



# CINT2000 Result

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Sun Microsystems  
Sun Fire V440 (1600MHz)

SPECint\_rate2000 = 19.5  
SPECint\_rate\_base2000 = 17.2

SPEC license #: 6 Tested by: Sun Microsystems Test date: Nov-2004 Hardware Avail: Nov-2004 Software Avail: Jan-2005

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	2	199	16.3	2	178	18.3
175.vpr	2	217	14.9	2	213	15.2
176.gcc	2	153	16.7	2	116	21.9
181.mcf	2	481	8.67	2	287	14.6
186.crafty	2	114	20.3	2	95.9	24.2
197.parser	2	275	15.2	2	245	17.1
252.eon	2	126	24.0	2	126	24.0
253.perlbnk	2	229	18.2	2	206	20.2
254.gap	2	171	14.9	2	154	16.6
255.vortex	2	138	31.8	2	130	33.9
256.bzip2	2	226	15.4	2	222	15.6
300.twolf	2	375	18.6	2	355	19.6

### Hardware

CPU: UltraSPARC IIIi  
 CPU MHz: 1600  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 2 chips, 1 core/chip  
 CPU(s) orderable: 2,4  
 Parallel: No  
 Primary Cache: 32KBI+64KBD on chip  
 Secondary Cache: 1MB(I+D) on chip  
 L3 Cache: None  
 Other Cache: None  
 Memory: 8GB 16-way interleaved  
 Disk Subsystem: 1 x 73GB  
 Other Hardware: None

### Software

Operating System: Solaris 10  
 Compiler: Sun Studio 9  
 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 and feedback for all benchmarks

164.gzip: -xO5 -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,  
 -Qeps:do\_spec\_load=1 -lmopt -lm  
 176.gcc: -fast -xipo=2 -l12amm  
 181.mcf: -fast -xipo=2 -xprefetch\_level=3 -Wc,-Qeps:enabled=1  
 -W2,-Apf:l1list=3:noinnerl1list



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## Notes/Tuning Information (Continued)

```

186.crafty: -fast -xinline= -xipo=2 -xalias_level=strong -W2,-Ashort_ldst
            Feedback adds -xlinkopt in PASS2
197.parser: -fast -xipo=2 -xalias_level=strong
            -Wc,-Qgsched-T6,-Qipa:valueprediction
252.eon:     basepeak = yes
253.perlbnk: -x05 -xtarget=native -xmemalign=4s -xipo
            -Wc,-Qeps:enabled=1,-Qeps:ws=8 -xalias_level=std
            -xsafe=mem -Wc,-Qiselect-funcalign=32,-Qica
            -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=2 -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
            srcalt=fmax_errno
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

```