



CINT2000 Result

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SGI
SGI Origin 3800 64X 500MHz R14k

SPECint_rate2000 = 307
SPECint_rate_base2000 = 296

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	64	521	199	64	501	207
175.vpr	64	303	342	64	292	356
176.gcc	64	299	273	64	298	274
181.mcf	64	278	481	64	278	481
186.crafty	64	250	297	64	248	299
197.parser	64	538	248	64	510	262
252.eon	64	305	316	64	285	338
253.perlbnk	64	593	225	64	597	224
254.gap	64	434	188	64	430	190
255.vortex	64	332	425	64	295	479
256.bzip2	64	377	296	64	338	329
300.twolf	64	557	400	64	557	400

Hardware

CPU: R14000
 CPU MHz: 500
 FPU: Integrated
 CPU(s) enabled: 64 cores, 64 chips, 1 core/chip
 CPU(s) orderable: 4-512
 Parallel: No
 Primary Cache: 32KBI + 32KBD on chip
 Secondary Cache: 8MB(I+D) off chip
 L3 Cache: N/A
 Other Cache: N/A
 Memory: 64 GB
 Disk Subsystem: 1 x 18 GB FC, 1 x 18 GB, 7 X 36GB FC (striped)
 Other Hardware: None

Software

Operating System: IRIX 6.5.12m
 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: basepeak=yes



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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: basepeak=yes

```

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

```

The first disk mentioned in the Disk Subsystem is the system disk. A striped XFS filesystem was created using the rest of the disks and the benchmark was run on this.