



CINT2000 Result

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Sun Microsystems
Sun Fire E6900 (24 processor)

SPECint_rate2000 = 562
SPECint_rate_base2000 = 504

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.zip	48	188	414	48	171	455
175.vpr	48	159	491	48	152	513
176.gcc	48	166	368	48	102	603
181.mcf	48	230	435	48	199	504
186.crafty	48	81.3	685	48	74.6	747
197.parser	48	205	489	48	177	566
252.eon	48	103	706	48	96.9	747
253.perlbnk	48	162	619	48	155	647
254.gap	48	345	177	48	351	174
255.vortex	48	103	1022	48	96.3	1099
256.bzip2	48	152	548	48	149	561
300.twolf	48	293	571	48	265	629

Hardware

CPU: UltraSPARC IV+
CPU MHz: 1800
FPU: Integrated
CPU(s) enabled: 48 cores, 24 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
Secondary Cache: 2MB(I+D) per chip (on chip)
L3 Cache: 32MB(I+D) per chip (off chip)
Other Cache: None
Memory: 48GB 8-way interleaved (96x512MB)
Disk Subsystem: Sun StorageTek D240 Media Tray (2x73GB, 10000 RPM)
Sun StorageTek 6130 Array (14x73GB, 10000 RPM)
Other Hardware: None

Software

Operating System: Solaris 10 6/06
Compiler: Sun Studio 11
File System: ufs
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
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

```

The system was configured with multiple file systems.

The O/S was installed on one disk of the Sun StorageTek D240 Media Tray (ufs, ufs w/logging). The benchmark was run on the Sun StorageTek 6130 Array, using H/W Raid 5 and ufs with ufs logging file system.