



# CINT2000 Result

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Sun Microsystems  
Sun Fire E6900 (24 processor)

SPECint\_rate2000 = 563  
SPECint\_rate\_base2000 = 502

SPEC license #: 6 Tested by: Sun Microsystems Test date: Jun-2006 Hardware Avail: Aug-2006 Software Avail: Jun-2006

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.zip	48	188	415	48	172	454
175.vpr	48	158	492	48	150	521
176.gcc	48	180	341	48	101	604
181.mcf	48	226	443	48	198	505
186.crafty	48	81.1	686	48	74.8	744
197.parser	48	207	484	48	177	566
252.eon	48	103	705	48	96.9	747
253.perlbnk	48	162	619	48	155	648
254.gap	48	345	177	48	351	175
255.vortex	48	103	1025	48	96.2	1100
256.bzip2	48	152	548	48	149	561
300.twolf	48	293	571	48	264	633

Hardware	Software
CPU: UltraSPARC IV+	Operating System: Solaris 10 6/06
CPU MHz: 1800	Compiler: Sun Studio 11
FPU: Integrated	File System: ufs
CPU(s) enabled: 48 cores, 24 chips, 2 cores/chip	System State: Multi-User
CPU(s) orderable: 4, 8, 12, 16, 20, 24 (order by number of chips)	
Parallel: No	
Primary Cache: 64KBI+64KBD per core on chip	
Secondary Cache: 2MB(I+D) per chip (on chip)	
L3 Cache: 32MB(I+D) per chip (off chip)	
Other Cache: None	
Memory: 96GB 16-way interleaved (192x512MB)	
Disk Subsystem: Sun StorageTek D240 Media Tray (2x73GB, 10000 RPM) Sun StorageTek 6130 Array (14x73GB, 10000 RPM)	
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 for all benchmarks  
Profile feedback used for those marked with +FDO

164.zip: -x04 -xbuiltin=%all -xtarget=native -xalias\_level=std  
-xipo=2 -Wc,-Qeps:enabled=1,-Qeps:rp\_filtering\_margin=30,  
-Qeps:do\_spec\_load=1 +FDO

175.vpr: -fast -Wc,-Qeps:enabled=1,-Qeps:do\_spec\_load=1,  
-Qeps:rp\_filtering\_margin=30 -xipo=2 -xpagesize\_stack=8K  
-lmopt -lm +FDO



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## Notes/Tuning Information (Continued)

```

176.gcc: -fast -xipo=2 -Wc,-Qicache-chbab=1 -Wc,-Qeps:enabled=1
        -Qeps:ws=32 -Wc,-Qdepgraph-early_cross_call=1
        -Wc,-Qms_pipe-pref_prolog -ll2amm +FDO
181.mcf: -fast -xipo=2 -xprefetch_level=2
186.crafty: -fast -xpagesize=8k -xipo=2 -xalias_level=strong
        -W2,-Ashort_ldst -xinline= -xprefetch -xrestrict
        +FDO (-xlinkopt during pass2)
197.parser: -fast -xipo=2 -xalias_level=strong -Wc,Qgsched-T6
        -Wc,-Qipa:valueprediction -Wc,-Qms_pipe-prefstrong=0,
        -Qlp-pt=weak +FDO
252.eon: -fast -xipo=2 -xalias_level=compatible -Qoption cg
        -Qeps:enabled=1 -xvector -Qoption iropt -Abcopy -xunroll=16
        +FDO
253.perlbnk: -fast -xipo -Wc,-Qeps:enabled=1,-Qeps:ws=16 -xalias_level=std
        -xsafe=mem -Wc,-Qiselect-funcalign=128,-Qicache-chbab=1
        -Wc,-Qiselect-sw_pf_tbl_th=40,-Qeps:do_spec_load=1 +FDO
254.gap: -fast -W2,-Abcopy -xvector -xprefetch_level=3 +FDO
255.vortex: -fast -xrestrict -xipo=2 -Wc,-Qeps:enabled=1
        -W2,-Ainline:recursion=1:cs=400:irs=5000
        -Wc,-Qdepgraph-early_cross_call=1 -Wc,-Qiselect-funcalign=64
        -Wc,-Qpeep-Sh0 -W2,-crit -xprefetch=latx:1.7 -fsimple=1
        -Wc,-Qiselect-sw_pf_tbl_th=30 -Wc,-Qicache-chbab=1
        -W2,-Ainline:inc=300 -ll2amm +FDO
256.bzip2: -fast -xipo=2 -xalias_level=strong -xrestrict
        -Wc,-Qeps:enabled=1,-Qeps:do_spec_load=1 +FDO
300.twolf: -fast -xalias_level=strong -xsafe=mem -xipo=2
        -xprefetch=no%auto -Wc,-Qms_pipe+intdivusefp -xinline= +FDO

```

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
253.perlbnk: -DSPEC_CPU2000_SOLARIS
254.gap: -DSYS_IS_USG -DSYS_HAS_TIME_PROTO -DSYS_HAS_SIGNAL_PROTO
        -DSYS_HAS_CALLOC_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 StorageTek D240 Media Tray (ufs, ufs w/logging). The benchmark was run on the Sun StorageTek 6130 Array, using H/W Raid 5 and ufs with ufs logging file system.