



CINT2000 Result

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SGI
SGI 2200 4X 500MHz R14k

SPECint_rate2000 = 18.6
SPECint_rate_base2000 = 18.0

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	4	534	12.2	4	514	12.6
175.vpr	4	315	20.6	4	302	21.5
176.gcc	4	305	16.7	4	303	16.9
181.mcf	4	331	25.2	4	331	25.2
186.crafty	4	246	18.8	4	245	18.9
197.parser	4	531	15.7	4	505	16.5
252.eon	4	299	20.1	4	281	21.5
253.perlbnk	4	594	14.0	4	595	14.0
254.gap	4	486	10.5	4	484	10.6
255.vortex	4	340	25.9	4	302	29.2
256.bzip2	4	377	18.5	4	337	20.7
300.twolf	4	548	25.4	4	548	25.4

Hardware

CPU: R14000
CPU MHz: 500
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: 4 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.

```