



# CINT2000 Result

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Sun Microsystems  
Sun Fire V490 (4 processor)

SPECint\_rate2000 = 52.6  
SPECint\_rate\_base2000 = 47.3

SPEC license #: 6 Tested by: Sun Microsystems Test date: Sep-2004 Hardware Avail: Sep-2004 Software Avail: Jul-2004

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	8	356	36.5	8	308	42.2
175.vpr	8	298	43.6	8	295	44.1
176.gcc	8	205	49.7	8	195	52.4
181.mcf	8	349	47.9	8	279	59.9
186.crafty	8	192	48.4	8	149	62.2
197.parser	8	390	42.8	8	343	48.7
252.eon	8	227	53.2	8	221	54.7
253.perlbnk	8	369	45.2	8	316	52.9
254.gap	8	305	33.5	8	270	37.8
255.vortex	8	214	82.5	8	203	86.7
256.bzip2	8	267	52.1	8	258	54.1
300.twolf	8	600	46.4	8	566	49.2

### Hardware

CPU: UltraSPARC IV  
CPU MHz: 1050  
FPU: Integrated  
CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip  
CPU(s) orderable: 2,4 (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: 32GB 8-way interleaved  
Disk Subsystem: 1 x 73GB  
Other Hardware: None

### Software

Operating System: Solaris 9 4/04 with patch 116561-03,112233-12  
Compiler: Sun Studio 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: -x04 -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



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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:     -fast -xipo=2 -noex
            -Qoption cg -Qeps:enabled=1,-Qeps:ws=32
253.perlbnk: -xO5 -xtarget=native -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

```

Processes were bound to CPUs using submit=pbind