



# CINT2000 Result

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Sun Microsystems  
Sun Fire E6900 (24 processor)

SPECint\_rate2000 = 364  
SPECint\_rate\_base2000 = 321

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	48	300	260	48	264	295
175.vpr	48	262	298	48	256	305
176.gcc	48	281	218	48	175	351
181.mcf	48	306	327	48	269	373
186.crafty	48	156	356	48	126	442
197.parser	48	319	315	48	286	350
252.eon	48	152	475	48	150	481
253.perlbnk	48	277	361	48	253	395
254.gap	48	392	156	48	317	193
255.vortex	48	181	583	48	173	611
256.bzip2	48	225	372	48	217	385
300.twolf	48	505	331	48	486	344

### Hardware

CPU: UltraSPARC IV  
CPU MHz: 1350  
FPU: Integrated  
CPU(s) enabled: 48 cores, 24 chips, 2 cores/chip  
CPU(s) orderable: 4, 8, 12, 16, 20, 24 (order by number 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: 192GB 16-way interleaved  
Disk Subsystem: Sun StorEdge S1 Disk Array (2x36GB)  
Sun StorEdge 6120 Array (14x73GB)  
Other Hardware: None

### Software

Operating System: Solaris 10  
Compiler: Sun Studio 10  
File System: ufs (default ufs logging on with Solaris 10)  
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



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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 -xalias_level=compatible
253.perlbnk: -fast -xipo=2 -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 -W2,-Abcopy -xvector
            -xprefetch_level=3
255.vortex: -fast -xrestrict -xipo=2 -Wc,-Qeps:enable=1
            -W2,-Ainline:recursion=1:cs=500:irs=6000
            -Wc,-Qdepgraph-early_cross_call=1 -Wc,-Qiselect-funcalign=32
            -Wc,-Qpeep-Sh0 -W2,-crit -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
            srcalt = fmax_errno
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

```

The system was configured with multiple file systems.  
The O/S was installed on one disk of the Sun StorEdge S1  
Disk Array (ufs, ufs w/logging). The benchmark was run on  
the Sun StorEdge 6120 Array, using H/W Raid 5 and ufs with  
ufs logging file system.