# SPEC® CINT2006 Result

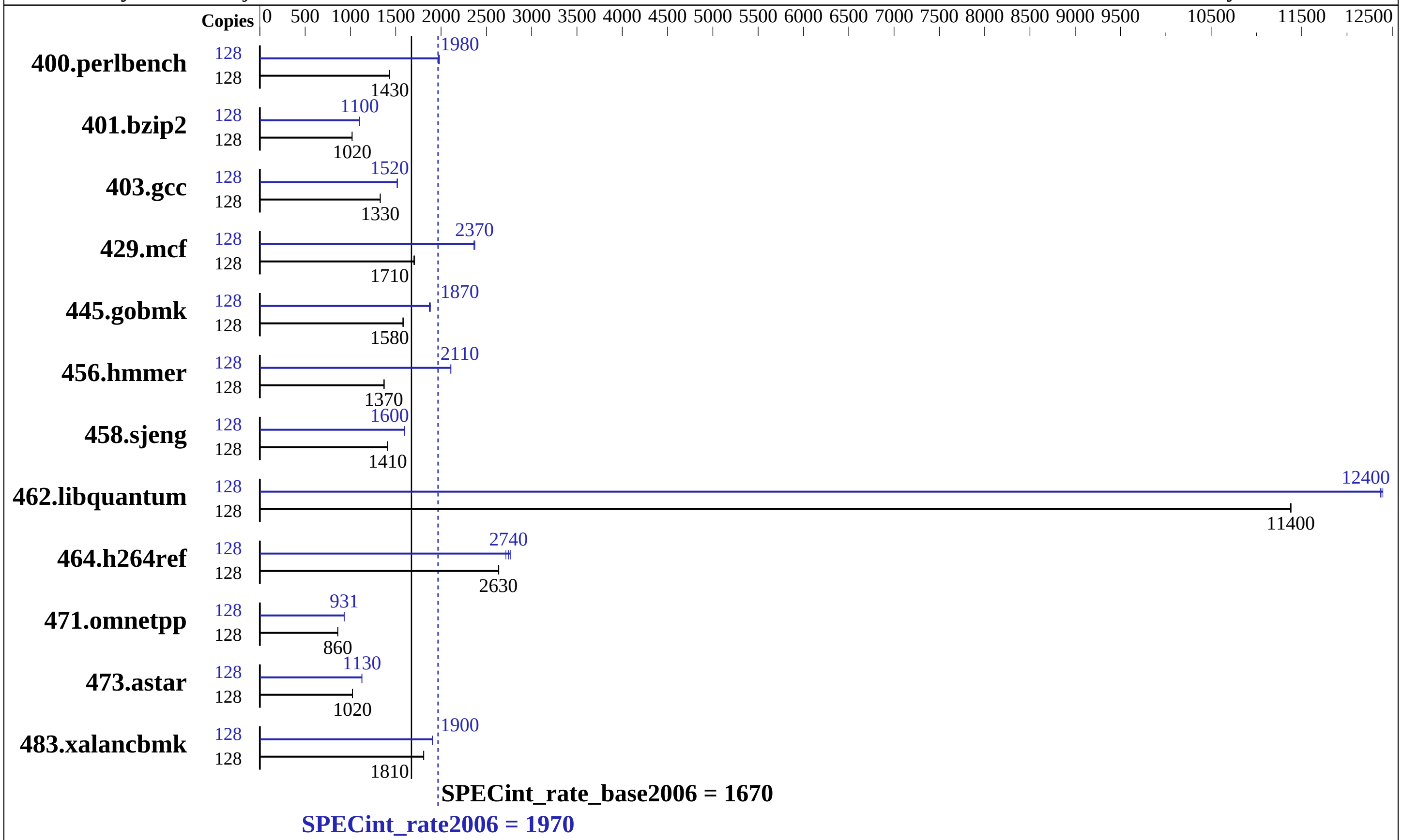


## Fujitsu
## Fujitsu SPARC M10-4

SPECint®_rate2006 = 1970

SPECint_rate_base2006 = 1670

| | | | |
|---|---|---|---|
| **CPU2006 license:** 19 | | **Test date:** | Apr-2014 |
| **Test sponsor:** | Fujitsu | **Hardware Availability:** | Apr-2014 |
| **Tested by:** | Fujitsu | **Software Availability:** | Feb-2014 |




### Hardware

| | |
|---|---|
| CPU Name: | SPARC64 X+ |
| CPU Characteristics: | |
| CPU MHz: | 3400 |
| FPU: | Integrated |
| CPU(s) enabled: | 64 cores, 4 chips, 16 cores/chip, 2 threads/core |
| CPU(s) orderable: | 2 or 4 CPU chips; each CPU chip contains 4, 8, 12, 16 cores |
| 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: | tmpfs<br>600 GB 10,025 RPM Toshiba MBF2600RC SAS (for system disk) |
| Other Hardware: | None |

### Software

| | |
|---|---|
| Operating System: | Solaris 11.1 SRU 15.4 |
| Compiler: | C/C++: Version 12.3 of Oracle Solaris Studio 10/13 Patch Set |
| Auto Parallel: | No |
| File System: | 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 | 875 | 1430 | 872 | 1430 | **872** | **1430** | 128 | 631 | 1980 | 635 | 1970 | **632** | **1980** |
| 401.bzip2 | 128 | 1211 | 1020 | 1214 | 1020 | **1213** | **1020** | 128 | **1122** | **1100** | 1122 | 1100 | 1122 | 1100 |
| 403.gcc | 128 | **776** | **1330** | 774 | 1330 | 776 | 1330 | 128 | 681 | 1510 | **679** | **1520** | 678 | 1520 |
| 429.mcf | 128 | **684** | **1710** | 687 | 1700 | 683 | 1710 | 128 | 494 | 2360 | **493** | **2370** | 492 | 2370 |
| 445.gobmk | 128 | **850** | **1580** | 848 | 1580 | 851 | 1580 | 128 | **716** | **1870** | 713 | 1880 | 718 | 1870 |
| 456.hmmer | 128 | **872** | **1370** | 869 | 1370 | 873 | 1370 | 128 | 566 | 2110 | **566** | **2110** | 567 | 2110 |
| 458.sjeng | 128 | 1095 | 1410 | 1100 | 1410 | **1097** | **1410** | 128 | 968 | 1600 | **970** | **1600** | 971 | 1590 |
| 462.libquantum | 128 | 233 | 11400 | 233 | 11400 | **233** | **11400** | 128 | 214 | 12400 | **214** | **12400** | 214 | 12400 |
| 464.h264ref | 128 | **1076** | **2630** | 1076 | 2630 | 1074 | 2640 | 128 | 1043 | 2720 | **1032** | **2740** | 1025 | 2760 |
| 471.omnetpp | 128 | 932 | 859 | 929 | 861 | **930** | **860** | 128 | 861 | 929 | 859 | 931 | **859** | **931** |
| 473.astar | 128 | 880 | 1020 | 877 | 1020 | **878** | **1020** | 128 | **798** | **1130** | 797 | 1130 | 798 | 1130 |
| 483.xalancbmk | 128 | **488** | **1810** | 489 | 1810 | 488 | 1810 | 128 | **464** | **1900** | 464 | 1900 | 464 | 1910 |

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 "Logical Domains Manager" service was turned off using the command "svcadm disable ldmd".

System Tunables:
(/etc/system parameters)
   autoup = 1555200
      Causes pages older than the listed number of seconds to be written by fsflush.
   tune_t_fsflushr = 259200
      Controls how many seconds elapse between runs of the page flush daemon, fsflush.
```

## Platform Notes

```
Sysinfo program /export/cpu2006-v1.2/config/sysinfo
$Rev: 6874 $ $Date:: 2013-11-20 #$ 5ec117938769af2bf59ae0ed87ea9ccd
running on solaris Tue Apr 15 21:51:08 2014

This section contains SUT (System Under Test) info as seen by
```

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## Platform Notes (Continued)

```
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /usr/sbin/psrinfo
   SPARC64-X+ (chipid 0, clock 3400 MHz)
   SPARC64-X+ (chipid 1, clock 3400 MHz)
   SPARC64-X+ (chipid 2, clock 3400 MHz)
   SPARC64-X+ (chipid 3, clock 3400 MHz)
   4 chips
   128 threads
   3400 MHz

From kstat:        64 cores

From prtconf: 522240 Megabytes

/etc/release:
     Oracle Solaris 11.1 SPARC
uname -a:
   SunOS solaris 5.11 11.1 sun4v sparc sun4v

disk: df -h  $SPEC
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G    27G       442G      6%    /export

(End of data from sysinfo program)
```

## General Notes

```
File System:
 tmpfs: output_root was used to put run directories in /tmp/cpu2006
 zfs: operating system
```

## 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

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## Base Portability Flags (Continued)

483.xalancbmk: `-DSPEC_CPU_SOLARIS`

## Base Optimization Flags

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

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

## Base Other Flags

C benchmarks:
`-xjobs=8`

C++ benchmarks:
`-xjobs=8`

## 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:

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## Peak Optimization Flags (Continued)

400.perlbench: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=1 -xalias_level=std
-xrestrict -xprefetch=no%auto -xO4 -M map.256M.align
-lfast

401.bzip2: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xalias_level=strong
-xprefetch=no%auto -W2,-Ainline:rs=1000 -W2,-Ainline:cs=500
-W2,-Ainline:inc=60 -M map.256M.align -lfast

403.gcc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xO4 -xipo=2 -xprefetch=no%auto
-M map.256M.align

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 -W2,-Asac
-M map.256M.align

445.gobmk: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xO4 -xalias_level=std
-xrestrict -xprefetch=no%auto -Wc,-Qiselect-funcalign=64
-M map.256M.align

456.hmmer: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=1 -xalias_level=std
-xunroll=6 -xprefetch=latx:3.0
-Wc,-Qpeep-Ex:minmax_use_cmov=2 -Wc,-Qms_pipe+ulmscc=1
-M map.256M.align

458.sjeng: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xO4 -xipo=2 -xalias_level=std
-xprefetch=no%auto -Wc,-Qlu-en=1-t=4 -M map.256M.align

462.libquantum: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xalias_level=std -xunroll=8 -xprefetch=no%auto
-Wc,-Qlu-en=1-t=4 -M map.256M.align -lbsdmalloc

464.h264ref: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xalias_level=strong -xipo=1
-Wc,-Qiselect-funcalign=64 -M map.256M.align

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## Peak Optimization Flags (Continued)

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 -xprefetch_level=3 -W2,-Asac -library=stlport4 -M map.256M.align -lfast

473.astar: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xalias_level=compatible -xprefetch=no%auto -library=stlport4 -M map.256M.align -lfast

483.xalancbmk: -xprofile=collect:./feedback(pass 1) -xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2 -xalias_level=compatible -xdepend -xprefetch_level=3 -xprefetch=latx:0.4 -library=stlport4 -Wc,-Qpeep-Ex:minmax_use_cmov=2 -Wc,-Qms_pipe+ulmscc=1 -W2,-Asac -M map.256M.align -lfast

## Peak Other Flags

C benchmarks:
-xjobs=8

C++ benchmarks:
-xjobs=8

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.20140423.html
http://www.spec.org/cpu2006/flags/Fujitsu-Mseries.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.3-SPARC64X.20140423.xml
http://www.spec.org/cpu2006/flags/Fujitsu-Mseries.xml

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Fri Jul 25 00:01:20 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 9 May 2014.