

Silicon Graphics Appendix

Graphics Overview

	Vectors/Sec	Triangles/Sec	Polygons/Sec
Entry (8 bit color)	375K	36K	10K
Entry R4000 Indigo	375K	36K	10K
Entry 4D/35	92K	16K	6K
Entry 4D/30	92K	16K	6K
Entry Indigo	230K	20K	68K
XS (8 bit color, opt. Z-buf)	260K	76K	29K
XS (24 bit color, opt. Z-buf)	260K	76K	29K
TG (24 bit color, 24 bit Z-buf)	220K	40K	29K
Elan (24 bit color, 24 bit Z-buf)	1M	270K	110K
VGX 4D (196 bit, 48 bit color, 24 bit Z-bus)	1M	1.1M	180K
VGX Crimson	12M	1.1M	200K
VGXT (48 bit color, 50 Mpix TF, 24 bit Z-buf)	1M	1.1M	180K
VGXT Crimson	1M	1.1M	200K

Systems Overview

	4D/480	4D/440	4D/420
CPU	8x40 MHz	43x40 MHz	2x40 MHz
Performance:			
MIPS	286	143	72
MFLOPS	70	42	23
SPECmark89	166	106	54
Server Price	\$164,900	\$94,900	\$64,900
Graphics Price:			
VGX	\$194,900	\$124,900	\$ 94,900
VGXT	\$224,900	\$154,900	\$184,900

Systems Overview (continued)

	4D/380	4D/340	4D/320	4D/310
CPU	8x33 MHz	4x33 MHz	2x33 MHz	1x33 MHz
Performance:				
MIPS	234	117	59	30
MFLOPS	60	36	20	5.1
SPECmark89	128	84	47	25
Server Price	\$124,900	\$74,900	\$54,900	\$24,900
Graphics Price:				
VGX	\$154,900	\$104,900	\$84,900	\$49,900
VGXT	\$184,900	\$134,900	\$114,900	\$79,900

	Crimson	R4 Indigo	4D/35	4D/30	Indigo
CPU	50 MHz	50 MHz	36 MHz	30 MHz	33 MHz
Performance:					
MIPS	85	85	33	27	30
MFLOPS	16	16	6	4.7	4.2
SPECmark89	70	70	31	25	26
Server Price	\$27,900	\$11,395	\$10,900	N/A	\$6,400
Graphics Price:					
Entry	\$29,900	\$12,485	\$18,000	\$15,000	\$7,995
XS	\$36,900	\$16,495	N/A	N/A	\$11,495
XS24	\$38,900	\$19,995	N/A	N/A	\$15,000
TG	N/A	N/A	\$28,000	\$25,000	N/A
Elan	\$42,900	\$32,000	\$33,000	\$30,000	\$27,000
VGX	\$69,900	N/A	N/A	N/A	N/A
VGXT	\$99,900	N/A	N/A	N/A	N/A

CPU:

Configurations listed for prices are for 8 MB memory for 4D/310 and higher. 16 MB configuration is used for the Crimson line, for the 4D/35 line except the server configuration of the 4D/35S; and the Indigo lines (R3000 and R4000).

System disk not included for any configurations.

Crimson performance numbers assume R4000 compilers available June 1992.

4D/320 and higher performance MFLOPS figures are 1000x1000 DP Linpack.

4D/35 and below performance MFLOPS figures are 100.100 DP Linpack.

MIPS are VAX Dhrystone MIPS.

Graphics:

VEC = 10 pixel connected (i.e.; polyline), 24 bit color, 3D, arbitrarily rotated Vectors per second. VGX vectors are anti-aliased.

Pol = 10x10=100 pixel 24 bit, unlighted, gouraud-shaded, Z-buffered, arbitrarily oriented triangles per second.

Tri = 10x10=50 pixel mesh, 24 bit color, unlighted, flat-shaded, Z-buffered, arbitrarily-oriented triangles per second.

Iris Indigo Entry-level graphics support software Z-buffering.

Entry-level Color Desktop System Comparisons

	HP 715/33	SGI Indigo 3000
SPECint92	24	22
SPECfp92	45	24
SPECmark89	46	26
MIPS	41	30
MFLOPS (Linpack DP)	8.6	4.2
Processor	PA-RISC	R3000A
Clock rate	33 MHz	33 MHz
Cache size (ins/data)	54 KB/64 KB	32 KB/32 KB
X11 Perf	7633	5163
2D/3D vec/sec (K)	610	450/230
Memory capacity	8/192 MB	16/96 MB
Internal disk capacity	2 GB	1.36 GB
Total disk capacity	69.7 GB	7.6 GB
Internal bus # of slots	EISA 1 (opt)	GIO 2
RAM pricing	\$100/MB \$175/MB (16 Mbit)	\$156/MB @ 08 MB \$109/MB @ 32 MB
Disk pricing	\$4.19/MB @ 525 MB \$4.00/MB @ 1 GB/SE	\$5.79/MB @ 432 MB \$3.66/MB @ 1.2 GB
Warranty	12 os	3 mos
List price for Equivalent configs.	\$6,690 17c/16/ dskls	\$8,000 16c/16/ dskls
Graphics	Intr	Virtual-24
SPECint92/\$1,000	3.6	2.8
SPECfp92/\$1,000	6.5	3.0
SPECmark89/\$1,000	6.8	3.3
Higher is better!		

Mid-range Desktop System Comparisons

	HP 715/50 725/50	SGI Indigo 4000
SPECint92	36	57
SPECfp92	72	70
SPECmark89	69	70
MIPS	62	85
MFLOPS (Linpack DP)	13	16
Processor	PA-RISC	R4000SC
Clock rate	50 MHz	50 MHz
Cache size (ins/data)	64 KB/64 KB	8 KB/8 KB
X11 Perf	11,190	6384
2D/3D vec/sec (K)	920	600/480
Memory capacity	256 MB	16/384 MB
Internal disk capacity	2 GB	1.4 GB
Total disk capacity	69.7/239.8 GB	7.6 GB
Internal bus # of slots	EISA 1/4	GIO-32 2
RAM pricing	\$125/MB \$175/MB (16 Mbit)	\$94/MB
Disk pricing	\$4.19/MB @ 525 MB \$4.00/MB @ 1 GB/SE	\$5.79/MB @ 432 MB \$3.66/MB @ 1.2 GB
Warranty	12 mos	3 mos
List price for Equivalent Configs Graphics	\$15,590/\$20,490 19C/32/525 CRX	\$22,495 19C/32/432 XS
SPECint92/\$1,000	2.3/1.8	2.5
SPECfp92/\$1,000	4.6/3.5	2.7
SPECmark89/\$1,000	4.4/3.4	3.1
Higher is better!		

High-performance Desktop System Comparisons

	HP 730	HP 735	SGI Indigo/4000
SPECint92	51	80	57
SPECfp92	85	150	61
SPECmark89	86	147	70
MIPS	57.9	124	85
MFLOPS (Linpack DP)	23.7	40	16
Processor	PA-RISC	PA-RISC	R4000SC
Clock rate	66 MHz	99 MHz	50 MHz
Cache size (ins/data)	128 KB/256 KB	256 KB/256 KB	8 KB/8 KB
X11 Perf	10,904	19,920	6384
2D/3D vec/sec (K)	1180	1160	600/480
Memory capacity	128 MB	400 MB	384 MB
Internal disk capacity	840 MB	2 GB	1.4 GB
Total disk capacity	64 GB	126.4 GB	7.6 GB
Internal bus # of slots	EISA 1	EISA 1	GIO-32 (propr) 2
RAM pricing	\$125 MB	\$125 MB \$175/MB (16 Mbit)	\$94/MB
Disk pricing	\$4.19/MB @ 525 MB	\$4.19/MB A 5125 MB \$4.00/MB @ 1 GB/SE \$4.70/MB @ 1 GB/FW	\$5.79/MB A 432 MB \$3.66/MB @ 1 2 GB
Warranty	12 mos	12 mos	3 mos
List price for Equivalent configs	\$31,400 (19"/32 MB/ 424 MB)	\$37,390 (19"/32 MB/ 525 MB)	\$22,495 (19"/32 MB/ 424 MB)
Graphics	CRX	CRX	XS
SPECint92/ \$1,000	1.6	2.0	2.5
SPECfp92/ \$1,000	2.7	3.7	2.7
SPECmark89/ \$1,000	2.7	3.5	3.1
Higher is better!			

High-performance Expandable System Comparisons

	HP 750	HP 755	SGI Crimson
SPECint92	51	79	57
SPECfp92	85	150	61
SPECmark89	86	147	70
MIPS	76.7	124	85
MFLOPS (Linpack DP)	23.7	38	16.3
Processor	PA-RISC	PA-RISC	R4000
Clock rate	66 MHz	99 MHz	50 MHz
Cache size	256 KB/256 KB	256 KB/256 KB	8 KB/8 KB
X11 Perf	10,904	19,120	6384
2D/3D vec/sec (K)	1,180	1,160	250/250
Memory capacity	64/384 MB	64/768 MB	16/256 MB
Internal disk capacity	2.6 GB	4 GB	3.6 GB
Total disk capacity	236 GB	297.5 GB	48 GB
Internal bus	EISA	EISA	VME
# of slots	4	4	4
RAM pricing	\$125/MB	\$125/MB	\$500/MB @ 16 MB \$375/MB @ 64 MB
Disk pricing	\$3.85/MB @ 1.3 GB	\$3.45/MB @ 2 GB/SE \$4.15/MB @ 2 GB/FW	\$9.21/MB @ 380 MB \$5.70/MB @ 1.2 GB \$5.19/MB @ 1.6 GB
Warranty	12 mos	12 mos	3 mos
List price for Equivalent configs	\$55,650 (19"/64 MB/ 1 GB)	\$58,990 (19"/64 MB/ 2 GB)	\$59,400 (19"/64 MB/ 1.6 GB)
Graphics	CRX	CRX	XS
SPECint92/ \$1,000	0.9	1.2	1.0
SPECfp92/ \$1,000	1.5	2.3	1.0
SPECmark89/ \$1,000	1.5	2.2	1.2
Higher is better!			