



# CINT2000 Result

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Sun Microsystems  
Sun Fire 6800

SPECint\_rate2000 = 122

SPECint\_rate\_base2000 = 107

SPEC license #: 6 Tested by: Sun Microsystems Test date: Apr-2003 Hardware Avail: Mar-2003 Software Avail: May-2003

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	16	311	83.6	16	256	101
175.vpr	16	287	90.7	16	268	96.9
176.gcc	16	194	105	16	163	126
181.mcf	16	355	94.1	16	293	114
186.crafty	16	155	120	16	133	140
197.parser	16	333	100	16	290	115
252.eon	16	172	140	16	164	147
253.perlbnk	16	298	112	16	274	122
254.gap	16	285	71.6	16	230	88.8
255.vortex	16	212	166	16	188	187
256.bzip2	16	232	120	16	218	128
300.twolf	16	489	114	16	450	124

### Hardware

CPU: UltraSPARC III Cu  
 CPU MHz: 1200  
 FPU: Integrated  
 CPU(s) enabled: 16 cores, 16 chips, 1 core/chip  
 CPU(s) orderable: 4-24  
 Parallel: No  
 Primary Cache: 32KBI+64KBD on chip  
 Secondary Cache: 8MB(I+D) off chip  
 L3 Cache: None  
 Other Cache: None  
 Memory: 32GB 16-way interleaved  
 Disk Subsystem: 2 x 36GB  
 4 x (Sun StorEdge T3, 9x18GB raid5)  
 4-way striped  
 Other Hardware: None

### Software

Operating System: Solaris 9 12/02  
 Compiler: Sun ONE Studio 8 (pre-FCS build 3/9)  
 Sun Performance Library 8 (pre-FCS build 3/9)  
 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.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  
 Feedback adds -xlinkopt in PASS2



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## Notes/Tuning Information (Continued)

```

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 -l12amm
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 benchmark was run on the Sun StorEdge T3 disk resident file system.