# CINT2000 Result

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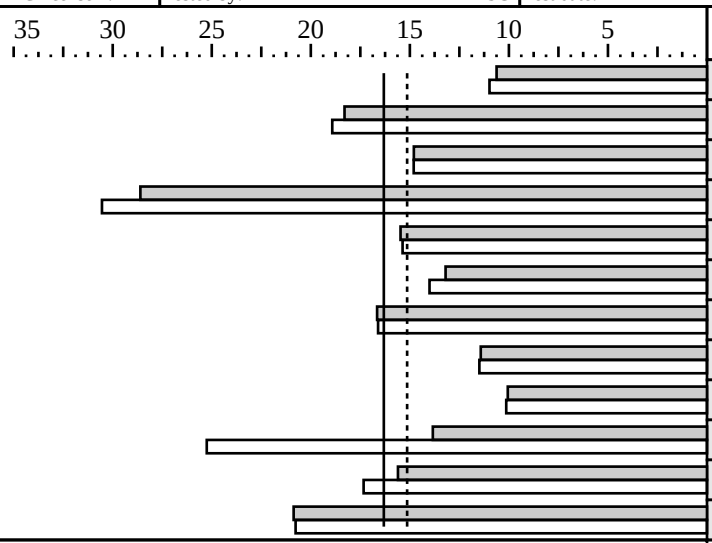
## SGI
## SGI Origin 3200 4X 400MHz R12k

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.perlbmk | 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<br>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.perlbmk: -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 occurances 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)

252.eon: -Ofast=ip27 -LNO:prefetch=0 -LANG:exceptions=off -lmalloc (FEEDBACK)
253.perlbmk: -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
```