



SPEC® CINT2006 Result

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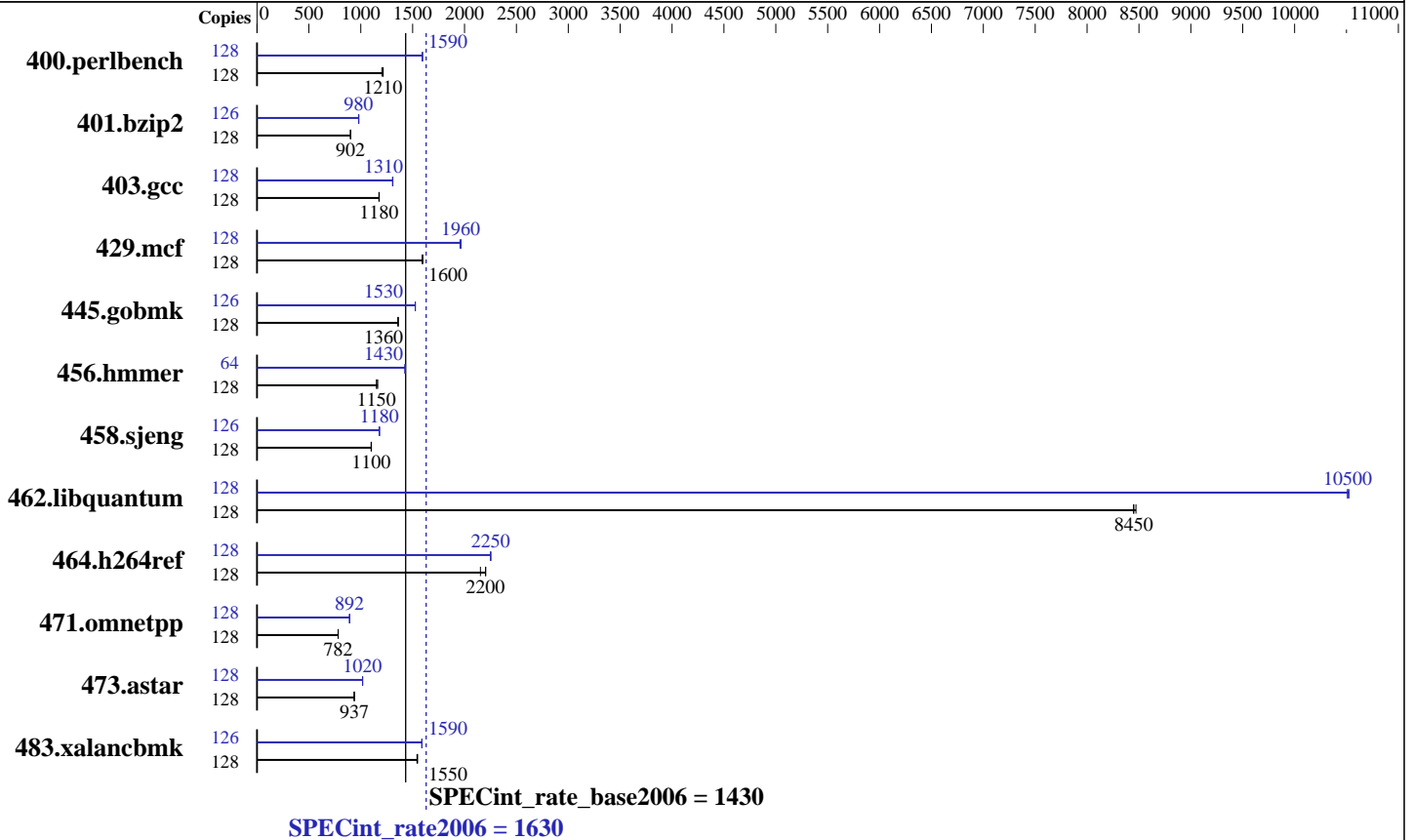
Fujitsu Fujitsu SPARC M10-4S

SPECint®_rate2006 = 1630

SPECint_rate_base2006 = 1430

CPU2006 license: 19
Test sponsor: Fujitsu
Tested by: Fujitsu

Test date: Apr-2013
Hardware Availability: Mar-2013
Software Availability: Mar-2013



Hardware

CPU Name: SPARC64 X
 CPU Characteristics:
 CPU MHz: 3000
 FPU: Integrated
 CPU(s) enabled: 64 cores, 4 chips, 16 cores/chip, 2 threads/core
 CPU(s) orderable: 1 to 16 BBs; each BB contains 2 or 4 CPU chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 24 MB I+D on chip per chip
 L3 Cache: None
 Other Cache: None
 Memory: 512 GB (32 x 16 GB 2Rx4 PC3L-12800R-11, ECC)
 Disk Subsystem: 1 x 600 GB SAS, 10025 RPM Toshiba MBF2600RC
 Other Hardware: None

Software

Operating System: Solaris 11.1.6.4.0
 Compiler: C/C++: Version 12.3 of Oracle Solaris Studio, 1/13 Platform Specific Enhancement
 Auto Parallel: No
 File System: zfs and tmpfs
 System State: Default
 Base Pointers: 32-bit
 Peak Pointers: 32-bit
 Other Software: None



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Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|----------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|--------|------------|-------------|-------------|--------------|-------------|-------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 400.perlbench | 128 | 1040 | 1200 | 1029 | 1220 | 1030 | 1210 | 128 | 785 | 1590 | 785 | 1590 | 784 | 1600 |
| 401.bzip2 | 128 | 1370 | 902 | 1369 | 902 | 1371 | 901 | 126 | 1240 | 981 | 1240 | 980 | 1241 | 980 |
| 403.gcc | 128 | 877 | 1170 | 876 | 1180 | 874 | 1180 | 128 | 787 | 1310 | 787 | 1310 | 789 | 1310 |
| 429.mcf | 128 | 730 | 1600 | 733 | 1590 | 732 | 1600 | 128 | 594 | 1960 | 594 | 1970 | 597 | 1960 |
| 445.gobmk | 128 | 987 | 1360 | 988 | 1360 | 987 | 1360 | 126 | 867 | 1530 | 866 | 1530 | 866 | 1530 |
| 456.hammer | 128 | 1036 | 1150 | 1026 | 1160 | 1036 | 1150 | 64 | 419 | 1430 | 419 | 1430 | 418 | 1430 |
| 458.sjeng | 128 | 1409 | 1100 | 1404 | 1100 | 1406 | 1100 | 126 | 1292 | 1180 | 1293 | 1180 | 1293 | 1180 |
| 462.libquantum | 128 | 314 | 8450 | 313 | 8470 | 314 | 8450 | 128 | 252 | 10500 | 252 | 10500 | 252 | 10500 |
| 464.h264ref | 128 | 1285 | 2200 | 1316 | 2150 | 1286 | 2200 | 128 | 1259 | 2250 | 1257 | 2250 | 1258 | 2250 |
| 471.omnetpp | 128 | 1022 | 783 | 1023 | 782 | 1024 | 781 | 128 | 897 | 892 | 897 | 892 | 896 | 892 |
| 473.astar | 128 | 958 | 937 | 959 | 937 | 958 | 938 | 128 | 882 | 1020 | 883 | 1020 | 884 | 1020 |
| 483.xalancbmk | 128 | 571 | 1550 | 573 | 1540 | 571 | 1550 | 126 | 547 | 1590 | 547 | 1590 | 547 | 1590 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

Processes were assigned to specific processors using 'pbind' commands. The config file option 'submit' was used, along with a list of processors in the 'BIND' variable, to generate the pbind commands. (For details, please see the config file.)

Operating System Notes

Shell Environments:

ulimit -s 131072 was used to limit the space consumed by the stack (and therefore make more space available to the heap).

The "webconsole" service was turned off using svcadm disable webconsole.

System Tunables:

(/etc/system parameters)

lpg_alloc_prefer=1

Indicates that extra effort should be taken to ensure that pages are created in the nearby lgroup (NUMA location).

Platform Notes

Sysinfo program /export/cpu2006-v1.2/config/sysinfo.rev6818
\$Rev: 6818 \$ \$Date:: 2012-07-17 #\$ e86d102572650a6e4d596a3cee98f191
running on 4S-LGA05-D0 Mon Apr 22 19:33:31 2013

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

From /usr/sbin/psrinfo

```
SPARC64-X (chipid 0, clock 3000 MHz)
SPARC64-X (chipid 1, clock 3000 MHz)
SPARC64-X (chipid 2, clock 3000 MHz)
SPARC64-X (chipid 3, clock 3000 MHz)
4 chips
128 threads
3000 MHz
```

From kstat: 64 cores

From prtconf: 522496 Megabytes

/etc/release:

Oracle Solaris 11.1 SPARC

uname -a:

SunOS 4S-LGA05-D0 5.11 11.1 sun4v sparc sun4v

disk: df -h \$SPEC

| Filesystem | Size | Used | Available | Capacity | Mounted on |
|--------------|------|------|-----------|----------|------------|
| rpool/export | 547G | 6.5G | 466G | 2% | /export |

(End of data from sysinfo program)

General Notes

output_root was used to put run directories in /tmp/cpu2006 (tmpfs).

Base Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Base Portability Flags

```
400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS
```



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Base Optimization Flags

C benchmarks:
-fast -xtarget=sparc64x -fma=fused -xipo=2 -xpagesize=4M
-xalias_level=std -M /usr/lib/ld/map.bssalign

C++ benchmarks:
-fast -xtarget=sparc64x -fma=fused -xipo=2 -xpagesize=4M
-xalias_level=compatible -library=stlport4 -lfast
-M /usr/lib/ld/map.bssalign

Base Other Flags

C benchmarks:
-xjobs=16

C++ benchmarks:
-xjobs=16

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Peak Portability Flags

400.perlbench: -DSPEC_CPU_SOLARIS_SPARC
403.gcc: -DSPEC_CPU_SOLARIS
462.libquantum: -DSPEC_CPU_SOLARIS
483.xalancbmk: -DSPEC_CPU_SOLARIS

Peak Optimization Flags

C benchmarks:
400.perlbench: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=1
-xalias_level=std -xrestrict -xprefetch=no%auto -xO4
-xcache=32/128/4/1:768/128/24/1 -lfast

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Peak Optimization Flags (Continued)

- 401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xalias_level=strong
-xprefetch=latx:0.2 -W2,-Ainline:rs=1000
-W2,-Ainline:cs=500 -W2,-Ainline:inc=60 -lfast
- 403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xO4 -xipo=2 -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access
- 429.mcf: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xalias_level=std
-xprefetch_level=1 -xprefetch=latx:0.2
-xprefetch_auto_type=indirect_array_access
- 445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xalias_level=std -xrestrict
-xprefetch=latx:0.2
- 456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=1 -xalias_level=std
-xcache=32/128/4/1:768/128/24/1
- 458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xalias_level=std
-xprefetch=no%auto -Wc,-Qlu-en=1-t=4
- 462.libquantum: -fast -xtarget=T5 -xpagesize=256M -xarch=sparcvis2
-xcache=32/128/4/1:768/128/24/1 -xipo=2 -xalias_level=std
-xprefetch_level=2 -Wc,-Qlu-en=1-t=4
-Wc,-Qiselect-funcalign=64
-M /export/cpu2006-v1.2/mapfiles/map.256M.align -lbsdmalloc
-M /usr/lib/ld/map.bssalign
- 464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=1
-xalias_level=any -xprefetch=no%auto
-xcache=32/128/4/1:768/128/24/1

C++ benchmarks:

- 471.omnetpp: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=1 -xalias_level=compatible
-xunroll=2 -xchip=generic -xprefetch_level=3

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Peak Optimization Flags (Continued)

471.omnetpp (continued):

`-library=stlport4 -lfast`

473.astar: `-xprofile=collect:./feedback(pass 1)`

`-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x`

`-fma=fused -xpagesize=4M -xipo=0 -xalias_level=compatible`

`-xunroll=6 -xprefetch=latx:0.8`

`-xprefetch_auto_type=indirect_array_access -library=stlport4`

`-lfast`

483.xalancbmk: `-xprofile=collect:./feedback(pass 1)`

`-xprofile=use:./feedback(pass 2) -fast -xtarget=T5`

`-xpagesize=256M -xarch=sparcvis2`

`-xcache=32/128/4/1:768/128/24/1 -xalias_level=compatible`

`-xdepend -xipo=2 -library=stlport4 -lfast`

Peak Other Flags

C benchmarks:

`-xjobs=16`

C++ benchmarks:

`-xjobs=16`

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.20130522.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.20130522.xml>

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For other inquiries, please contact webmaster@spec.org.

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