



CINT2000 Result

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SGI
SGI Origin 300 16X 600MHz R14000A

SPECint_rate2000 = 84.1
SPECint_rate_base2000 = 82.1

SPEC license #: 4 | Tested by: SGI | Test date: May-2002 | Hardware Avail: May-2002 | Software Avail: Apr-2002

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	16	437	59.5	16	423	61.4
175.vpr	16	277	93.9	16	259	100
176.gcc	16	259	79.0	16	260	78.5
181.mcf	16	322	104	16	322	104
186.crafty	16	201	92.3	16	206	90.0
197.parser	16	452	73.9	16	429	77.9
252.eon	16	258	93.5	16	237	102
253.perlbnk	16	493	67.7	16	495	67.5
254.gap	16	381	53.6	16	373	54.7
255.vortex	16	402	87.7	16	395	89.4
256.bzip2	16	325	85.6	16	310	89.8
300.twolf	16	470	118	16	470	118

Hardware

CPU: R14000
CPU MHz: 600
FPU: Integrated
CPU(s) enabled: 16 cores, 16 chips, 1 core/chip
CPU(s) orderable: 2-32
Parallel: No
Primary Cache: 32KBI + 32KBD on chip
Secondary Cache: 4MB(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 6.5.16f
Compiler: MIPSpro 7.3.1.3m C, C++
SCSL 1.4 Math Library
File System: xfs
System State: Single-user

Notes/Tuning Information

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

PASS1 : -Ofast=ip35 -IPA:use_intrinsic -fb_create /tmp/SPEC2000/FBDIR/base/\$(EXEBASE)
PASS2 : -Ofast=ip35 -IPA:use_intrinsic -fb_opt /tmp/SPEC2000/FBDIR/base/\$(EXEBASE)

Portability Flags:

176.gcc: -Dalloca=__builtin_alloca -DMIPS -DHOST_WORDS_BIG_ENDIAN
186.crafty: -DSGI
253.perlbnk: -DSPEC_CPU2000_SGI -DI_FCNTL
252.eon: -lm
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=ip35 -IPA:space=500:plimit=500 -lmalloc (FEEDBACK)
175.vpr: -Ofast=ip35 -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=ip35 -CG:ld_latency=4 (FEEDBACK)
186.crafty: -Ofast=ip35 -LNO:prefetch=0 -OPT:goto=off -CG:ld_latency=4 -lmalloc (FEEDBACK)
197.parser: -Ofast=ip35 -IPA:min_hot=14 (FEEDBACK)
252.eon: -Ofast=ip35 -LNO:prefetch=0 -LANG:exceptions=off -CG:ld_latency=4 -lmalloc -lm
      (FEEDBACK)
253.perlbnk: -Ofast=ip35 -IPA:use_intrinsic -Wl,-x (FEEDBACK)
254.gap: -Ofast=ip35 -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=ip35 -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=ip35 -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 ; gather_craylink_routerstats = 0
limit stacksize 500000

```

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

```
rm -rf /tmp/SPEC2000/FBDIR_peak/$baseexe ; mkdir -p /tmp/SPEC2000/FBDIR_peak/$baseexe
```

Jobs are submitted using dplace. Contents of the placement file submit.pf:

```
memories 1 in topology physical near $NODE
```

```
threads 1
```

```
run thread 0 on memory 0 using cpu $CPU
```

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.