



CINT2000 Result

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Sun Microsystems
Sun Fire E25K (64 processor)

SPECint_rate2000 = 1301
SPECint_rate_base2000 = 1085

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.zip	128	225	922	128	206	1012
175.vpr	128	195	1066	128	186	1118
176.gcc	128	317	516	384	355	1379
181.mcf	128	271	987	384	657	1221
186.crafty	128	100.0	1485	128	91.3	1625
197.parser	128	250	1067	128	215	1245
252.eon	128	129	1499	128	120	1615
253.perlbnk	128	205	1301	128	198	1351
254.gap	128	291	560	384	639	767
255.vortex	128	137	2066	128	130	2176
256.bzip2	128	187	1190	128	183	1215
300.twolf	128	358	1244	128	322	1385

Hardware

CPU: UltraSPARC IV+
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 128 cores, 64 chips, 2 cores/chip
 CPU(s) orderable: 4-72 (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: 256GB 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.



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