# CINT2000 Result

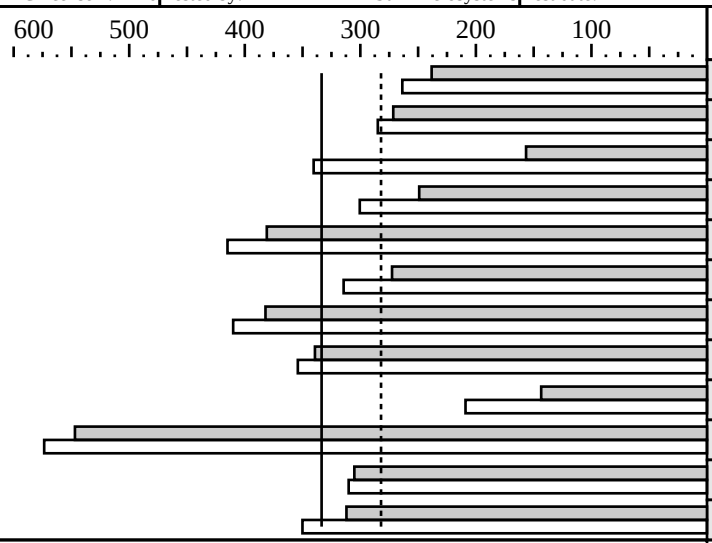
Copyright ©1999-2005, Standard Performance Evaluation Corporation

## Sun Microsystems
## Sun Fire E20K (16 processor)

SPECint_rate2000 = 334

SPECint_rate_base2000 = 282

SPEC license #: 6 | Tested by: Sun Microsystems | Test date: Dec-2005 | Hardware Avail: Oct-2005 | Software Avail: Nov-2005




| Benchmark | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|---|---|---|---|---|---|---|
| 164.gzip | 32 | 218 | 238 | 32 | 197 | 264 |
| 175.vpr | 32 | 191 | 272 | 32 | 182 | 285 |
| 176.gcc | 32 | 261 | 157 | 216 | 810 | 340 |
| 181.mcf | 32 | 268 | 249 | 32 | 222 | 300 |
| 186.crafty | 32 | 97.4 | 381 | 32 | 89.5 | 415 |
| 197.parser | 32 | 245 | 273 | 32 | 212 | 314 |
| 252.eon | 32 | 126 | 382 | 32 | 118 | 410 |
| 253.perlbmk | 32 | 197 | 339 | 32 | 189 | 354 |
| 254.gap | 32 | 285 | 143 | 216 | 1319 | 209 |
| 255.vortex | 32 | 129 | 547 | 32 | 123 | 574 |
| 256.bzip2 | 32 | 182 | 305 | 32 | 180 | 310 |
| 300.twolf | 32 | 357 | 312 | 32 | 318 | 350 |

### Hardware

| | |
|---|---|
| CPU: | UltraSPARC IV+ |
| CPU MHz: | 1500 |
| FPU: | Integrated |
| CPU(s) enabled: | 32 cores, 16 chips, 2 cores/chip |
| CPU(s) orderable: | 4-36 (order by number of chips, groups of 4) |
| Parallel: | No |
| Primary Cache: | 64KBI+64KBD per core on chip (128KBI+128KBD on chip) |
| Secondary Cache: | 2MB(I+D) per chip (on chip) |
| L3 Cache: | 32MB(I+D) per chip (off chip) |
| Other Cache: | None |
| Memory: | 128GB 16-way interleaved |
| Disk Subsystem: | Sun StorEdge D240 Media Tray (2x73GB)<br>Sun StorEdge 6120 Array (14x73GB) |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Solaris 10 |
| Compiler: | Sun Studio 11 |
| File System: | ufs (default ufs logging on with Solaris 10) |
| System State: | Multi-User |

## Notes/Tuning Information

```
Compiler invocation:
    C: cc
  CXX: CC

Integer base flags:
  -fast -xipo=2 with ONESTEP=yes and feedback

Integer peak flags:
  ONESTEP=yes for all benchmarks
  Profile feedback used for those marked with +FDO

  164.gzip:   -x04 -xbuiltin=%all -xtarget=native -xalias_level=std
              -xipo=2 -Wc,-Qeps:enabled=1,-Qeps:rp_filtering_margin=30,
              -Qeps:do_spec_load=1 +FDO
  175.vpr:    -fast -Wc,-Qeps:enabled=1,-Qeps:do_spec_load=1,
              -Qeps:rp_filtering_margin=30 -xipo=2 -xpagesize_stack=8K
              -lmopt -lm +FDO
```

Copyright ©1999-2005, Standard Performance Evaluation Corporation



## Notes/Tuning Information (Continued)

```
  176.gcc:    -fast -xipo=2 -Wc,-Qicache-chbab=1 -Wc,-Qeps:enabled=1
              -Qeps:ws=32 -Wc,-Qdepgraph-early_cross_call=1
              -Wc,-Qms_pipe-pref_prolog -ll2amm +FDO
  181.mcf:    -fast -xipo=2 -xprefetch_level=2
  186.crafty: -fast -xpagesize=8k -xipo=2 -xalias_level=strong
              -W2,-Ashort_ldst -xinline= -xprefetch -xrestrict
              +FDO (-xlinkopt during pass2)
  197.parser: -fast -xipo=2 -xalias_level=strong -Wc,Qgsched-T6
              -Wc,-Qipa:valuepredicition -Wc,-Qms_pipe-prefstrong=0,
              -Qlp-pt=weak +FDO
  252.eon:    -fast -xipo=2 -xalias_level=compatible -Qoption cg
              -Qeps:enabled=1 -xvector -Qoption iropt -Abcopy -xunroll=16
              +FDO
  253.perlbmk:-fast -xipo -Wc,-Qeps:enabled=1,-Qeps:ws=16 -xalias_level=std
              -xsafe=mem -Wc,-Qiselect-funcalign=128,-Qicache-chbab=1
              -Wc,-Qiselect-sw_pf_tbl_th=40,-Qeps:do_spec_load=1 +FDO
  254.gap:    -fast -W2,-Abcopy -xvector -xprefetch_level=3 +FDO
  255.vortex: -fast -xrestrict -xipo=2 -Wc,-Qeps:enabled=1
              -W2,-Ainline:recursion=1:cs=400:irs=5000
              -Wc,-Qdepgraph-early_cross_call=1 -Wc,-Qiselect-funcalign=64
              -Wc,-Qpeep-Sh0 -W2,-crit -xprefetch=latx:1.7 -fsimple=1
              -Wc,-Qiselect-sw_pf_tbl_th=30 -Wc,-Qicache-chbab=1
              -W2,-Ainline:inc=300 -ll2amm +FDO
  256.bzip2:  -fast -xipo=2 -xalias_level=strong -xrestrict
              -Wc,-Qeps:enabled=1,-Qeps:do_spec_load=1 +FDO
  300.twolf:  -fast -xalias_level=strong -xsafe=mem -xipo=2
              -xprefetch=no%auto -Wc,-Qms_pipe+intdivusefp -xinline= +FDO

Feedback is done as follows, unless otherwise noted:
  fdo_pre0:    rm -rf ./feedback.profile ./SunWS_cache
  PASS1:       -xprofile=collect:./feedback
  PASS2:       -xprofile=use:./feedback

Portability:
  176.gcc:    -Dalloca=__builtin_alloca -DHOST_WORDS_BIG_ENDIAN
  186.crafty: -DSUN
  252.eon:    -DFMAX_IS_DOUBLE -library=iostream
  253.perlbmk:-DSPEC_CPU2000_SOLARIS
  254.gap:    -DSYS_IS_USG -DSYS_HAS_TIME_PROTO -DSYS_HAS_SIGNAL_PROTO
              -DSYS_HAS_CALLOC_PROTO -DSYS_HAS_IOCTL_PROTO

Shell Environments:
  Stack size set to unlimited via "ulimit -s unlimited"
  MPSSHEAP=4M
  MPSSSTACK=4M
  LD_PRELOAD=mpss.so.1

Kernel Parameters (/etc/system):
  autoup=900
  tune_t_fsflushr=1

The system was configured with multiple file systems.
The O/S was installed on one disk of the Sun StorEdge D240
Media Tray (ufs, ufs w/logging).  The benchmark was run on
the Sun StorEdge 6120 Array, using H/W Raid 5 and ufs with
ufs logging file system.
```

Copyright ©1999-2005, Standard Performance Evaluation Corporation



## Notes/Tuning Information (Continued)