphics with 17-inch color monitor	2	per system
X325A	4-MB (60 ns) SX graphics with 20-inch color monitor	2	per system
X326A	8-MB (60 ns) SX graphics with 20-inch color monitor	2	per system
X359A	1-MB TurboGX SBus with 20-inch color monitor	2	per system
X367A	4-MB TurboGXplus SBus with 20-inch color monitor	2	per system
X1094A	SPARCstation ZX 3-D graphics SBus board	1	per system

Configuration Guidelines

- The Solaris® 2.3 operating environment is required for multiprocessing systems, SX graphics, or ZX graphics systems. Refer to the Sun Price Book ordering notes for operating system requirements for SBus options and other system options
- All SPARCstation 20 systems include Solaris 2.3 license. Solaris 1.1.1 Version B license must 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 4-MB SX 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 8-MB SX 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

Configuration Guidelines

- Software: SPARCstation 20 systems require Solaris® 1.1.1 Version B or Solaris 2.3 (Solaris 2.3 required for SX, ZX, Model 502MP, Model 612MP, or Model 514MP systems)
- 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 new internal disk drives and do not support internal drives from SPARCstation 10, SPARCstation 2, or SPARCstation IPX systems
- Memory: SPARCstation 20 memory (60 ns) 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™, ZX, and SPARCstation 20 SX frame buffers are supported

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SPARCstation 20 Upgrades *(cont.)*

Upgrades to SPARCstation 20 Systems

• Model 50 (without SX) with one 50-MHz SuperSPARC processor	• Part number
– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UGSS2–S2050TX1–P46
– SPARCstation 10 (non-SX) chassis upgrade: 32-MB, 1.05-GB internal SCSI-2 disk	UGS10–S2050–32P46
NOTE: No graphics frame buffer provided with UGS10–S2050–32P46; customer retains frame buffer from SPARCstation 10 system	
– SPARCstation 5 system board upgrade: SPARC® module and memory must be ordered seperately	UG–S5–S20
– Non Sun system chassis upgrade: TurboGX 1-MB frame buffer, 32-MB, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–50TX1–32P46
– Non Sun system chassis upgrade: ZX 3-D graphics frame buffer, 32-MB, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–50ZX–32P46
– Non Sun system chassis upgrade to SPARCserver: 32-MB, 644-MB internal SunCD 2Plus, 1.05-GB internal SCSI-2 disk	CU–S20S–50–32P69
• Model 50 with one 50-MHz SuperSPARC processor with SX graphics	• Part number
– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: 4-MB SX graphics frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk,	UGSS2–S2050SX4–P46
– SPARCstation 10 chassis upgrade: 4-MB SX graphics frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UG–S10SX–S2050SX4
– Non Sun system chassis upgrade: 4-MB SX graphics frame buffer, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–50SX4–32P46
– Frame buffer upgrade from SX4-MB to SX8-MB graphics	UG–S20SX4–S20SX8

SPARCstation 20 Upgrades *(cont.)*

Upgrades to SPARCstation 20 Systems *(cont.)*

	Part number
• Model 51 (without SX) with one 50-MHz SuperSPARC processor with 1-MB SuperCache	
– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UGSS2–S2051TX1–P46
– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: ZX 3-D graphics frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UGSS2–S2051ZX–P46
– SPARCstation 10 (non-SX) chassis upgrade: 32-MB, 1.05-GB internal SCSI-2 disk	UGS10–S2051–32P46
NOTE: No graphics frame buffer provided with UGS10–S2051–32P46; customer retains frame buffer from SPARCstation 10 system	
– Non Sun system chassis upgrade: TurboGX 1-MB frame buffer, 32-MB, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–51TX1–32P46
– Non Sun system chassis upgrade: ZX 3-D graphics frame buffer, 32-MB, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–51ZX–32P46
• Model 61 with one 60-MHz SuperSPARC processor with 1-MB SuperCache	
– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: TurboGX 1-MB frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UGSS2–S2061TX1–P46
– SPARCstation 2, SPARCstation IPX, or SPARCstation LX chassis upgrade: 4-MB SX graphics frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UGSS2–S2061SX4–P46
– SPARCstation 2 chassis upgrade: ZX 3-D graphics frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UGSS2–S2061ZX–P46
– SPARCstation 10 (non-SX) chassis upgrade: 32-MB, 1.05-GB internal SCSI-2 disk	UGS10–S2061–32P46
NOTE: No graphics frame buffer provided on UGS10–S2061–32P46; customer retains frame buffer from SPARCstation 10 system	
– SPARCstation 10SX chassis upgrade: 4-MB SX graphics frame buffer, 32-MB, 1.05-GB internal SCSI-2 disk	UG–S10SX–S2061SX4

SPARCstation 20 Upgrades *(cont.)*

Upgrades to SPARCstation 20 Systems *(cont.)*

	Part number
• Model 61 with one 60-MHz SuperSPARC processor with 1-MB SuperCache	
– Non Sun system chassis upgrade: TurboGX 1-MB frame buffer, 32-MB, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–61TX1–32P46
– Non Sun system chassis upgrade: 4-MB SX graphics frame buffer, 32-MB, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–61SX4–32P46
– Non Sun system chassis upgrade: ZX 3-D graphics frame buffer, 32-MB, 20-inch color monitor, 1.05-GB internal SCSI-2 disk	CU–S20–61ZX–32P46
– Non Sun system chassis upgrade to SPARCserver: 32-MB, 644-MB internal SunCD 2Plus 1.05-GB internal SCSI-2 disk	CU–S20S–61–32P69
• SPARC Module Upgrades	
– SPARCstation 10 SM20, SM30, SM40, or SM41 module upgrade to SM61 SPARC module with one 60-MHz SuperSPARC processor with SuperCache	UG–M41–M61
– SPARCstation 10, SPARCstation 20 SM50, or SM51 module upgrade to SM61 SPARC module with one 60-MHz SuperSPARC processor with SuperCache	UG–M51–M61
– SPARCstation 10, SPARCstation 20 SM50, or SM51 module upgrade to SM514 SPARC module with four 50-MHz SuperSPARC processors with SuperCache	UG–M51–M514

SunSpectrum℠ Customer Service Program

SunSpectrum℠ support programs are designed to meet customers' complete system needs, from total business support to self-maintenance and any level in-between. The SunSpectrum program supports a flexible range of services, allowing customers complete systems coverage for hardware, software, network applications, and network interoperability problems. A single fee covers the support for customers' entire systems — no matter what the configuration — making ordering and support administration easy and painless. Customers should check with their local customer support representative for program/feature variance and availability in their area.

Services	SunSpectrum Platinum℠ program	SunSpectrum Gold℠ program	SunSpectrum Silver℠ program	SunSpectrum Bronze℠ program
Telephone assistance, unlimited	Seven day, 24 hour	Seven day, 24 hour	8AM-8PM, M-F	8AM-5PM, M-F
On-site response	Seven day, 24 hour	8AM-8PM, M-F	8AM-5PM, M-F	
Customer defined priority	✓	✓	✓	
Urgent (phone/on site)	Live/two hour	Live/four hour	Live/four hour	Four hour/NA
Serious (phone/on site)	Two hour/ four hour	Two hour/ next day	Two hour/ next day	Four hour/NA
Non-critical (phone/on site)	Four hour/ customer convenience	Four hour/ customer convenience	Four hour/ customer convenience	Four hour/NA
Remote dial-in analysis	✓	✓	✓	✓
Replacement hardware parts	On-site technician	On-site technician	On-site technician	Courier, two business days
Solaris® enhancement releases	✓	✓	✓	✓
Patches and maintenance releases	✓	✓	✓	✓
SunSolve™ License	✓	✓	✓	✓
EarlyNotifier™ service	✓	✓	✓	✓
Seven-day, 24-hour telephone coverage	✓	✓	Option	
Seven-day, 24-hour onsite coverage	✓	Option	Option	
Two-hour on-site response	✓	Option	Option	
Self-paced education library	✓	✓	Option	
Personal technical account support	✓	✓	Option	
Onsite technical support reviews	Quarterly	Semi-annual	Option	
Technical support plan	✓			
99% server uptime guarantee	✓			
Site activity log	✓	✓		
Coaching and training service	15 days per year			

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SPARCstation™ 20 Glossary

SuperSPARC	The SuperSPARC™ microprocessor, comprised of 3.1 million transistors, is a highly integrated superscalar SPARC® miroprocessor, fully compatible with SPARC® version 8 architecture (1992 SPARC International). The SPARCstation 20 and SPARCstation 10 network workstations use the SuperSPARC microprocessor.
MBus	The SPARCstation 20 MBus supports a selectable synchronous, 40- or 50-MHz 64-bit 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, high-bandwidth access to memory and I/O, and a non-proprietary MBus specification held by SPARC International, an independent industry organization.
SuperSPARC module	Field-installable SuperSPARC processor daughter card of which 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 two processor version modules for four-way multiprocessor configurations (with two modules installed).
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	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. SuperCache configured systems deliver the highest compute performance of SPARCstation 20 uniprocessor configurations, multiprocessor configurations, and compute servers.

SPARCstation™ 20 Materials Abstract

All materials will be available on SunWIN March 29, except where noted.

Collateral	Description	Purpose	Distribution	Token # or Hibbert order #
Power Pack				
– *The Clear Choice for Enterprise Network Desktops* customer presentation	Presentation on Sun's desktop product line; slide notes for presentation	Sales tool	SunWIN, Reseller Resource CD	32035 32221 32037
– *Just the Facts*	Reference guide for SPARCstation 20 system	Training	SunWIN, Reseller Resource CD	32039
References				
– *Sun Intro*	Introduction e-mail	Training	SunWIN, Reseller Resource CD, e-mail	32041
– *SPARCstation Desktop Product Line Overview*	Quick reference cards (available end of April)	Training	SunWIN, Reseller Resource CD, Mail	10826
– SPARCserver™ *Desktop Product Line Overview*				24517
– *Competitive Summary – Workstations*				12259
– *Desktop Upgrades Product Line Overview*				24513
– *SPARCstation Graphics Overview*				24507
Guides				
– *SPARCstation 20 Product Book*	SPARCstation 20 technical reference guide	Technical information	SunWIN, Reseller Resource CD	32091 32093 32095 32097 32099 32101

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SPARCstation 20 Materials Abstract *(cont.)*

Collateral	Description	Purpose	Distribution	Token # or Hibbert order #
Intro to Go training kit				
– Training video	Training video for system engineers on SPARCstation 20 features; technical review of product	Training	Mail	
– Facilitator's guide	Guide to planning a training seminar	Training	Mail	
Product literature				
– *SPARCstation 20* datasheet	Datasheet	Sales tool	Mail, Order	DE550–0
– *SPARCserver 20 and SPARCserver 5* datasheet	Datasheet	Salestool	Mail, Order	DE547–0
– *SPARCstation 20 Product Brief*	Electronic product brief	Sales tool	SunWIN, Reseller Resource CD	32043
Performance brief				
– *Desktop SPARCstation Performance Overview*	System performance comparisions on SPARCstation desktop product line (available mid April 1994)	Sales tool	SunWIN, Reseller Resource CD	31674
– *SPARCstation 20 Performance Brief*	Details of SPARCstation 20 performance on selected benchmarks	Sales tool	SunWIN, Reseller Resource CD	32045
Competition				
– *SPARCstation 20 Competitive Brief*	Price/performance and functionality comparison with competitive products	Sales tool	SunWIN	32047
White papers				
– *SPARCstation 20 System Architecture*	Technical overview of SPARCstation 20 system design	Sales tool	SunWIN, Reseller Resource CD	32054
– *SX graphics*	Technical overview of SX graphics technology	Sales tool	SunWIN, Reseller Resource CD	25874