



# CINT2000 Result

Copyright ©1999-2005, Standard Performance Evaluation Corporation

Sun Microsystems  
Sun Fire E25K (48 processor)

SPECint\_rate2000 = 1118  
SPECint\_rate\_base2000 = 963

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

2000	1500	1000	500	Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
				164.gzip	96	202	771	96	182	855
				175.vpr	96	169	925	96	162	962
				176.gcc	96	188	651	288	307	1196
				181.mcf	96	249	805	288	641	938
				186.crafty	96	84.3	1321	96	76.2	1461
				197.parser	96	214	936	96	186	1080
				252.eon	96	104	1386	96	98.1	1475
				253.perlbnk	96	173	1159	96	166	1204
				254.gap	96	299	410	96	207	592
				255.vortex	96	117	1816	96	111	1910
				256.bzip2	96	163	1027	96	158	1058
				300.twolf	96	298	1123	96	272	1227

### Hardware

CPU: UltraSPARC IV+  
 CPU MHz: 1800  
 FPU: Integrated  
 CPU(s) enabled: 96 cores, 48 chips, 2 cores/chip  
 CPU(s) orderable: 4-72 (order by number of chips, groups of 4)  
 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: 192GB 16-way interleaved (384x512MB)  
 Disk Subsystem: Sun StorageTek S1 Disk Array (2x73GB, 10000 RPM)  
 Sun StorageTek 6130 Array (14x73GB, 10000 RPM)  
 Other Hardware: None

### Software

Operating System: Solaris 10 6/06  
 Compiler: Sun Studio 11  
 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 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



# CINT2000 Result

Copyright ©1999-2005, Standard Performance Evaluation Corporation

Sun Microsystems  
Sun Fire E25K (48 processor)

SPECint\_rate2000 = 1118  
SPECint\_rate\_base2000 = 963

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

## 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

```

For 254.gap peak, jobs were bound to cores using the pbind command.

The system was configured with multiple file systems.  
The O/S was installed on one disk of the Sun StorageTek S1 Disk  
Array (ufs, ufs w/logging). The benchmark was run on the Sun  
StorageTek 6130 Array, using H/W Raid 5 and ufs with ufs logging



# CINT2000 Result

Copyright ©1999-2005, Standard Performance Evaluation Corporation

Sun Microsystems  
Sun Fire E25K (48 processor)

SPECint\_rate2000 = 1118

SPECint\_rate\_base2000 = 963

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

## Notes/Tuning Information (Continued)

file system.