



# CINT2000 Result

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Sun Microsystems  
Sun Fire 4800

SPECint\_rate2000 = 61.4  
SPECint\_rate\_base2000 = 54.5

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	8	308	42.1	8	255	51.0
175.vpr	8	285	45.6	8	266	48.8
176.gcc	8	179	57.1	8	161	63.5
181.mcf	8	343	48.8	8	285	58.6
186.crafty	8	155	60.1	8	132	70.1
197.parser	8	332	50.3	8	289	57.8
252.eon	8	172	70.3	8	164	73.5
253.perlbnk	8	297	56.3	8	273	61.3
254.gap	8	274	37.3	8	225	45.4
255.vortex	8	211	83.6	8	186	94.5
256.bzip2	8	231	60.3	8	216	64.4
300.twolf	8	487	57.2	8	451	61.8

### Hardware

CPU: UltraSPARC III Cu  
CPU MHz: 1200  
FPU: Integrated  
CPU(s) enabled: 8 cores, 8 chips, 1 core/chip  
CPU(s) orderable: 4-12  
Parallel: No  
Primary Cache: 32KBI+64KBD on chip  
Secondary Cache: 8MB(I+D) off chip  
L3 Cache: None  
Other Cache: None  
Memory: 16GB 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.