



CINT2000 Result

Copyright ©1999-2005, Standard Performance Evaluation Corporation

Sun Microsystems
Sun Fire E20K (24 processor)

SPECint_rate2000 = 498
SPECint_rate_base2000 = 419

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

Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	48	221	352	48	202	387
175.vpr	48	193	404	48	185	421
176.gcc	48	271	226	96	234	524
181.mcf	48	271	370	48	222	451
186.crafty	48	98.2	567	48	90.1	618
197.parser	48	246	407	48	211	474
252.eon	48	126	572	48	118	615
253.perlbnk	48	198	505	48	191	525
254.gap	48	284	215	144	588	313
255.vortex	48	132	799	48	125	849
256.bzip2	48	185	452	48	182	460
300.twolf	48	354	471	48	322	519

Hardware

CPU: UltraSPARC IV+
 CPU MHz: 1500
 FPU: Integrated
 CPU(s) enabled: 48 cores, 24 chips, 2 cores/chip
 CPU(s) orderable: 4-36 (order by number of chips, groups of 4)
 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: 192GB 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



CINT2000 Result

Copyright ©1999-2005, Standard Performance Evaluation Corporation

Sun Microsystems
Sun Fire E20K (24 processor)

SPECint_rate2000 = 498
SPECint_rate_base2000 = 419

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

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.



CINT2000 Result

Copyright ©1999-2005, Standard Performance Evaluation Corporation

Sun Microsystems
Sun Fire E20K (24 processor)

SPECint_rate2000 = 498
SPECint_rate_base2000 = 419

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

Notes/Tuning Information (Continued)