



# CINT2000 Result

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Sun Microsystems  
Sun Ultra 45

SPECint\_rate2000 = 20.2

SPECint\_rate\_base2000 = 18.1

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	2	188	17.2	2	169	19.2
175.vpr	2	215	15.1	2	213	15.3
176.gcc	2	147	17.4	2	113	22.6
181.mcf	2	410	10.2	2	294	14.2
186.crafty	2	101	23.0	2	89.7	25.9
197.parser	2	273	15.3	2	240	17.4
252.eon	2	122	24.8	2	115	26.3
253.perlbnk	2	206	20.2	2	191	21.8
254.gap	2	167	15.3	2	150	17.0
255.vortex	2	133	33.2	2	130	33.9
256.bzip2	2	222	15.7	2	219	15.9
300.twolf	2	373	18.7	2	333	20.9

### Hardware

CPU: UltraSPARC IIIi  
 CPU MHz: 1600  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 2 chips, 1 core/chip  
 CPU(s) orderable: 1,2 (order by # of chips)  
 Parallel: No  
 Primary Cache: 32KBI+64KBD per chip (on chip)  
 Secondary Cache: 1MB(I+D) per chip (on chip)  
 L3 Cache: None  
 Other Cache: None  
 Memory: 16GB(8x2GB DIMMs)  
 Disk Subsystem: SATA,250GB,7200 RPM  
 Other Hardware: None

### Software

Operating System: Solaris 10 1/06  
 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.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 -l12amm +FDO



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## Notes/Tuning Information (Continued)

```

181.mcf: -fast -xipo=2 -xprefetch_level=3 -Wc,-Qeps:enabled=1 -W2,-Apf:l1list=3:noninnerl1list
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_lvel=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 -l12amm +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

```

Processes were bound to CPUs using submit=pbind