SPARCstation Voyager

Just the Facts

The product information contained in Just the Facts will be announced to the general public March 15, 1994. Until that time, this information is considered Sun confidential. It may be used with customers who have signed nondisclosure agreements.
SPARCstation™ Voyager System:
Compact, Ergonomic Workstation

The Industry’s Most Compact, Ergonomic Fully Featured Workstation

The SPARCstation™ Voyager system, a new concept of the ultra-compact, high-performance workstation, addresses customers’ expanding requirements for the enterprise network desktop. Beyond meeting customer expectations for the performance and compatibility of a true SPARCstation system, the SPARCstation Voyager system is remarkably small, quiet, and energy efficient. Users with limited office space or those who need to work at locations outside the traditional office are just two examples of customers who will benefit from the SPARCstation Voyager’s unique capabilities.

Product Fit

The SPARCstation Voyager system extends client-server, enterprise computing solutions beyond Sun’s current desktop and server product offerings. It represents a dramatic extension of the SPARCstation product line into

- New ergonomic and environmental desktops where reduced system size, operating noise, and power consumption is required and improved ease of use is highly desired
- Nomadic workstations where full-featured SPARCstation performance is required for remote client-server operation outside the traditional office environment

Key Messages

The SPARCstation Voyager system delivers all the capabilities of a full-featured SPARC®/Solaris® workstation

- Delivers the high performance Sun customers expect from a SPARCstation system
- Preserves compatibility with the SPARC/Solaris operating environment
- Provides a high degree of configurability and expandability
- Unveils industry-leading, high-resolution flat panel displays as an ergonomic alternative to cathode ray tubes (CRTs)
Key Messages (cont.)

• The SPARCstation Voyager system improves the ergonomics of the desktop workstation
  – Reduces deskspace requirements to just 30% of the SPARCstation 10 system
  – Eliminates cooling fan noise with advanced convection cooled system design
  – Reduces energy consumption and provides Energy Star certification
  – Eliminates CRT screen flicker and emissions with active-matrix liquid crystal displays
• The SPARCstation Voyager system introduces breakthrough nomadic capabilities
  – Presents a lightweight, easily transported system with an available protective carrying case
  – Includes new interfaces to support personal digital assistant connectivity and use of PCMCIA expansion cards
  – Delivers a sophisticated power system — worldwide-ready AC and rechargeable battery operation
  – Features quick power on/off as an alternative to the time-consuming reboot/halt process
  – Supports remotely networked client-server operation through modem and telephone line connection

Target Markets

The SPARCstation Voyager system is targeted to a wide range of current Sun customers who need compact, ergonomic desktops or nomadic workstations.

• Sell the SPARCstation Voyager system as a compact desktop where deskspace utilization and workplace ergonomics are highly valued
  – Financial services customers
  – Medical applications
  – Government customers
  – International markets
  – Users who value compact, quiet, and energy-efficient workstations
• Sell the SPARCstation Voyager system as a nomadic workstation to customers who require an easily transportable, full-featured workstation at a remote worksite
  – Technical customers such as software developers and technical writers
  – Field workers such as sales representatives, analysts, trainers, and consultants
  – Military personnel for field use, deployable workstation
  – System administrators for remote diagnostics and system administration
  – Users who value the convenience of a transportable fully featured SPARCstation workstation

Availability

The SPARCstation Voyager system can be ordered now and will ship starting April 1994.
SPARCstation™ Voyager Architecture

Maintains the Capabilities of a Fully Featured SPARCstation System

The SPARCstation™ Voyager system is a fully featured, high-performance workstation that supports a high-level of compute, graphics, and expansion capabilities.

High-Performance System Design

- **Features**
  - 60-MHz microSPARC™ II processor
  - Highly integrated CPU board design
  - Modular display framebuffer boards (low-cost monochrome and TurboGX™ color)
  - SCD 2.0 compliant
  - One-year warranty

- **Benefits**
  - Twice the performance of first microSPARC chip
  - Fast performance in low-cost, low-power consuming design
  - Single-chip integer and floating-point processor
  - Reduced chip count increases system reliability
  - Graphics on a daughtercard provides flexibility for upgrades, repair, and configuration choices
  - Full application compatibility under the Solaris® 2.3 operating environment
  - Maintenance of Sun’s commitment to quality

System Block Diagram

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**SPARCstation Voyager Architecture (cont.)**

### Sun Standard I/O Interfaces

**• Features**
- 16-bit stereo audio with all speaker box features on side of system
- Built-in twisted-pair Ethernet
- Peripheral compatibility with SCSI devices
- One serial and one parallel port
- Support for Sun cathode ray tube displays
- ISDN standard on motherboard

**• Benefits**
- Provides easy access to stereo microphone, speaker, and line-in/line-out ports
- Offers standard, on-board high-speed networking
- Supports desktop packs for CD-ROM, disk, and tape
- Supplies interface for printers and external modems
- Supports any Sun monitor by external monitor port
- Supports WAN and digital telephony

### System Back Panel I/O Connectors

![System Back Panel I/O Connectors Diagram]

- Power switch
- SCSI
- Twisted-pair Ethernet
- Parallel monitor 13W3
- External monitor ISDN A
- Serial A
- Keyboard
- DC power

### New Industrial Design

**• Features**
- New compact design
- Flat panel display support
- Security lock
- Power-on light-emitting diode (LED)
- Two keyboard/mouse options

**• Benefits**
- Bold new SPARCstation design
- First fully featured workstation to support flat panels
- Secure system to table or desk with lock box
- “Power on” indication on front of system
- Support for both Compact 1 and Type 5 country kits

### Compact 1 Keyboard and Mechanical Mouse

![Compact 1 Keyboard Layout]

Compact 1 keyboard layout showing embedded keypad

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Internal Storage and Expansion

• Features
  – Internal 340-MB 2.5-inch hard disk standard
  – Internal 3.5-inch floppy drive standard
  – 16-MB standard, expandable to 80 MB
  – Support for 16-MB or 32-MB memory cards
  – Credit-card size internal PCMCIA expansion cards

• Benefits
  – Diskfull solution without requiring a cooling fan
  – Sun compatible, super slim, auto-eject floppy disk
  – Expandable to meet the memory needs of applications
  – Efficient, cost-effective memory increments
  – Memory cards, not SIMMs, deliver high capacity
  – Easy installation requires no system disassembly
  – Support for two Type I or II cards or one Type III card
  – Industry-standard, widely available option cards

Memory Expansion Cards

• Supports up to two memory expansion cards, of either 16-MB or 32-MB capacity

• 16-MB base memory, expandable to 80 MB

PCMCIA Expansion Cards

• Supports two Type I or II cards

• Or one Type III card
SPARCstation Voyager Architecture (cont.)

Improves the Ergonomics of the Desktop Workstation

The SPARCstation Voyager system presents a new SPARCstation form factor that addresses users’ concerns regarding desk space requirements, screen and noise emissions, and energy consumption of workstations.

New Support for Flat-Panel Displays

- **Features**
  - Active-matrix liquid crystal display (LCD)
  - Large, high-resolution flat panels

- **Benefits**
  - Flicker-free, emission-free displays of cathode ray tube (CRT) quality
  - Fast response time and wide viewing angle
  - Extremely sharp, with high contrast and excellent color saturation
  - Highly reliable and energy efficient
  - Industry-leading display size and resolution
  - 106 dpi approximates CRT pixel size
  - Provides 2.5 to 3.4 times the size and resolution of VGA resolution flat panels popular on PCs

LCD Flat Panel Technology Comparison

<table>
<thead>
<tr>
<th>Application</th>
<th>Display type</th>
<th>Resolution</th>
<th>Screen diagonal</th>
<th>Display area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notebooks and laptops</td>
<td>VGA LCD</td>
<td>640 x 480</td>
<td>9 in.</td>
<td>7.5-in. x 5-in.</td>
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<tr>
<td>SPARCstation Voyager</td>
<td>Color LCD</td>
<td>1024 x 768</td>
<td>12 in.</td>
<td>9.5-in. x 7.25-in.</td>
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<tr>
<td>SPARCstation Voyager</td>
<td>Mono LCD</td>
<td>1152 x 900</td>
<td>14 in.</td>
<td>11-in. x 8.5-in.</td>
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<tr>
<td>SPARCstation Voyager</td>
<td>Color CRT</td>
<td>1152 x 900</td>
<td>15 in.</td>
<td>12-in. x 9-in.</td>
</tr>
</tbody>
</table>

Relative Display Area

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Low Power Consumption Design
- Features
  - Convection cooled
  - Energy Star certified
  - Active power management
- Benefits
  - Natural cooling to eliminate fan noise and vibration
  - No moving parts for less energy consumption
  - Compliance with U.S. EPA energy savings guidelines
  - Accommodation of contracts requiring Energy Star certification
  - Only 15% the energy use of a SPARCstation LX system
  - Lower energy use reduces cost of operation
  - Power sources include idle ports, display, disk, and microSPARC II

Environmentally Friendly
- Features
  - Recyclable components
  - Class III environmental compliant
- Benefits
  - Conserves natural resources
  - Complies with most rigid testing

Compact System Enclosure
- Features
  - Compact 14 x 5.5-inch CPU module
  - Minimal system depth
  - Compact 1 keyboard and mechanical mouse
- Benefits
  - Requires 36% of the desktop area of a SPARCstation 10
  - Allows CPU to be placed virtually anywhere
  - Serves as stand and interface for flat panel display
  - Requires just 1 foot of depth with keyboard; with keyboard on tray CPU needs only 6 inches
  - Requires only 40% of the desktop area of Type 5
  - Needs just 15 x 6 inches of desktop space for keyboard
  - Eliminates silver optical mouse pad
  - Features full-sized QWERTY keys in sculpted layout

System Footprint Comparison

<table>
<thead>
<tr>
<th></th>
<th>Desktop footprint</th>
<th>SPARCstation 10</th>
<th>SPARCstation Voyager</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU</td>
<td>256 sq. in.</td>
<td>77 sq. in.</td>
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<tr>
<td>Keyboard and mouse</td>
<td>140 sq. in.</td>
<td>90 sq. in.</td>
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</tr>
<tr>
<td>Mouse pad</td>
<td>68 sq. in.</td>
<td>Not req.</td>
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<tr>
<td>Total</td>
<td>464 sq. in.</td>
<td>167 sq. in.</td>
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<tr>
<td>% of SPARCstation 10</td>
<td>100%</td>
<td>36%</td>
<td></td>
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</table>

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Ease of Use

- **Features**
  - Fully adjustable system
  - Easy access to I/O connectors
  - User access via #1 Phillips screwdriver
  - PCMCIA expansion card insertion
  - Keyboard power and brightness control

- **Benefits**
  - Screen tilt and system swivel available
  - Detached keyboard and mouse
  - Audio, floppy, and PCMCIA slots on side
  - Access over display to I/O connectors on back panel
  - Straightforward disassembly for memory upgrade
  - No system cover removal needed: plug and play
  - Hands never leave the keyboard
  - Power key provides primary power on/off
  - Brightness keys control flat panel backlights

**Keyboard Controls for System Power and Screen Brightness**

<table>
<thead>
<tr>
<th>F10</th>
<th>F11</th>
<th>F12</th>
<th>PrSc</th>
<th>Scroll</th>
<th>SysRq</th>
<th>Pause</th>
<th>Break</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screen dim</td>
<td>Screen bright</td>
<td>Power key</td>
<td>PrSc</td>
<td>Scroll</td>
<td>SysRq</td>
<td>Pause</td>
<td>Break</td>
</tr>
</tbody>
</table>

Compact 1 keyboard
Introduces Breakthrough New Nomadic Capabilities

The SPARCstation Voyager system redefines the use of SPARCstation systems by introducing new capabilities that allow use of a fully featured workstation outside the traditional office environment.

Transportable System Design

- **Features**
  - Compact, lightweight system
  - Optional carrying case

- **Benefits**
  - Easy to move, with just 16% of the weight of a traditional workstation
  - Entire system fits within a 15 x 15 x 5.5-in. box
  - Safe transport of entire system
  - Protection of flat display and all components plus options

Remote Networking Support

- **Features**
  - Remote networking through ISDN or modem
  - Optional high-performance PCMCIA modem

- **Benefits**
  - Delivers true client-server capability by phone line connection back to enterprise
  - 14.4 Kbps with error control and V.42bis compression
  - Localized for compliance in major countries
  - Made by US Robotics for Sun

Advanced New Materials

- **Features**
  - PC/ABS solid resin system enclosure
  - Magnesium metal display enclosure
  - Aluminum skeletal frame

- **Benefits**
  - Shock-resistant plastics for ruggedness
  - Strong and lightweight, yet rigid to resist flexing
  - System frame for strength and thermal management
New Advanced Materials Provide Strength and Aid Natural Cooling

Flexible Power System

- **Features**
  - Internal universal AC power supply
  - New two-wire AC power cord

- **Benefits**
  - Ease of use with automatic voltage selection
  - Worldwide operation (100-250 VAC, 50-60 Hz)
  - AC supply resides inside system base
  - Lightweight, flexible cord requires no ground wire
  - Fewer cords for worldwide use
Optional Rechargeable Battery

**Features**
- High performance
- Intelligent monitoring
- Internal operation
- Lithium-ion technology

**Benefits**
- 1.5 to 2 hours of typical battery operation
- Trickle charge in 8 hours during use
- Fast charge in 2 hours when system powered off
- Protection circuits prevent overcharging
- Internal diagnostics report failure to CPU
- AC power supply is also battery recharger
- Use as uninterruptable power supply (UPS) for failover to battery on AC power loss
- Replacement for AC supply inside base of system
- AC operates outside system when battery installed
- High energy density: 40 watt-hour in 1.5 lb.
- No transportation of storage restrictions
- Environmentally safe: no lead, mercury, or cadmium

AC or Battery Operation

- AC only
- Battery only
- Battery and AC

New Interfaces

**Features**
- PCMCIA support
- Infrared interface

**Benefits**
- On-board credit-card size expansion slots
- Support for modems, disk, flash memory, network
- Interchangeable with PCs and laptops
- Interface for PDA, personal organizer connectivity

IR interface on front right corner

Two Type I or II (or one Type III) PCMCIA slots on right side, behind floppy
Supplemental Software Provides Incremental Features

The SPARCstation™ Voyager system features supplemental software that enhances its capability as a nomadic, remotely operated SPARCstation system. These features also make the SPARCstation Voyager system an even easier to use and more powerful desktop workstation.

Suspend/Resume

- **Features**
  - Fast boot
  - Robust design
  - One key sequence

- **Benefits**
  - Avoids lengthy halt and reboot process
  - Suspends in 20 to 45 seconds, resumes in 45 to 60 seconds
  - Saves system state to nonvolatile hard disk partition
  - Improves ease of use: Users just press power key to resume to system state exactly as it was when suspended

Power Management

- **Features**
  - Built-in transparent operation
  - Power management tool
  - Auto-suspend

- **Benefits**
  - Saves power and extends system life automatically
  - Lets user adjust disk and display power-off times
  - Shows battery charge state and remaining time through graphical user interface
  - Automatically suspends system on low battery before battery is exhausted

Power Management Screen

Main screen shows remaining battery charge and calculated time remaining.

User can conserve power by editing profiles to specify power down of screen backlight and hard disk.

![Graphical User Interface](image-url)
ROAM™ Mailtool

• Features
  – Client-server mail
  – Support for low-bandwidth connection
  – Mail caching and queuing

• Benefits
  – Server-based mail account allows client to be removed from the network without mail “bouncing”
  – Clients can connect to mail account from office or remote location to access their mail
  – High performance available through modem connection
  – Mail is stored on local disk to be read when disconnected
  – Queues outgoing mail when off line, plays back queued transactions when reconnected

ROAM Mailtool Screen

When disconnected from the network, ROAM mailtool allows outgoing e-mail to be spooled in a user’s outbox. Outbox is delivered when user reconnects to the network through Ethernet or modem.

Fax Application

• Features
  – Bundled application with optional modem
  – Class 1.0 and 2.0, Group III protocol
  – 14.4 Kbps send or receive fax
  – Print to fax
  – On-line documentation

• Benefits
  – Delivery of fax capability as part of Sun’s modem
  – Compatibility with industry’s fax command set
  – High-performance fax communications
  – Easy, natural interface to send fax documents
  – Simple to learn and use

ROAM mailtool is a client-server mailtool that supports disconnected and remotely networked operation.
SPARCstation Voyager Software (cont.)

Small Disk Solaris® 2.3 System Software

• **Features**
  - 98-MB operating system (OS) footprint (European and domestic)
  - Japanese version
  - Auto-install default

• **Benefits**
  - Provides 155 MB of user storage after operating system, window system, swap, point-to-point protocol (PPP), and value-add software needs
  - Includes Japanese fonts
  - Provides binary compatibility package
  - Installs easily using JumpStart™ installation software
  - Uses swmtool to customize operating system needs

**Allocation of 340-MB* Hard Disk (European and Domestic OS)**

- SunOS™ and OpenWindows™ software (98 MB)
- SPARCstation Voyager value-added software (3 MB)
- Suspend/Resume (10 MB)
- Swap (32 MB)
- Available to user (approximately 155 MB)

*Usable capacity is 318 MB. Segments do not total because of file system overhead.

**Point-to-Point Protocol (PPP)**

• **Features**
  - TCP/IP runs over a telephone line
  - Automatic PPP connection and termination

• **Benefits**
  - Remote use of services such as NFS® distributed computing file system and rlogin
  - Ease of use and lower cost of telephone connections

**Remote Networking Through PPP**
SPARCstation™ Voyager System Configuration

System Configurations

The SPARCstation™ Voyager system comes in three system configurations: two flat panel configurations and one traditional cathode ray tube (CRT) configuration.

- Active-matrix liquid crystal flat panel display configurations
  - Monochrome flat panel, 16-MB RAM, 340-MB hard disk, internal floppy disk, PCMCIA slots
  - Part number S240ML-16-P18

  The monochrome flat panel has a 14-inch (displayable) diagonal screen area with 1152 x 900 resolution. This display is comparable in displayable screen area to a 16-inch CRT.

  - Color flat panel with TurboGX™ accelerator, 16-MB RAM, 340-MB hard disk, internal floppy disk, PCMCIA slots
  - Part number S240CLTX1-16-P18

  The color flat panel has a 12-inch (displayable) diagonal screen area with 1024 x 768 resolution. This display is comparable in displayable screen area to a 14-inch CRT.

- Traditional CRT configuration
  - 17-inch color Trinitron monitor with TurboGX engine, 16-MB RAM, 340-MB hard disk, internal floppy disk, PCMCIA slots
  - Part number S240FTX1-16-P18

  The 17-inch color monitor has a 15-inch (displayable) diagonal screen area with 1152 x 900 resolution.

Configuration Guidelines

- One Solaris® 2.3 Edition 2 media kit per site is needed
- A no charge SPARCstation Voyager starter kit is required (provides power cord and documentation)
- Choice of keyboard and mouse is available by selection of either Type 5 or Compact 1 system accessory kit
- With the exception of the display and associated frame buffer, all configurations are identical
- Monochrome configurations support only a monochrome CRT through the external 13W3 monitor port
- Color configurations (both LCD and CRT) support TurboGX 8-bit accelerated graphics through either the attached LCD or the external CRT (up to 1152 x 900 resolution)
SPARCstation™ Voyager Options

Options

- 16-MB memory expansion
  - 16-MB memory expansion card
  - Part number X117A

- 32-MB memory expansion
  - 32-MB memory expansion card
  - Part number X118A

- Battery pack
  - Rechargeable, high-density battery pack
  - Part number X911A

- Carrying case
  - SPARCstation™ Voyager carrying case
  - Part number X1901A

- PCMCIA modem card
  - V.32bis/V.42bis PCMCIA Type II modem card supports data, voice, and group III fax with bundled fax software. Provides 14.4 Kbps data transmission and 4:1 compression (manufactured for Sun by US Robotics)
  - Part numbers X440A United States
  - X442A France
  - X443A Germany
  - X446A Sweden
  - X447A United Kingdom
  - X448A Japan
  - X449A Australia

- External SCSI expansion
  - 535-MB SCSI desktop disk pack
  - 1.05-GB SCSI desktop disk pack
  - 2.1-GB SCSI desktop disk pack
  - 2 x 2.1-GB SCSI disk pack
  - 4 x 2.1-GB SCSI disk pack
  - 150-MB 1/4-inch tape desktop backup pack
  - 5-GB 4-mm tape desktop backup pack
  - 5-GB 8-mm tape desktop storage module
  - 20-GB 4-mm tape autoloader
  - Photo CD desktop SunCD™ pack
  - SlimCD desktop SunCD pack
  - Part numbers X580A
  - X545A
  - X567A
  - X569A
  - X570A
  - X660A
  - X822A
  - X814A
  - X827A
  - X557A
  - X579A
SPARCstation Voyager Options (cont.)

Configuration Guidelines

• The SPARCstation Voyager system supports up to two memory expansion cards of either 16- or 32-MB capacity. The system’s 16-MB base memory is on the motherboard and does not take up either memory slot.

• The battery pack is internal and only one battery can be inserted at one time. However, a second battery can be recharged outside the system using the system’s AC power supply as a recharger.

• The SPARCstation Voyager system supports up to two Type I or II cards, or one Type III PCMCIA card.

• Six external SCSI devices are supported with a maximum SCSI bus length of 6 meters.
## SPARCstation Voyager Options (cont.)

<table>
<thead>
<tr>
<th>Part number</th>
<th>Option description</th>
<th>Maximum number</th>
<th>Comments</th>
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<td><strong>Memory</strong></td>
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<td>X117A</td>
<td>16-MB memory expansion card</td>
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<td>Per system</td>
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<td>X118A</td>
<td>32-MB memory expansion card</td>
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<td><strong>Disk drives</strong></td>
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<td>X580A</td>
<td>535-MB SCSI desktop disk pack</td>
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<td>X545A</td>
<td>1.05-GB SCSI desktop disk pack</td>
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<td>X567A</td>
<td>2.1-GB SCSI desktop disk pack</td>
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<td>X569A</td>
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<td>4 x 2.1-GB SCSI</td>
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<td><strong>Tape drives</strong></td>
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<tr>
<td>X660A</td>
<td>150-MB 1/4-in. tape desktop backup pack</td>
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<td>X822A</td>
<td>5-GB 4-mm tape desktop backup pack</td>
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<td>X814A</td>
<td>5-GB 8-mm tape desktop storage module</td>
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<td>Per system</td>
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<tr>
<td>X827A</td>
<td>20-GB 4-mm tape auto-loader</td>
<td>6</td>
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<td><strong>CD-ROM</strong></td>
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<tr>
<td>X557A</td>
<td>Photo CD desktop SunCD pack</td>
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<td>Per system</td>
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<td>X579A</td>
<td>SlimCD desktop SunCD pack</td>
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<tr>
<td><strong>Other options</strong></td>
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<tr>
<td>X911A</td>
<td>Rechargeable battery pack</td>
<td>1</td>
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<td>X1901A</td>
<td>Carrying case</td>
<td>1</td>
<td>Per system</td>
</tr>
</tbody>
</table>

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Just the Facts

March 1994
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.

<table>
<thead>
<tr>
<th>Services</th>
<th>SunSpectrum Platinum℠ program</th>
<th>SunSpectrum Gold℠ program</th>
<th>SunSpectrum Silver℠ program</th>
<th>SunSpectrum Bronze℠ program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone assistance, unlimited</td>
<td>Seven day, 24 hour</td>
<td>Seven day, 24 hour</td>
<td>8AM-8PM, M-F</td>
<td>8AM-5PM, M-F</td>
</tr>
<tr>
<td>On-site response</td>
<td>Seven day, 24 hour</td>
<td>8AM-8PM, M-F</td>
<td>8AM-8PM, M-F</td>
<td></td>
</tr>
<tr>
<td>Customer defined priority</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Urgent (phone/on site)</td>
<td>Live/two hour</td>
<td>Live/four hour</td>
<td>Live/four hour</td>
<td>Four hour/NA</td>
</tr>
<tr>
<td>Serious (phone/on site)</td>
<td>Two hour/next day</td>
<td>Two hour/next day</td>
<td>Two hour/next day</td>
<td>Four hour/NA</td>
</tr>
<tr>
<td>Noncritical (phone/on site)</td>
<td>Four hour/customer convenience</td>
<td>Four hour/customer convenience</td>
<td>Four hour/customer convenience</td>
<td>Four hour/NA</td>
</tr>
<tr>
<td>Remote dial-in analysis</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Replacement hardware parts</td>
<td>On-site technician</td>
<td>On-site technician</td>
<td>On-site technician</td>
<td>Courier, two business days</td>
</tr>
<tr>
<td>Solaris® enhancement releases</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Patches and maintenance releases</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>SunSolve™ license</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>EarlyNotifier™ service</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Seven-day, 24-hour telephone coverage</td>
<td>✓</td>
<td>✓</td>
<td>Option</td>
<td></td>
</tr>
<tr>
<td>Seven-day, 24-hour on-site coverage</td>
<td>✓</td>
<td>Option</td>
<td>Option</td>
<td></td>
</tr>
<tr>
<td>Two-hour on-site response</td>
<td>✓</td>
<td>Option</td>
<td>Option</td>
<td></td>
</tr>
<tr>
<td>Self-paced education library</td>
<td>✓</td>
<td>✓</td>
<td>Option</td>
<td></td>
</tr>
<tr>
<td>Personal technical account support</td>
<td>✓</td>
<td>✓</td>
<td>Option</td>
<td></td>
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<tr>
<td>On-site technical support reviews</td>
<td>Quarterly</td>
<td>Semiannual</td>
<td>Option</td>
<td></td>
</tr>
<tr>
<td>Technical support plan</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99% server uptime guarantee</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site activity log</td>
<td>✓</td>
<td>✓</td>
<td></td>
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</tr>
<tr>
<td>Coaching and training service</td>
<td>15 days per year</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Term</td>
<td>Description</td>
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<td>--------------</td>
<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>AMLCD</td>
<td>An abbreviation for active matrix liquid crystal display, AMLCD is an advanced flat-panel display technology offering high contrast, wide viewing angle, and fast response time. Active matrix technology is vastly superior to the passive matrix technology prevalent on PC notebooks because it solves common ghosting and washed out display problems. AMLCDs offer improvements over CRTs in several ways. They are much smaller, lighter, and consume less lower power than CRTs. There are also no electromagnetic screen emissions as there are from CRTs, and they are flicker free, which significantly reduces eye strain.</td>
<td></td>
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</tr>
<tr>
<td>ASIC</td>
<td>The application-specific integrated circuit (ASIC) is a silicon chip designed to implement functions that would otherwise require several chips or parts. It provides for physically smaller and lower-cost designs.</td>
<td></td>
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</tr>
<tr>
<td>Battery</td>
<td>A rechargeable, modular DC power source that can replace the AC power module. The 40 watt/hour SPARCstation Voyager battery resides inside the system base and provides approximately two hours of system operation on a full charge. The battery can completely recharge in as little as 90 minutes.</td>
<td></td>
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</tr>
<tr>
<td>Compact 1 keyboard</td>
<td>A new Type 5 compatible keyboard introduced as a new country kit bundled with a mechanical mouse. With dimensions of 15 by 5 inches, this new keyboard is 5 inches shorter and 1 inch narrower than the current Type 5. The mechanical mouse does not require a mouse pad as does the current optical mouse.</td>
<td></td>
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</tr>
<tr>
<td>Convection cooling</td>
<td>Convection is a natural cooling technique that works on the principle that heat rises. The rising heat flow through the system creates a natural inflow of cooling air at the rate of approximately 10 cubic feet per minute.</td>
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</tr>
<tr>
<td>CRT</td>
<td>Cathode ray tubes (CRTs) are traditional computer displays that use a scanning electron beam to illuminate the screen phosphor.</td>
<td></td>
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</tr>
<tr>
<td>DBRI</td>
<td>A Sun ASIC that implements the hardware side of the ISDN and the 16-bit audio interface.</td>
<td></td>
<td></td>
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<tr>
<td>DPI</td>
<td>Dots per inch (DPI) is a measure of pixel density.</td>
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</tr>
<tr>
<td>Energy Star certification</td>
<td>A U.S. Environmental Protection Agency program to encourage power savings from computer systems. To comply with the EPA guidelines, systems must automatically power down to under 30 watts when inactive.</td>
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</tr>
<tr>
<td>Footprint</td>
<td>The amount of area consumed. Desktop footprint refers to the amount of desk space a computer (or other machinery) requires.</td>
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</tbody>
</table>
IR
InfraRed (IR) is a wireless asynchronous serial connection — a serial port without the wire. SPARCstation Voyager IR hardware supports the leading two IR standards (HP and Sharp/Newton) and will support communication between personal systems such as HP palmtops, Apple Newtons, and select Sharp electronic organizers.

ISDN
Integrated services digital network (ISDN) is a technical standard that provides for fully digital transmission and reception of data across a public network.

LCD
Liquid crystal display, a flat panel display technology. See also AMLCD.

MACIO
A Sun ASIC that handles Ethernet, parallel port, and SCSI DMA. The Ethernet is interfaced to a twisted-pair (RJ-45) connector. The SCSI bus is used to connect to the internal SCSI hard disk as well as an external SCSI-2 connector.

microSPARC II
A single chip integer and floating-point processor, dynamic random-access memory, and SBus controller — the microprocessor.

Modem
An acronym for MODulator-DEModulator. This hardware device converts digital data into (and back from) tonal (analog) information for transmission over phone lines. Modems can interface through an external serial port or internally through PCMCIA slots.

PCMCIA
The Personal Computer Memory Card International Association (PCMCIA) is a standards organization that has defined several different physical types of cards and a robust specification for the design and use of the cards. The SPARCstation Voyager system provides two PCMCIA slots, which will support either two Type I or II cards or a single Type III card. The optional modem is a single Type II card.

Power management
The regulation of a computer’s power consumption. With the SPARCstation Voyager, a sophisticated system of hardware and software conserves power consumption by powering off various subsystems.

PPP
Point-to-point protocol (PPP) is the successor to the serial line internet protocol (SLIP) and provides router-to-router and host-to-network connections over both synchronous and asynchronous circuits. The most common use of PPP is to set up a point-to-point communications link, such as from a remote workstation to a server through a modem connection.

ROAM mailtool
A client-server mailtool developed jointly by Sun and Stanford University that supports disconnected and remote mailtool use.
<table>
<thead>
<tr>
<th><strong>SLAVIO</strong></th>
<th>This Sun ASIC integrates two serial ports, a floppy controller, and all the control logic for slave devices such as the EPROM, TOD chip, power management chip, and NVRAM.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solaris® 2.3 Edition 2</strong></td>
<td>The initial software release for SPARCstation Voyager, which is a platform-specific release of Solaris 2.3 system software. This release includes kernel modifications required for suspend/resume and power management. Additional software functionality, such as the PCMCIA drivers and support for the Compact 1 keyboards is included. This release is fully compatible with Solaris 2.3, but is required by the SPARCstation Voyager system to support its additional capabilities.</td>
</tr>
<tr>
<td><strong>Stereo audio</strong></td>
<td>16-bit/48-KHz sampling stereo audio. Identical technology offered in the SPARCstation 10 speaker box, but integrated completely into the system enclosure. Provides microphone, speaker, and line-in/line-out connections.</td>
</tr>
<tr>
<td><strong>Suspend/Resume</strong></td>
<td>A quick power off/on technique. A suspend saves the state of all current running processes to disk and then automatically switches off the machine. On the resume, the system is brought back to its original state. This technique saves time compared to halting and rebooting and improves ease of use because it is a one key sequence.</td>
</tr>
<tr>
<td><strong>TurboGX”</strong></td>
<td>Sun’s TurboGX 8-bit graphics accelerator.</td>
</tr>
<tr>
<td><strong>13W3</strong></td>
<td>Sun’s standard monitor port for connection to standard Sun CRTs or other compatible displays, such as an overhead panel display or projection system.</td>
</tr>
<tr>
<td><strong>V.32bis</strong></td>
<td>A performance measurement for modems. V.32bis can communicate at up to 14,400 bits per second (14.4 Kbps). The modem will automatically throttle back to a slower speed if the communications line is noisy.</td>
</tr>
<tr>
<td><strong>V.42</strong></td>
<td>A data error corrections standard for modems, not to be confused with V.42bis.</td>
</tr>
<tr>
<td><strong>V.42bis</strong></td>
<td>A data compression standard for modems, V.42bis provides 4 to 1 compression, which when combined with V.32bis transmission can supply effective communications rates of up to 57 Kbps.</td>
</tr>
</tbody>
</table>
### SPARCstation™ Voyager Materials Abstract

All materials will be available March 15, 1994, except where noted.

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<th>Description</th>
<th>Purpose</th>
<th>Distribution</th>
<th>Token # or Hibbert order #</th>
</tr>
</thead>
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<tr>
<td>- <em>The SPARCstation™ Voyager: The Industry’s First Compact Nomadic Workstation</em> customer presentation</td>
<td>SPARCstation Voyager overview; slide notes for presentation</td>
<td>Sales tool</td>
<td>SunWIN, Reseller Resource CD</td>
<td>31666, 31668</td>
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<td>- <em>Just the Facts</em></td>
<td>Reference guide for the SPARCstation Voyager system</td>
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<td>SunWIN, Reseller Resource CD</td>
<td>31670</td>
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<tr>
<td><strong>References</strong></td>
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<td>- Sun Intro</td>
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<td>Sales tool</td>
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<td>801-6539, 31735, 31737, 31739, 31741, 31743, 31745</td>
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<tr>
<td><strong>Intro to Go training kit</strong></td>
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<tr>
<td>- Training video</td>
<td>Training video for system engineers on the SPARCstation Voyager features a technical review of its hardware and software</td>
<td>Training</td>
<td>Mail</td>
<td></td>
</tr>
<tr>
<td>- Facilitator’s guide</td>
<td>Guide to planning a training seminar</td>
<td>Training</td>
<td>Mail</td>
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<tr>
<td>Collateral</td>
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<td>Purpose</td>
<td>Distribution</td>
<td>Token # or Hibbert order #</td>
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<td>Product documentation</td>
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<tr>
<td>– Installing the SPARCstation Voyager Memory Cards</td>
<td>Installing memory</td>
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<tr>
<td>Product literature</td>
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<tr>
<td>– SPARCstation Voyager datasheet</td>
<td>Datasheet</td>
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<td>DE549-0</td>
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<tr>
<td>Performance Brief</td>
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<tr>
<td>– Desktop SPARCstation Performance Overview</td>
<td>Performance brief (available end of March)</td>
<td>Training</td>
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<tr>
<td>White paper</td>
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<tr>
<td>– SPARCstation Voyager Technical White Paper</td>
<td>Technical white paper on SPARCstation Voyager</td>
<td>Training</td>
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<td>Technical information</td>
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<tr>
<td>– DC power input specification</td>
<td>DC interface (available end of April)</td>
<td>Sales tool</td>
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<tr>
<td>Demos</td>
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<tr>
<td>– Application to demonstrate IR interface</td>
<td>Infrared interface (available end of April)</td>
<td>Sales tool</td>
<td>Newstop</td>
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