



# CINT2000 Result

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Sun Microsystems  
Sun Fire 6800

SPECint\_rate2000 = 180  
SPECint\_rate\_base2000 = 158

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	24	312	125	24	259	151
175.vpr	24	289	135	24	271	144
176.gcc	24	214	143	24	165	186
181.mcf	24	359	140	24	304	165
186.crafty	24	156	179	24	133	209
197.parser	24	334	150	24	291	172
252.eon	24	173	210	24	165	219
253.perlbnk	24	300	167	24	276	182
254.gap	24	305	100	24	242	127
255.vortex	24	213	249	24	189	280
256.bzip2	24	234	178	24	219	190
300.twolf	24	489	171	24	451	185

### Hardware

CPU: UltraSPARC III Cu  
CPU MHz: 1200  
FPU: Integrated  
CPU(s) enabled: 24 cores, 24 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: 48GB 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.