



SiliconGraphics
Computer Systems

Indigo²

Indigo²™ Family

Indigo²—Making an Impact

The Silicon Graphics® Indigo²™ workstation brings breakthrough performance and capabilities to the desktop. Combining powerful MIPS® processors, robust system architecture, and superior graphics with leading applications, Indigo² delivers new and compelling solutions that are changing the world's view of desktop computing.

New Possibilities with Breakthrough Graphics

Indigo² raises the standard of visualization on the desktop with four graphics options to choose from. Indigo² Maximum IMPACT, the performance leader, delivers the world's most visually compelling graphics, providing new possibilities for high-end design, post-production, and visual simulation. Indigo² High IMPACT, the price/performance leader, manipulates 3D models and pixel data to enable everything from game authoring to seismic interpretation and satellite image processing. Indigo² XZ graphics continues to provide high-performance solids modeling for CAD applications, and Indigo² XL graphics is tuned for 2D and pixel-based applications.

A Range of Processing Power

Indigo² is built on the balanced, high-performance MIPS R4400™ processor executing at 250, 200, or 175MHz. These processors provide leading integer and floating-point performance, fast on-chip cache, and a large secondary cache. For extremely large floating-point-intensive tasks, the POWER Indigo²™ workstation exploits the four-way superscalar 75MHz MIPS R8000™ processor. POWER Indigo² delivers performance comparable to a Cray YMP™—at a fraction of the cost, while adding high-end visualization.



Making the Connections

With an assortment of industry-standard networking and I/O capabilities, Indigo² is a flexible, expandable member of your computing environment. Its built-in functionality includes AUI and 10-BaseT Ethernet, two serial ports, a parallel port, and five audio connections. Peripheral configuration is facilitated by two independent FAST SCSI-2 controllers. To meet your expandability requirements, Indigo² includes three industry-standard EISA slots, or two EISA slots and a high-performance GIO slot to support additional cards for networking, video, compression, and more.

Create, Capture, and Communicate Ideas

Indigo² lets each team member choose the most suitable media for sharing ideas. Use IRIS Annotator™ to review and share 3D models and images, InPerson™ to conduct a desktop conference, Showcase™ to produce multimedia presentations, and digital media tools to create and edit audio, video, or images. For the World Wide Web, create compelling 3D worlds using WebFORCE™ Indigo² IMPACT™ and virtual reality modeling language (VRML). The breakthrough visualization and performance of Indigo² provide unrivaled productivity, allowing you to conceptualize, innovate, and create in new and powerful ways.

INDIGO²

Indigo² Technical Specifications

System

	R4400™	R4400	R4400	R8000™
CPU/FPU	175MHz	200MHz	250MHz	75MHz
Primary Cache (I/D)	16K/16K	16K/16K	16K/16K	16K/16K
Secondary Cache	1MB	2MB	2MB	2MB
Memory Storage	32MB to 384MB (R4400) 32MB to 640MB (R8000)			
I/O	2 3 1/2" bays 1 5 1/4" half-height bay 2 Serial RS422 (38.4 k baud) 1 Bidirectional parallel 5 Audio I/O connectors 1 Ethernet (AUI or 10BaseT) 2 GIO-64 slots 4 EISA slots (total of 4 slots) 2 FAST SCSI-2 channels			
SCSI				

Graphics

Advanced Features	Alpha blending Accumulation buffer Anti-aliased RGB lines and points Texture mapping Fog Lighting features Spot lighting Eight light sources Two-sided lighting Ambient, diffused, and specular Arbitrary clipping planes Depth cueing Soft shadow and depth of field Sub-pixel positioning Stenciling Stereo graphics Pan and zoom X11 pixel operations
Color Maps	2 (4096 colors each) XL 1 (4096 colors each)
IRIS GL™/OpenGL®	RGBA quad buffer (stereo)
Display Modes	RGBA double buffer RGBA single buffer Color index double buffer Color index single buffer * Color index double buffer overlay/underlay Color index single buffer overlay/underlay * Available only on Indigo ² IMPACT

Audio/Video

Input	Mono/Stereo microphone (mono electret condenser microphone ships standard) Line-level stereo analog Serial digital stereo (IEC958)
Output	Stereo headphone output/mono (combined stereo) internal speaker Line-level stereo analog Serial digital stereo (IEC958)
Sampling Rates	48, 44.1, 32 KHz, and many lower rates Input and output rates are independent
Converters	Combined DAC and ADC 16-bit, delta-sigma, 64x-oversampling Two stereo audio codecs
Connectors	All 1/8-inch (3.5 mm) stereo jack
Video/Compression	Options available on all Indigo ² systems
Genlock	Available through video options

GRAPHICS BENCHMARKS

Viewperf Performance Results (frames/sec.)

	XL	XZ	Indigo ² High IMPACT*	Indigo ² Maximum IMPACT*
CDRS Viewset Composite	N/A	N/A	19.83	38.90
Data Explorer Viewset Composite	N/A	1.64	6.45	12.71
Design Review Viewset Composite	N/A	N/A	3.52	6.95

*Preliminary

Graphics Primitives

	XL**	XZ	Indigo ² High IMPACT*	Indigo ² Maximum IMPACT*
X Lines	1.59M	441k	3.2M	3.2M
AA Depth cued (Fogged) Lines	25k	203k	1.2M	2.0M
Gouraud Tri Strips	68k	315k	1.1M	2.2M
Lit Gouraud Z Tri Strips	50k	176k	730k	1.46M
Lit Textured Gouraud Z Tri Strips	N/A	N/A	560k	1.1M
Lit Gouraud Z Independent Quads	18k	65k	300k	600k
Gouraud Fill (pixels/s)	89M	37M	117M	234M
Textured Gouraud Z Fill (pixels/s)	N/A	N/A	65M	130M
Convolutions 3x3 separable (comps/s)	N/A	N/A	30M	60M
Convolutions 3x3 general (comps/s)	N/A	N/A	20M	40M
Convolutions 5x5 separable (comps/s)	N/A	N/A	20M	40M
Color lookups (comps/s)	N/A	N/A	50M	100M

*Preliminary

**XL performance measured with 200MHz R4400 processor

Processor Benchmarks

	R4400/175*	R4400/200	R4400/250*	R8000/75
AIM	118	140	N/A	N/A
SPEC 92int	123	140	176	113
SPEC 92fp	116	131	165	269
LINPACK 1000x1000DP	N/A	N/A	N/A	231

*Preliminary

Physical Environment

System	5" H x 18.5" W x 18.5" D; 40 lbs.
19-inch Monitor	18.7" H x 18.9" W x 19.9" D; 71.6 lbs.
Power Requirements	Voltage and Frequency; 100-120/200-240 VAC
Heat Dissipation	1320 BTU/hour (Indigo ² IMPACT) 1000 BTU/hour (Indigo ² XZ/XL)
Ambient Temperature	+ 13 to + 35 degrees C operating - 10 to + 65 degrees C non-operating
Relative Humidity	10% to 80% operating no condensation 10% to 95% non-operating no condensation
Altitude	10,000' operating; 40,000' non-operating
Vibration	0.02", 5-19Hz; 0.35 G, 19-500Hz

Regulatory Agency Approvals

Electromagnetic Emission	FCC Class A Canada DOC. Class A CISPR 22 Class B Germany VDE Class B VCCI Class 2
Product Safety	EN55022 Class B UL 1950 CSA 22.2, No. 950 IEC 950 EN 60950 Class 1 SELV



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World Wide Web Server

URL: <http://www.sgi.com/>

Indigo² IMPACT Home Page

URL: <http://www.sgi.com/Products/Indigo2/IMPACT/>

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