



CINT2000 Result

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Sun Microsystems
Sun Fire E4900 (4 processor)

SPECint_rate2000 = 86.7
SPECint_rate_base2000 = 77.9

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.gzip	8	207	62.9	8	186	69.9
175.vpr	8	183	70.9	8	175	74.4
176.gcc	8	148	68.9	8	111	91.7
181.mcf	8	256	65.1	24	643	77.9
186.crafty	8	96.5	96.2	8	88.3	105
197.parser	8	243	68.7	8	209	80.1
252.eon	8	126	95.8	8	117	103
253.perlbnk	8	191	87.5	8	183	91.5
254.gap	8	210	48.7	24	553	55.4
255.vortex	8	119	148	8	111	159
256.bzip2	8	177	78.6	8	175	79.6
300.twolf	8	351	79.4	8	316	88.1

Hardware

CPU: UltraSPARC IV+
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
 CPU(s) orderable: 4, 8, 12 (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: 16GB 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.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



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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.