



CINT2000 Result

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Sun Microsystems
Sun Fire V490 (1 processor)

SPECint_rate2000 = 13.3
SPECint_rate_base2000 = 12.0

SPEC license #: 6 Tested by: Sun Microsystems Test date: Sep-2004 Hardware Avail: Sep-2004 Software Avail: Jul-2004

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.zip	2	354	9.18	2	305	10.6
175.vpr	2	292	11.1	2	289	11.2
176.gcc	2	197	12.9	2	191	13.4
181.mcf	2	349	12.0	2	282	14.8
186.crafty	2	192	12.1	2	149	15.5
197.parser	2	384	10.9	2	337	12.4
252.eon	2	227	13.3	2	219	13.8
253.perlbnk	2	366	11.4	2	311	13.4
254.gap	2	290	8.82	2	259	9.84
255.vortex	2	209	21.1	2	198	22.3
256.bzip2	2	263	13.2	2	253	13.7
300.twolf	2	601	11.6	2	565	12.3

Hardware

CPU: UltraSPARC IV
 CPU MHz: 1050
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip
 CPU(s) orderable: 2,4 (order by # of 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: 8GB 4-way interleaved
 Disk Subsystem: 1 x 73GB
 Other Hardware: None

Software

Operating System: Solaris 9 4/04 with patch 116561-03, 112233-12
 Compiler: Sun Studio 9
 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.zip: -xO4 -xbuiltin=%all -xtarget=native -xalias_level=std
 -xipo=2 -Wc,-Qeps:enabled=1,-Qeps:rp_filtering_margin=30,
 -Qeps:do_spec_load=1

175.vpr: -fast -xalias_level=std -xipo=2
 -Wc,-Qeps:enabled=1,-Qeps:rp_filtering_margin=100,
 -Qeps:do_spec_load=1 -lmopt -lm

176.gcc: -fast -xipo=2 -l12amm
 181.mcf: -fast -xipo=2 -xprefetch_level=2 -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 -noex
            -Qoption cg -Qeps:enabled=1,-Qeps:ws=32
253.perlbnk: -xO5 -xtarget=native -xmemalign=4s -xipo -Wc,-Qeps:enabled=1
            -Qeps:ws=8, -xalias_level=std -xsafe=mem -Wc,
            -Qiselect-funcalign=32 -Qicache-chbab=1, -Wc,
            -Qiselect-sw_pf_tbl_th=20,-Qeps:do_spec_load=1 -xprefetch=no
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 -xsafe=mem -Qeps:rp_filtering_margin=99
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=512K
MPSSSTACK=512K
LD_PRELOAD=mpss.so.1

```

Kernel Parameters (/etc/system):

```

autoup=900
tune_t_fsflushr=1
2nd chip disabled at boot time by using /etc/system
parameter "cpu_bringup_set"

```