



CINT2000 Result

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SGI
SGI 2400 16X 500MHz R14k

SPECint_rate2000 = **74.3**
SPECint_rate_base2000 = **71.8**

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	16	538	48.3	16	517	50.3
175.vpr	16	315	82.4	16	304	85.6
176.gcc	16	306	66.8	16	304	67.1
181.mcf	16	318	105	16	318	105
186.crafty	16	247	75.1	16	245	75.7
197.parser	16	537	62.2	16	511	65.3
252.eon	16	300	80.4	16	281	85.7
253.perlbnk	16	597	55.9	16	598	55.9
254.gap	16	490	41.7	16	498	41.0
255.vortex	16	341	103	16	303	116
256.bzip2	16	380	73.2	16	340	81.9
300.twolf	16	550	101	16	550	101

Hardware

CPU: R14000
CPU MHz: 500
FPU: Integrated
CPU(s) enabled: 16 cores, 16 chips, 1 core/chip
CPU(s) orderable: 2-64
Parallel: No
Primary Cache: 32KBI + 32KBD on chip
Secondary Cache: 8MB(I+D) off chip
L3 Cache: N/A
Other Cache: N/A
Memory: 16 GB
Disk Subsystem: 1 x 18 GB FC, 4 x 18 GB FC (striped)
Other Hardware: None

Software

Operating System: IRIX 6.5.12f
Compiler: MIPSpro 7.3.1.2m C, C++
SCSL 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)

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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.

```