



# CINT2000 Result

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Sun Microsystems  
Sun Fire V490(2 processor)

SPECint\_rate2000 = 32.9  
SPECint\_rate\_base2000 = 29.8

SPEC license #: 6 Tested by: Sun Microsystems Test date: Dec-2004 Hardware Avail: Feb-2005 Software Avail: Jan-2005

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	4	280	23.2	4	242	26.8
175.vpr	4	238	27.3	4	236	27.5
176.gcc	4	160	31.8	4	153	33.3
181.mcf	4	307	27.2	4	248	33.7
186.crafty	4	151	30.8	4	118	39.4
197.parser	4	304	27.5	4	268	31.2
252.eon	4	177	34.2	4	171	35.3
253.perlbnk	4	284	29.4	4	247	33.8
254.gap	4	246	20.7	4	218	23.4
255.vortex	4	168	52.6	4	162	54.6
256.bzip2	4	210	33.2	4	202	34.4
300.twolf	4	476	29.3	4	458	30.4

### Hardware

CPU: UltraSPARC IV  
 CPU MHz: 1350  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chips  
 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: 16GB 8-way interleaved  
 Disk Subsystem: 1 x 73GB  
 Other Hardware: None

### Software

Operating System: Solaris 10  
 Compiler: Sun Studio 9  
 File System: ufs  
 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=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:      -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