Silicon Graphics 540™
Visual Workstation

System Features

- Support for up to four Intel® Pentium® III Xeon™ processors

- Silicon Graphics Integrated Visual Computing (IVC) architecture with Cobalt graphics chipset

- Scalability to 2GB ECC SDRAM

- Standard Ultra2 SCSI with up to 54GB disk capacity

- Optional dual serial digital video I/O

- Interoperability and manageability software

The Ultimate in Visual Computing

Silicon Graphics 540 is the ultimate graphics and media workstation, combining professional visual computing with mainstream compatibility and economy. High-performance 2D and 3D graphics, professional digital video, quad capable Intel® Pentium® III Xeon processors, and enormous expansion capacity make the Silicon Graphics 540 visual workstation the desktop system of choice for the most demanding visual and compute-intensive applications.

Silicon Graphics 540 is part of a breakthrough family of desktop workstations created especially for visual computing professionals. The Silicon Graphics® family teams the power and scalability of Intel processors and the application availability and compatibility of Microsoft® Windows NT® with the high performance and quality you would expect from Silicon Graphics.

IVC—Integrated Visual Computing Architecture

The Integrated Visual Computing (IVC) architecture provides a tightly integrated combination of lightning-quick graphics processing, high-speed interconnects, and scalable graphics memory to move and process visual data at unprecedented rates. The Cobalt™ graphics chipset is the heart of the architecture that includes high-performance 2D and 3D graphics processing, advanced multimedia features such as S-video, composite video, CD-quality audio, USB, and IEEE-1394*. System throughput is even more enhanced by two independent 64-bit PCI buses with six available PCI slots and high-speed Ultra2 SCSI hard disk drives.

Manageability and Interoperability Solutions

Bundled with every Silicon Graphics 540 is Intel's LANDesk® Client Manager, combining manageability standards such as DMI 2.0 and SNMP. Also bundled is an interoperability toolkit, providing the industry's leading interoperability applications for Windows NT workstations, including connectivity and collaboration solutions with Mac® and UNIX® environments.

PROCESSOR SUPPORT

- Intel Pentium III Xeon processors
- Supports up to four processors
- 500 MHz or 550 MHz (550MHz processors available with 512KB L2 cache only)
- Available with 512KB, 1MB, or 2MB L2 cache
- 100 MHz front side bus
- Integrated L1 cache of 32KB (16KB instruction set and 16KB data set)
- Processor-integrated secondary level cache
- L2 cache operates at processor clock speed (full speed)

SYSTEM AND GRAPHICS MEMORY

- 100 MHz (50 ns) ECC synchronous dynamic RAM (SDRAM)
- 256-bit memory bus provides 3.2GB/sec bandwidth
- Expandable to 2GB through four DIMM slots
- 128MB, 256MB, and 512MB DIMM modules available
- ECC detection and correction of 1-bit errors and detection of 2-bit errors

COBALT GRAPHICS CHIPSET

- Rasterization of point, line, triangle, and rectangle primitives
- Rasterizer setup, attribute interpolation setup, and anti-aliased line setup from primitive vertices and vertex attributes
- Front and back face culling
- Per-vertex lighting computation for up to four lights
- Connected line and triangle mesh interface
- Window clipping support through screen masks and clip IDs
- Scissored rendering
- Line and polygon stippling
- Gouraud shading
- Texture mapping with nearest, bilinear, and trilinear mip-mapped filtering
- Anti-aliased lines
- Fogging
- Alpha and chroma keying
- Alpha blending
- Dithering for 4-, 5-bit RGB components
- Logical operations
- Color plane mask
- Specular highlights on textures
- 8-, 16-, 32-bit color formats and 16/16, 32/32 double buffer formats
- Depth buffering for 16-bit floating point and 24-bit fixed point z values
- Off-screen buffers (p-buffers)
- Fast buffer to buffer copy
- Overlay buffer
- Stencil buffering for 8-bit stencil values
- Instrument/statistics (occlusion testing and occlusion correction)
- Pixel transfers with format conversion
- Color space conversion using 4x4 color matrix
- Color space conversion in both YCrCb-to-RGB and RGB-to-YCrCb
- Frame lock video synchronization
- Pixel format YCrCb 4:2:2, 4:4:4 and YCrCbA 4:4:4:4

Scalable graphics memory (approximately 2GB)
- 16-bit or 32-bit, double buffered
- 16-bit or 24-bit Z buffer
- 8-bit overlay
- 8-bit stencil
- Resolution up to 1920x1200 at 66 Hz in 32-bit RGBA (24-bit color plus 8-bit alpha)

Integrated hardware texture acceleration
- Approximately 90% of total system memory available for textures
- Point-sampled bilinear and trilinear mip-mapping
- Support for 4K by 4K pixel per texture

Supported noninterlaced resolutions

Resolution	Always 16.7M colors (true color) (24-bit double buffered)
640x480	60 Hz
800x600	120 Hz
1024x768	120 Hz
1280x1024	85 Hz
1600x1200	75 Hz
1920x1080	72 Hz
1920x1200	66 Hz
1600x1024	60 Hz Silicon Graphics 1600SW™ digital flat panel monitor

Available graphics drivers (all preloaded)
- Windows NT Workstation 4.0 with Service Pack 4
- OpenGL® 1.1 installable client driver with broad support of OpenGL extensions
- Direct X, GDI

SYSTEM FEATURES

- Full WTX tower chassis
- Tower design for easy access to storage and media devices
- Optimal air flow and cooling
- Low-noise, variable-speed fans for optimal temperature control and air flow
- Tool-free easy access to internal components
- 635 W input power supply switch selected AC, soft-power control input, LED power status indicator
- 104-key USB keyboard with integrated mouse connector
- Three-button mouse
- Large selection of MPRII and EPA ENERGY STAR certified CRT and flat panel displays
- Standard 15-pin DSUB VGA monitor connector

SYSTEM FEATURES *(continued)*

Operating System and drivers support	• Windows NT Workstation 4.0 with Service Pack 4 preloaded • Silicon Graphics drivers preloaded • Windows NT Recovery and Silicon Graphics drivers CD included • Choice of two-processor or four-processor license depending on processor configuration
Disk drive	• 9.1GB/7,200 RPM or 9.1GB/10,000 RPM or 18GB/10,000 RPM Ultra2 SCSI SCA disk drives • Three internal 3.5" hard drive bays
Disk drive controller	• PCI bus master UltraATA interface for one optional 3.5" removable media device • Integrated Ultra2 SCSI controller for internal hard drives • Optional PCI-64 single-port Ultra2 SCSI interface for external SCSI devices • Optional PCI-64 Fibre Channel interface for external fiber disk array
Floppy drive	• 3.5" × 1.0" 1.44MB floppy disk drive preinstalled
CD-ROM drive	• 32X max-speed ATAPI CD-ROM drive preinstalled

INTEGRATED PROFESSIONAL MEDIA FEATURES

Integrated audio subsystem	• 16-bit, 44.1 kHz (CD-quality) stereo input and output (RCA connector) • MPC-3- and Direct Sound III-compatible • Microphone and stereo speaker minijacks (self-powered microphone and externally amplified speakers required) • Yamaha S-YXG50 software synthesizer
Integrated video subsystem	• System bandwidth support for 4 streams of uncompressed video • Composite video (NTSC or PAL) input and output (RCA connector) • S-video input and output (mini-DIN connector)
Integrated IEEE-1394	• One IEEE-1394* (400Mb/sec) connectors supporting digital cameras and other consumer media devices (supported in a future release of Windows NT)
Optional Digital Video I/O	• Silicon Graphics DV1100 Serial Digital Video Option The digital video option provides serial digital video connections and CODECs for the following data types: • 2 CCIR 601 digital video input (2× BNC) supporting 8-bit 4:2:2 with processing—10-bit 4:2:2 without processing • 2 CCIR 601 digital video output (2× BNC) supporting 8-bit 4:2:2 with processing—10-bit 4:2:2 without processing • House sync in and loop through (BNC) • GPI (input) and GPO (output) (BNC)
Integrated I/O	• One RJ-45 10/100Base-T Fast Ethernet connector • One 25-pin parallel port (ECP bidirectional Centronics supporting IEEE 1284) • One 9-pin serial port (16550 UART) • Audio ports (line-in, line-out, microphone-in, speaker-out) • One Universal Serial Bus (USB) connector for keyboard and mouse • One additional USB connector for additional devices (supported in a future release of Windows NT)
Digital flat panel option	• One OpenLDI multipin LVDS digital flat panel connector interface with support for Silicon Graphics 1600SW™ 1600x1024 digital flat panel monitor

EXPANDABILITY AND FLEXIBILITY

Storage bays	• One front-accessible bay with standard, third-height, floppy drive preinstalled • One front-accessible bay, 5.25" CD drive preinstalled • One front-accessible bay, 3.5" × 1.0" height for additional accessory • Three internal bays, 3.5" × 1.0" for hard disk drives (one preinstalled, two available)
PCI expansion slots	• Two PCI-64 buses • Four full length 64-bit PCI slots on bus zero operating at 3.3V or 5V • Two full length 64-bit PCI slots on bus one operating at 3.3V only • All slots available for 2.1 compliant Universal card-based options operating at 3.3 V
Product dimensions	• Product dimensions: 24" L × 10" W × 26.5" H • Shipping dimensions: 29" L × 20" W × 31" H • Product weight 62 lb maximum • Shipping weight 75 lb maximum

MANAGEABILITY AND INTEROPERABILITY FEATURES

Upgradable firmware	• Advanced graphical user interface for easy setup and configuration • DMI 2.0 compliant • Integrated, multiprotocol, software-selectable boot
Hardware support	• Microsoft Zero Administration Kit (ZAK) capabilities
Software manageability	• SNMP compliant • DMI 2.0 compliant • Intel LANDesk Client Manager v.3.3 ensures availability of common management features:

• Features	• Benefits
– ECC memory error reporting	– Gain insight to memory errors to prevent system locking remotely
– Prealerts for S.M.A.R.T. hard drive failure	– Detect disk failure early
– Memory and CPU utilization reporting	– Monitor system performance and eliminate bottlenecks
– Ability to view hardware and software configurations	– Ease upgrades and version control

*Requires additional software.

BUNDLED SOFTWARE (CD-ROM PACK)

Silicon Graphics Interoperability Toolkit	• Features – Hummingbird NFS Maestro Solo – MKS File Manipulation Commands – Template Graphics Livework 3D – Template Graphics 3Space Assistant – Equilibrium Debabelizer Pro 4.5 LE – Media4 Productions MacDrive98 – Apple QuickTime® 3 – Adobe Type Mnager Light	• Benefits – UNIX network connectivity – Familiar UNIX commands for Windows NT workstation – 3D desktop viewer—AutoCAD DXF, OpenInventor™, and VRML files – 3D art and animation for Microsoft Office – Graphics processing and translation – Read and write to Mac-formatted media – Play QuickTime movies – Organize type faces
Virus protection	• Features – McAfee VirusScan – McAfee WebScanX	• Benefits – Detects and removes over 15,000 viruses from any source: removable media, Internet, and e-mail
Internet ready	• Microsoft Internet Explorer • Netscape Communicator® • Adobe Acrobat Reader™ plug-in	
UNIX compatibility (try before you buy)	• Datafocus Nutcracker—allows UNIX applications to be easily ported to Windows NT • MKS Toolkit—210 UNIX commands, utilities, and scripts for Windows NT • Hummingbird Exceed 3D—industry-leading X server with OpenGL plug-ins	
Graphics processing (try before you buy)	• Equilibrium Debabelizer Pro 4.5—automated graphics processing and scripting	
Mac networking (try before you buy)	• Miramar PC MacLAN—Appletalk® connectivity solution	

SERVICEABILITY, WARRANTY, AND SUPPORT

Ease of setup and service	• Simplified service; internal components easily accessible and replaceable by tool-less access • Fast chassis access; no screws • Easy removal of power supply • Easy upgrade to firmware • Setup program in firmware • Automatic detection of major components at power-on • Power-on self test (POST) displays startup errors; suggests solutions

Service and support	• Three-year limited warranty
	  – One year on-site, next business day service included with purchase
	• Industry-leading technical support program
	  – 90 days free phone support from Silicon Graphics' customer support center for questions covering system setup and configuration,
	    operating system installation and configuration, and hardware diagnosis
	  – Warranty upgrade to 2- or 3-year on-site service with 4-hour maximum response time available at an extra charge

TECHNICAL SPECIFICATIONS AND REGULATORY COMPLIANCE

Mechanical environment specifications	• Power 90-264 VAC, 47-63 Hz, 9 A maximum, 840 W input power supply • Temperature: Nonoperating: -40° to 85°C; operating: 0° to 35°C • Altitude: Nonoperating: sea level to 40,000 ft; operating: sea level to 10,000 ft • Humidity: 5% to 85% R.H. • Shock: Nonoperating half sine shock: 20g, 10 msec on 3 axes; operating half sine shock: 5g, 15 msec horizontal, 7.5g, 10 msec vertical • Vibration: Nonoperating vibration: 3 to 10 Hz, 5dB/octave; operating vibration: 3 to 10 Hz, 5dB/octave • Acoustics: 40 dBa
Safety certification	• UL listed (UL 1950) • IEC 950: 1991 + A1 + A2 + A3 • CSA certified (CSA 22.2 No. 950) • IEC 825-1 • TUV (EN 60950) • Europe 60950: 1992 + A1 + A2 • NOM (NOM-019-SCFI-1993) • EN 60825-1 • SASO (IEC 950: 1991, SSA 16, 17, 18, 86, 182)
Ergonomic certification	• ZH1/618 compliant • MPRII (Sweden) (VDT Ergonomics)
Special certification	• CE Mark • CB Scheme Report (safety)
Electromagnetic certification	This list is a subset of the complete certification; please see online technical specification for additional certification • FCC Class A • CISPR 22:1 1985: Class B • European EMC Directive 89/336 EEC, • VCCI Class II Low Voltage Directive 72/23 EEC • Canada ICES-003, Taiwan CNS 13438, • EN 55022 1988: Class B, EN 50082-1: 1992 (ESD) RRL Korea, SABS, New Zealand

Additional product and technical support information is available online from *www.sgi.com/visual* or by calling (888)-400-4SGI.

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