# CINT2000 Result

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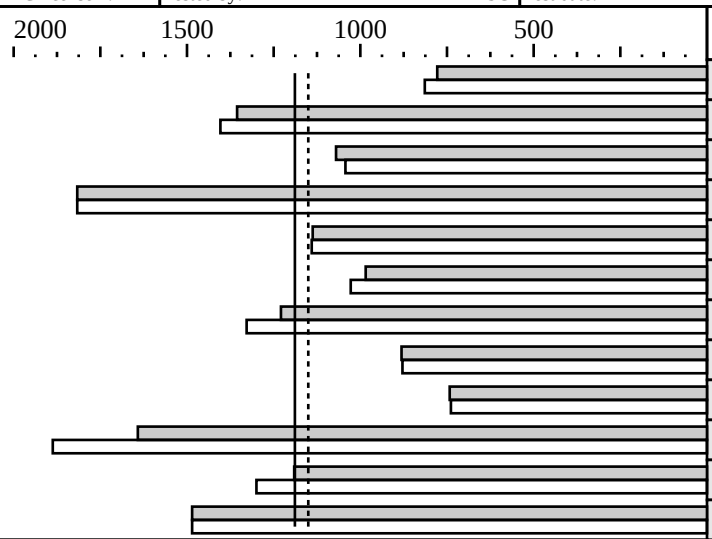
## SGI
## SGI Origin 3800 256X 500MHz R14k

SPECint_rate2000 = 1189

SPECint_rate_base2000 = 1150

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




| Benchmark | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|---|---|---|---|---|---|---|
| 164.gzip | 256 | 534 | 778 | 256 | 511 | 814 |
| 175.vpr | 256 | 307 | 1355 | 256 | 296 | 1404 |
| 176.gcc | 256 | 305 | 1070 | 256 | 313 | 1043 |
| 181.mcf | 256 | 294 | 1817 | 256 | 294 | 1817 |
| 186.crafty | 256 | 261 | 1137 | 256 | 260 | 1140 |
| 197.parser | 256 | 543 | 985 | 256 | 520 | 1028 |
| 252.eon | 256 | 314 | 1229 | 256 | 291 | 1328 |
| 253.perlbmk | 256 | 607 | 881 | 256 | 608 | 878 |
| 254.gap | 256 | 440 | 742 | 256 | 442 | 739 |
| 255.vortex | 256 | 344 | 1642 | 256 | 299 | 1887 |
| 256.bzip2 | 256 | 374 | 1191 | 256 | 343 | 1300 |
| 300.twolf | 256 | 600 | 1485 | 256 | 600 | 1485 |

### Hardware

| | |
|---|---|
| CPU: | R14000 |
| CPU MHz: | 500 |
| FPU: | Integrated |
| CPU(s) enabled: | 256 cores, 256 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: | 256 GB |
| Disk Subsystem: | 1 x 18 GB FC, 2 x 18 GB FC (striped) |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | IRIX 6.5.13m |
| Compiler: | MIPSpro 7.3.1.2m C, C++<br>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: -Dalloca=__builtin_alloca -DMIPS -DHOST_WORDS_BIG_ENDIAN
   186.crafty: -DSGI
   252.eon: -lm
   253.perlbmk: -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 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 -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.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 -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
systune -i ; percent_totalmem_4m_pages = 40 ; percent_totalmem_1m_pages = 7
systune -i ; percent_totalmem_256k_pages = 7 ; percent_totalmem_64k_pages = 7
systune -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.