



# CINT2000 Result

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**SGI**  
**SGI Origin 3200 4X 400MHz R12k**

**SPECint\_rate2000 = 16.3**  
**SPECint\_rate\_base2000 = 15.1**

SPEC license #: 4 | Tested by: SGI | Test date: Sep-2000 | Hardware Avail: Sep-2000 | Software Avail: Sep-2000

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	4	612	10.6	4	592	11.0
175.vpr	4	355	18.3	4	343	18.9
176.gcc	4	345	14.8	4	345	14.8
181.mcf	4	292	28.6	4	273	30.5
186.crafty	4	300	15.5	4	302	15.4
197.parser	4	633	13.2	4	596	14.0
252.eon	4	362	16.7	4	363	16.6
253.perlbnk	4	731	11.4	4	727	11.5
254.gap	4	508	10.1	4	504	10.1
255.vortex	4	637	13.8	4	349	25.3
256.bzip2	4	446	15.6	4	402	17.3
300.twolf	4	667	20.9	4	670	20.8

**Hardware**

CPU: R12000  
CPU MHz: 400  
FPU: Integrated  
CPU(s) enabled: 4 cores, 4 chips, 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: 4GB  
Disk Subsystem: 1 x 18 GB FC, 2 x 18 GB FC (striped)  
Other Hardware: None

**Software**

Operating System: IRIX 6.5.9m  
Compiler: MIPSpro 7.3.1.1m C, C++, Fortran90  
SCSL 1.2 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  
253.perlbnk: -DSPEC\_CPU2000\_SGI -DI\_FCNTL  
254.gap: -DSYS\_IS\_USG -DSYS\_HAS\_TIME\_PROTO -DSYS\_HAS\_SIGNAL\_PROTO -DSYS\_HAS\_IOCTL\_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 -lmalloc (FEEDBACK)  
181.mcf: -Ofast=ip27 -IPA:min\_hot=14 -lmalloc (FEEDBACK)  
176.gcc: -Ofast=ip27 (FEEDBACK)  
186.crafty: -Ofast=ip27 -LNO:prefetch=0 -OPT:goto=off -lmalloc (FEEDBACK)  
197.parser: -Ofast=ip27 -IPA:min\_hot=14 (FEEDBACK)



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## Notes/Tuning Information (Continued)

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252.eon: -Ofast=ip27 -LNO:prefetch=0 -LANG:exceptions=off -lmalloc (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 -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
systune -i ; percent_totalmem_4m_pages = 40 ; percent_totalmem_1m_pages = 7
systune -i ; percent_totalmem_256k_pages = 7 ; percent_totalmem_64k_pages = 7
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

```