



CINT2000 Result

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Sun Microsystems
Sun Fire V490 (4 processor)

SPECint_rate2000 = 104
SPECint_rate_base2000 = 92.4

SPEC license #: 6 Tested by: Sun Microsystems Test date: Jun-2006 Hardware Avail: Aug-2006 Software Avail: Jan-2006

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	8	173	75.1	8	156	83.4
175.vpr	8	154	84.4	8	147	88.4
176.gcc	8	127	80.6	8	94.9	108
181.mcf	8	218	76.5	8	185	90.5
186.crafty	8	80.6	115	8	73.7	126
197.parser	8	203	82.3	8	174	96.0
252.eon	8	106	114	8	98.4	123
253.perlbnk	8	159	105	8	153	109
254.gap	8	184	55.5	8	149	68.4
255.vortex	8	99.8	177	8	93.7	188
256.bzip2	8	148	94.0	8	145	96.3
300.twolf	8	292	95.4	8	264	105

Hardware

CPU: UltraSPARC IV+
CPU MHz: 1800
FPU: Integrated
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
CPU(s) orderable: 2,4 (order by number of chips)
Parallel: No
Primary Cache: 64KBI+64KBD per core on chip
Secondary Cache: 2MB (I+D) per chip (on chip)
L3 Cache: 32MB (I+D) per chip (off chip)
Other Cache: None
Memory: 32GB (8-way interleaved, 32x1GB DIMMs)
Disk Subsystem: 1x146GB (10k rpm, Hitachi DK32EJ)
Other Hardware: None

Software

Operating System: Solaris 10 1/06
Compiler: Sun Studio 11
File System: ufs
System State: Multi-User

Notes/Tuning Information

Compiler invocation:

C: cc
C++: 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
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 +FDO



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Notes/Tuning Information (Continued)

```

-ll2amm
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 -xipo=2 -xalias_level=strong -xvector -xprefetch_level=3
-W2,-Abcopy +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-funcaligh=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 +FDO
-ll2amm
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
253.perlbnk: -DSPEC_CPU2000_SOLARIS
254.gap: -DSYS_IS_USG -DSYS_HAS_TIME_PROTO -DSYS_HAS_SIGNAL_PROTO -DSYS_HAS_CALLOC_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

```