CINT2000 Result

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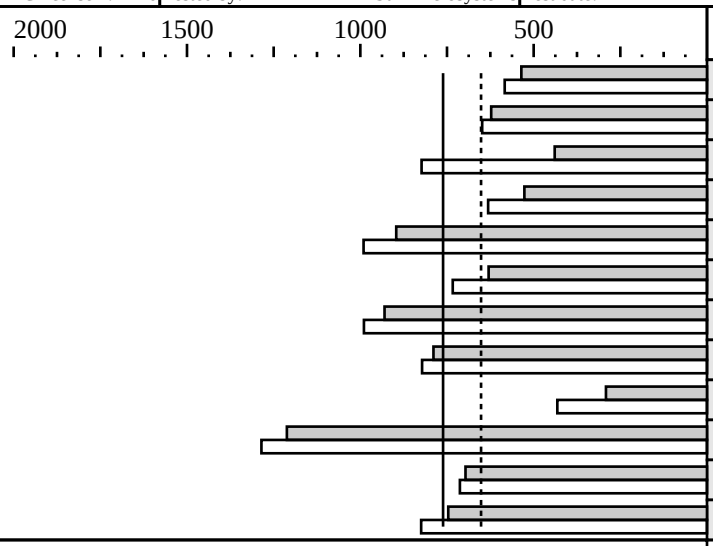
Sun Microsystems
Sun Fire E20K (32 processor)

SPECint_rate2000 = 761

SPECint_rate_base2000 = 652

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



Benchmark	Base Copies	Base Runtime	Base Ratio	Copies	Runtime	Ratio
164.gzip	64	194	536	64	178	584
175.vpr	64	167	623	64	160	649
176.gcc	64	186	439	192	298	823
181.mcf	64	254	527	192	635	631
186.crafty	64	82.8	896	64	74.9	991
197.parser	64	212	630	64	182	733
252.eon	64	104	930	64	97.5	990
253.perlbmk	64	169	789	64	163	822
254.gap	64	280	291	64	189	432
255.vortex	64	116	1212	64	110	1285
256.bzip2	64	160	697	64	156	713
300.twolf	64	298	746	64	270	825

Hardware

CPU:	UltraSPARC IV+
CPU MHz:	1800
FPU:	Integrated
CPU(s) enabled:	64 cores, 32 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
Secondary Cache:	2MB(I+D) per chip (on chip)
L3 Cache:	32MB(I+D) per chip (off chip)
Other Cache:	None
Memory:	128GB 16-way interleaved (256x512MB)
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
```

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Notes/Tuning Information (Continued)

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  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.perlbmk:-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.perlbmk:-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
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Notes/Tuning Information (Continued)

file system.