



# CINT2000 Result

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**SGI**  
**SGI Origin 3200 1X 500MHz R14k**

**SPECint2000 = 427**  
**SPECint\_base2000 = 410**

SPEC license #: 4 Tested by: SGI Test date: Apr-2001 Hardware Avail: Jul-2001 Software Avail: Mar-2001

Benchmark	Reference Time	Base Runtime	Base Ratio	Runtime	Ratio	200 400 600 800			
164.gzip	1400	510	275	491	285	[Bar chart showing ratio 285]			
175.vpr	1400	294	476	280	499	[Bar chart showing ratio 499]			
176.gcc	1100	297	371	295	373	[Bar chart showing ratio 373]			
181.mcf	1800	261	689	244	738	[Bar chart showing ratio 738]			
186.crafty	1000	248	404	246	407	[Bar chart showing ratio 407]			
197.parser	1800	512	352	493	365	[Bar chart showing ratio 365]			
252.eon	1300	295	441	276	472	[Bar chart showing ratio 472]			
253.perlbnk	1800	588	306	587	307	[Bar chart showing ratio 307]			
254.gap	1100	408	270	409	269	[Bar chart showing ratio 269]			
255.vortex	1900	333	571	292	651	[Bar chart showing ratio 651]			
256.bzip2	1500	371	405	330	454	[Bar chart showing ratio 454]			
300.twolf	3000	536	560	551	545	[Bar chart showing ratio 545]			

### Hardware

CPU: R14000  
 CPU MHz: 500  
 FPU: Integrated  
 CPU(s) enabled: 1 core, 1 chip, 1 core/chip  
 CPU(s) orderable: 2-8  
 Parallel: No  
 Primary Cache: 32KBI + 32KBD on chip  
 Secondary Cache: 8MB(I+D) off chip  
 L3 Cache: N/A  
 Other Cache: N/A  
 Memory: 1 GB  
 Disk Subsystem: 1 x 18 GB FC, 24 x 18 GB FC (striped)  
 Other Hardware: None

### Software

Operating System: IRIX 6.5.11f  
 Compiler: MIPSpro 7.3.1.2m C, C++, Fortran90  
 SCSSL 1.3 Math Library  
 File System: xfs  
 System State: Single-user

## Notes/Tuning Information

Baseline optimization flags (C and C++ use same flags):

PASS1 : -Ofast=ip27 -IPA:use\_intrinsic -fb\_create /tmp/SPEC2000/FBDIR/base/\$(EXEBASE)  
 PASS2 : -Ofast=ip27 -IPA:use\_intrinsic -fb\_opt /tmp/SPEC2000/FBDIR/base/\$(EXEBASE)

Portability Flags:

176.gcc: -DUSG -Dalloca=\_\_builtin\_alloca -DMIPS -DHOST\_WORDS\_BIG\_ENDIAN  
 186.crafty: -DSGI  
 252.eon: -lm  
 253.perlbnk: -DSPEC\_CPU2000\_SGI -DI\_FCNTL  
 254.gap: -DSYS\_IS\_USG -DSYS\_HAS\_TIME\_PROTO -DSYS\_HAS\_SIGNAL\_PROTO -DSYS\_HAS\_IOCTL\_PROTO  
           -DSYS\_HAS\_ANSI -DSYS\_HAS\_CALLOC\_PROTO  
 300.twolf: -DHAVE\_SIGNED\_CHAR

Peak optimization flags:

note: all occurrences of (FEEDBACK) below means compiled with a two-step process:

PASS1 = -fb\_create /tmp/SPEC2000/FBDIR\_peak/\$(EXEBASE)  
 PASS2 = -fb\_opt /tmp/SPEC2000/FBDIR\_peak/\$(EXEBASE)  
 164.gzip: -Ofast=ip27 -IPA:space=500:plimit=500 -lmalloc (FEEDBACK)  
 175.vpr: -Ofast=ip27 -IPA:space=300:plimit=10000:callee\_limit=5000:linear=on  
 . -LNO:prefetch Ahead=2 -INLINE:aggressive=on  
 . -OPT:Olimit=0:alias=disjoint:alias=restrict -CG:ld\_latency=10 -lmalloc (FEEDBACK)  
 181.mcf: -Ofast=ip27 -lmalloc (FEEDBACK)



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## Notes/Tuning Information (Continued)

```

176.gcc: -Ofast=ip27 -CG:ld_latency=4 (FEEDBACK)
186.crafty: -Ofast=ip27 -LNO:prefetch=0 -OPT:goto=off -CG:ld_latency=4 -lmalloc (FEEDBACK)
197.parser: -Ofast=ip27 -IPA:min_hot=14 (FEEDBACK)
252.eon: -Ofast=ip27 -LNO:prefetch=0 -LANG:exceptions=off -CG:ld_latency=4 -lmalloc -lm
      (FEEDBACK)
253.perlbnk: -Ofast=ip27 -IPA:use_intrinsic -Wl,-x (FEEDBACK)
254.gap: -Ofast=ip27 -IPA:use_intrinsic -OPT:unroll_analysis=off:unroll_size=0:unroll_times_max=4
      -OPT:alias=restrict:alias=disjoint -IPA:min_hot=7 -CG:ld_latency=8 -lmalloc (FEEDBACK)
255.vortex: -Ofast=ip27 -IPA:use_intrinsic
      -OPT:unroll_analysis=off:unroll_size=0:unroll_times_max=4 -LNO:opt=0 -CG:ld_latency=5
      -IPA:min_hot=14 -TENV:X=4 -IPA:space=500:plimit=3600 -OPT:goto=off (FEEDBACK)
256.bzip2: -Ofast=ip27 -IPA:min_hot=5:space=500:plimit=2900 -INLINE:aggressive=on (FEEDBACK)
300.twolf: -Ofast=ip27 -IPA:use_intrinsic (FEEDBACK)

```

The following O/S parameters were set:

```

setenv PAGESIZE_DATA 4096 ; setenv PAGESIZE_TEXT 4096 ; setenv PAGESIZE_STACK 4096
system -i ; percent_totalmem_4m_pages = 40 ; percent_totalmem_1m_pages = 7
system -i ; percent_totalmem_256k_pages = 7 ; percent_totalmem_64k_pages = 7
system -i ; r12k_bdiag = 0x4000000 ;
limit stacksize 500000

```

The following is done before building each benchmark that requires (FEEDBACK):

```

rm -rf /tmp/SPEC2000 ; mkdir /tmp/SPEC2000 ; cd /tmp/SPEC2000 ; mkdir FBDIR_base ; mkdir FBDIR_peak

```