



CINT2000 Result

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Sun Microsystems
Sun Fire E4900 (8 processor)

SPECint_rate2000 = 104
SPECint_rate_base2000 = 93.3

SPEC license #: 6 Tested by: Sun Microsystems Test date: Mar-2004 Hardware Avail: May-2004 Software Avail: Apr-2004

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	16	378	68.8	16	316	82.3
175.vpr	16	317	82.0	16	295	88.1
176.gcc	16	213	95.9	16	200	102
181.mcf	16	357	93.7	16	303	110
186.crafty	16	184	101	16	156	119
197.parser	16	393	84.9	16	346	96.6
252.eon	16	203	119	16	194	124
253.perlbnk	16	343	97.3	16	322	104
254.gap	16	323	63.2	16	267	76.5
255.vortex	16	235	150	16	211	167
256.bzip2	16	274	102	16	256	109
300.twolf	16	615	90.5	16	571	97.6

Hardware

CPU: UltraSPARC s400
CPU MHz: 1050
FPU: Integrated
CPU(s) enabled: 16 cores, 8 chips, 2 cores/chip
CPU(s) orderable: 4, 8, 12 (order by # chips)
Parallel: No
Primary Cache: 32KBI+64KBD per core on chip (64KBI+128KBD on chip)
Secondary Cache: 8MB(I+D) per core off chip (16MB(I+D) off chip)
L3 Cache: None
Other Cache: None
Memory: 32GB 16-way interleaved
Disk Subsystem: Sun StorEdge S1 Disk Array (2x36GB)
Sun StorEdge T3 Array for the Workgroup (9x36GB)
Other Hardware: None

Software

Operating System: Solaris 9 04/04
Compiler: Sun ONE Studio 8
Sun Performance Library 8
File System: ufs with ufs logging
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 and feedback for all benchmarks

164.gzip: -xO4 -xbuiltin=%all -xtarget=native -xalias_level=std
-xipo=2 -Wc,-Qeps:enabled=1,-Qeps:rp_filtering_margin=100
175.vpr: -fast -xalias_level=std -xipo=2
-Wc,-Qeps:enabled=1,-Qeps:rp_filtering_margin=100 -lmopt -lm
176.gcc: -fast -xipo=2 -l12amm
181.mcf: -fast -xipo=2 -xprefetch_level=3 -Wc,-Qeps:enabled=1
186.crafty: -fast -xinline= -xipo=2 -xalias_level=strong -W2,-Ashort_ldst



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Notes/Tuning Information (Continued)

```

Feedback adds -xlinkopt in PASS2
197.parser: -fast -xipo=2 -xalias_level=strong
            -Wc,-Qgsched-T6,-Qipa:valueprediction
252.eon:    -fast -xipo=2 -xalias_level=compatible -noex
            -Qoption cg -Qeps:enabled=1,-Qeps:ws=32
253.perlbnk: -xO5 -xtarget=native -xipo -xalias_level=std -xsafe=mem
            -Wc,-Qeps:enabled=1,-Qeps:ws=8,-Qiselect-sw_pf_tbl_th=20,
            -Qiselect-funcalign=32,-Qicache-chbab=1
254.gap:    -fast -xipo=2 -xalias_level=strong -xvector
            -xprefetch_level=3 -W2,-Abcopy
255.vortex: -fast -xrestrict -xipo=2
            -W2,-crit,-Ainline:recursion=1:cs=500:irs=6000
            -Wc,-Qeps:enabled=1,-Qdepgraph-early_cross_call=1,
            -Qiselect-funcalign=32,-Qpeep-Sh0 -ll2amm
256.bzip2:  -fast -xipo -xalias_level=strong -xrestrict
            -Wc,-Qeps:enabled=1
300.twolf:  -fast -xalias_level=strong -xsafe=mem -xipo=2
            -xprefetch=no%auto -Wc,-Qms_pipe+intdivusefp

```

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:   -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

```

Processes were bound to CPUs using submit=pbind

The system was configured with multiple file systems.
The O/S was installed on one disk of the Sun StorEdge S1
Disk Array (ufs, ufs w/logging). The benchmark was run on
the Sun StorEdge T3 Array, using H/W Raid 5 and ufs with
ufs logging file system.