Datasheet

Silicon Graphics Fuel™ Visual Workstation

Powering a New Level of Performance, Productivity, and Precision on the Desktop

The new Silicon Graphics Fuel visual workstation maximizes the performance of your desktop applications while offering you unprecedented price/performance value. A premium blend of industry-leading technology from SGI, Silicon Graphics Fuel features the latest MIPS® R14000A processor and the unparalleled VPro™ 3D graphics system for IRIX® in a new high-bandwidth architecture. Drive your creativity and productivity to a new level with Silicon Graphics Fuel.

Features	Benefits
High-Performance Processing and Revolutionary High-Bandwidth Architecture	**Maximized Performance and Throughput**
Single 500 MHz MIPS R14000A processor, 2MB L2 cache or 600 MHz with 4MB L2 cache; 200 MHz front-side bus; revolutionary system architecture based on the SGI® 3000 family	Powerful MIPS processing in a high-bandwidth architecture increases application performance with CPU-intensive applications
Industry-leading 3.2GB per second memory bandwidth and 1.6GB per second system-to-graphics interconnect	Highest levels of application performance and interactivity for image manipulation and real-time visualization with large models and data sets
4 integrated PCI slots, internal CD-ROM option	Expanded range of affordable options
Advanced VPro Graphics	**Accessibility of Highest Quality Desktop Graphics**
Outstanding scalable graphics performance with VPro V10 or V12 graphics with up to 128MB high-speed, user-configurable graphics memory	Extremely fast geometry and fill-rate performance for high-speed drawing, even with very complex designs, and high-speed image generation, even with fully textured designs; maximum flexibility with color and screen resolutions and off-screen graphics memory
Advanced texture management with up to 104MB of texture memory; asynchronous texture download capability	Interactive rendering of volumetric data sets; high-performance processing of textures
OpenGL on a Chip™	Hardware acceleration of OpenGL® core features, including 3D textures for volume rendering and imaging extensions
Hardware-accelerated specular shading	Improved accuracy for lighting of 3D models; provides Phong effects without a performance penalty
48-bit (12-bit per component) RGBA	High quality and precise control for 3D/3D imaging with 16-bit Z buffer capability
Support for high resolutions, including HDTV; full-screen stereo support and stereo in a window; Dual Channel Display option	Capacity to display large data sets at high resolutions; stereo viewing options; cost-effective dual display for double the screen real estate with a single graphics board
96-bit hardware-accelerated accumulation buffer	High performance and accuracy with depth of field, full-scene anti-aliasing, motion blurs, and other effects
Mature UNIX® OS from SGI	**Provides Industry-Leading Real-Time Response and Reliability**
Built on the fifth-generation 64-bit IRIX operating system	Industry-leading real-time response, serviceability, and reliability; binary compatibility with other SGI® IRIX products

Silicon Graphics Fuel
Technical Specifications

System Features

Processor Support
- 1 MIPS RISC 64-bit R14000A
- 500 MHz CPU with 2MB L2 cache or 600 MHz CPU with 4MB L2 cache

Memory Capacity
- 512MB–4GB synchronous double-data rate RAM (DDR SDRAM)

Internal Storage
- 18GB, 36GB, or 73GB 10,000 RPM Ultra-160 SCSI drive (3.5")
- Up to three drives

Graphics Subsystem
- Full hardware acceleration of OpenGL 1.2, GLX™ 1.3, OpenGL ARB imaging extensions

Graphics Memory
- VPro V10: 32MB graphics memory, including up to 8MB[1] texture memory
- VPro V12: 128MB graphics memory, including up to 104MB[1] texture memory

Graphics Architecture
- Integrated vertex processing engine
- Integrated image and texture engine
- 12-bit per component color and alpha, double-buffered
- 24-bit eye space Z buffer and 8-bit stencil buffers
- 10-bit digital-to-analog (DAC) display interface
- Multiple concurrent visuals (8-bit window ID)

Hardware Lighting and Shading
- Flat shading, Gouraud shading
- Specular shading with normal interpolation for accurate lighting and specular highlights
- Separate specular color (post-texture lighting)

Hardware Texturing
- 3D textures, texture color tables, texture coordinate clamp, texture LOD bias, texture scale bias, detail texture, pixel texture

Effects
- 7x7 convolutions, histogram, color matrix, color table
- Hardware accumulation buffer (V12)
- Quad-buffered stereo support
- Perspective-correct texture and color
- Per-pixel fog, fog function, fog offset
- Line anti-aliasing
- Hardware-assisted full-scene anti-aliasing
- Blend color, blend logic op, blend minmax, blend subtract

Visual Formats
- 32-bit RGBA (8,8,8,8) double-buffered, 24-bit Z buffer, 8-bit stencil
- 32-bit RGBA (10,10,10,2) double-buffered, 24-bit Z buffer, 8-bit stencil
- 48-bit RGBA (12,12,12,12) (V10, V12); double-buffered (V12); 16-bit Z buffer (V12)
- 16-bit RGBA quad-buffered (stereo), 24-bit Z buffer, 8-bit stencil
- 12-bit Colorindex, double-buffered, 24-bit Z buffer, 8-bit stencil
- 12-bit Colorindex, quad-buffered (stereo), 24-bit Z buffer, 8-bit stencil
- 8-bit overlay and 8-bit window ID
- 96-bit (24,24,24,24) hardware accumulation buffer (V12)

Display Resolutions
- From 640x480 at 60 Hz
- Up to 1920x1200 pixels at 60 Hz and 72 Hz

For the full list of supported resolutions for each graphics option, see *www.sgi.com/go/resolution*

I/O
- 2 internal SCSI Ultra-160 controllers/buses
- 2 66 MHz, 64-bit 3.3V PCI card slots
- 2 33 MHz, 64-bit 3.3V PCI card slots

Communication
- Single 10Base-T/100Base-TX port
- Two serial RS232 DB-9 ports
- Single bidirectional parallel port
- 2 USB-A ports

Display Options

Monitors
- 21" FD Trinitron color monitor standard
- 24" color monitor option[2]
- 18" Silicon Graphics© F180 flat panel display option

Graphics
- Analog RGB and TMDS video on a single DVI-I monitor port
- Additional ports for swap ready, stereo view, and genlock signals
- Dual Channel Display Option (V12); 80MB texture memory available when using this option; Dual Channel supplies two DVI-I monitor ports

Digital Media Features

Digital Audio
- Through USB ports

Options
- Desktop speakers with USB connection[2]

Expansion Options

PCI
- Single-port 1000/100/10Base-TX
- Single Dual-port Ultra-160 SCSI
- Single-port Fibre Channel[2]

Storage Options

Internal
- 3 internal 3.5" hard drive storage bays (one occupied by system drive)
- 2 internal 5.25" option drive storage bays for CD-ROM option or other removable media
- 48X CD-ROM
- 20GB 4 mm DAT Drive

External
- 20GB 4 mm DAT Drive[2]

Bundled Software

Collaboration
- Outbox
- IRIS Annotator™
- IRIS Showcase™
- Cosmo Player
- Netscape Communicator®
- InfoSearch
- SGI® Web Server based on Apache 1.3.20
- Cosmo Create
- Adobe® Acrobat Reader®
- SGImeeting™
- Teleffect

Connectivity
- NFS™
- ISDN/PPP support
- Novell NetWare Client
- Xinet AppleTalk®
- Samba

Digital Media Software
- ShotMaker
- SMconvert
- SoundEditor
- MovieMaker
- ImageWorks
- SoundTrack
- FX Builder
- MediaPlayer
- Audio Panel
- Video Panel[3]
- Synth Panel
- Media Convert

Run-Time Libraries
- OpenGL
- OpenGL image extensions

Physical Environment

System
- 19.0" H x 8.9" W x 19.4" D
- 8.3" W (chassis width)
- 42 lb
- 21" monitor: 17.6" H x 16" W x 16.5" D

Voltage and Frequency
- 100–120/200–240 VAC

Heat Dissipation
- 977 BTU/hour

Temperature
- +5°C to +35°C operating up to 5,000 ft altitude
- +5°C to +30°C operating from 5,000 ft to 10,000 ft altitude
- -40°C to +85°C nonoperating

Relative Humidity
- 10% to 80% operating, noncondensing, maximum wet bulb 32°C
- 5% to 95% nonoperating

Altitude
- 10,000 ft operating
- 40,000 ft nonoperating

Vibration
- Operating: 0.02" displacement, 5–19 Hz; 0.25G, 19–500 Hz
- Nonoperating: 0.1" displacement, 5–19 Hz; 0.5G, 19–200 Hz

Regulatory agency
- Electromagnetic FCC Class A

Emissions
- Canada DOC Class A
- CISPR22 Class A
- VCCI Class A

[1] At 1280x1024 resolution
[2] When available
[3] Requires a video-input device

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