



CINT2000 Result

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Sun Microsystems
Sun Fire E6900 (20 processor)

SPECint_rate2000 = 416
SPECint_rate_base2000 = 355

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

| Benchmark | Base Copies | Base Runtime | Base Ratio | Copies | Runtime | Ratio |
|-------------|-------------|--------------|------------|--------|---------|-------|
| 164.zip | 40 | 211 | 308 | 40 | 190 | 341 |
| 175.vpr | 40 | 185 | 351 | 40 | 177 | 367 |
| 176.gcc | 40 | 274 | 187 | 80 | 231 | 441 |
| 181.mcf | 40 | 263 | 318 | 80 | 447 | 374 |
| 186.crafty | 40 | 97.4 | 476 | 40 | 89.0 | 521 |
| 197.parser | 40 | 244 | 343 | 40 | 210 | 397 |
| 252.eon | 40 | 126 | 477 | 40 | 118 | 512 |
| 253.perlbnk | 40 | 192 | 434 | 40 | 184 | 453 |
| 254.gap | 40 | 303 | 169 | 80 | 504 | 203 |
| 255.vortex | 40 | 122 | 724 | 40 | 113 | 778 |
| 256.bzip2 | 40 | 180 | 387 | 40 | 176 | 395 |
| 300.twolf | 40 | 354 | 394 | 40 | 318 | 438 |

Hardware

CPU: UltraSPARC IV+
CPU MHz: 1500
FPU: Integrated
CPU(s) enabled: 40 cores, 20 chips, 2 cores/chip
CPU(s) orderable: 4, 8, 12, 16, 20, 24 (order by number of chips)
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: 80GB 16-way interleaved
Disk Subsystem: Sun StorEdge D240 Media Tray (2x73GB)
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.zip: -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



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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:valueprediction -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.perlbnk:  -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.perlbnk: -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.