



# CINT2000 Result

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Sun Microsystems  
Sun Fire V890(4 processor)

SPECint\_rate2000 = 66.1  
SPECint\_rate\_base2000 = 60.6

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	8	282	46.1	8	247	52.6
175.vpr	8	245	53.0	8	240	54.2
176.gcc	8	166	61.7	8	154	66.2
181.mcf	8	289	57.7	8	251	66.7
186.crafty	8	149	62.1	8	121	76.8
197.parser	8	304	54.9	8	270	61.9
252.eon	8	149	81.0	8	149	81.0
253.perlbnk	8	276	60.6	8	263	63.4
254.gap	8	247	41.3	8	207	49.3
255.vortex	8	166	106	8	162	109
256.bzip2	8	212	65.7	8	202	68.9
300.twolf	8	473	58.9	8	457	60.9

Hardware	Software
CPU: UltraSPARC IV	Operating System: Solaris 10
CPU MHz: 1350	Compiler: Sun Studio 9
FPU: Integrated	File System: ufs
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip	System State: Multi-User
CPU(s) orderable: 2,4,8 (order by # of chips)	
Parallel: No	
Primary Cache: 32KBI+64KBD per core on chip (64KBI+128KBD on chip)	
Secondary Cache: 8MB(I+D) per core off chip (16MB(I+D) off chip)	
L3 Cache: None	
Other Cache: None	
Memory: 16GB 8-way interleaved	
Disk Subsystem: 1 x 73GB	
Other Hardware: None	

## 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=30,  
-Qeps:do\_spec\_load=1

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=2 -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:     basepeak = yes
253.perlbnk: -xO5 -xtarget=ative -xmemalign=4s -xipo -Wc,-Qeps:enabled=1
            -Qeps:ws=8, -xalias_level=std -xsafe=mem
            -Wc,-Qiselect-funcalign=32
            -Qicache-chbab=1, -Wc,-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 -xalias_level=strong -xrestrict
            -Wc,-Qeps:enabled=1 -xsafe=mem -Qeps:rp_filtering_margin=99
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=512K
MPSSSTACK=512K
LD_PRELOAD=mpss.so.1

```

Kernel Parameters (/etc/system):

```

autoup=900
tune_t_fsflushr=1

```