



# CINT2000 Result

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Sun Microsystems  
Sun Fire E4900 (12 processor)

SPECint\_rate2000 = 257  
SPECint\_rate\_base2000 = 226

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	24	208	187	24	188	208
175.vpr	24	184	212	24	176	221
176.gcc	24	186	165	24	113	270
181.mcf	24	258	194	48	451	222
186.crafty	24	96.6	288	24	88.5	315
197.parser	24	243	206	24	209	239
252.eon	24	126	287	24	118	308
253.perlbnk	24	192	261	24	184	273
254.gap	24	235	130	48	392	156
255.vortex	24	121	438	24	112	471
256.bzip2	24	178	235	24	174	239
300.twolf	24	351	238	24	316	264

### Hardware

CPU: UltraSPARC IV+  
CPU MHz: 1500  
FPU: Integrated  
CPU(s) enabled: 24 cores, 12 chips, 2 cores/chip  
CPU(s) orderable: 4, 8, 12 (order by number of chips)  
Parallel: No  
Primary Cache: 64KBI+64KBD per core on chip (128KBI+128KBD on chip)  
Secondary Cache: 2MB(I+D) per chip (on chip)  
L3 Cache: 32MB(I+D) per chip (off chip)  
Other Cache: None  
Memory: 48GB 16-way interleaved  
Disk Subsystem: Sun StorEdge D240 Media Tray (2x73GB)  
Sun StorEdge 6120 Array (14x73GB)  
Other Hardware: None

### Software

Operating System: Solaris 10  
Compiler: Sun Studio 11  
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 for all benchmarks  
Profile feedback used for those marked with +FDO

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 +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
252.eon:     -DFMAX_IS_DOUBLE -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=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 D240 Media Tray(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.