# SPEC® CFP2006 Result



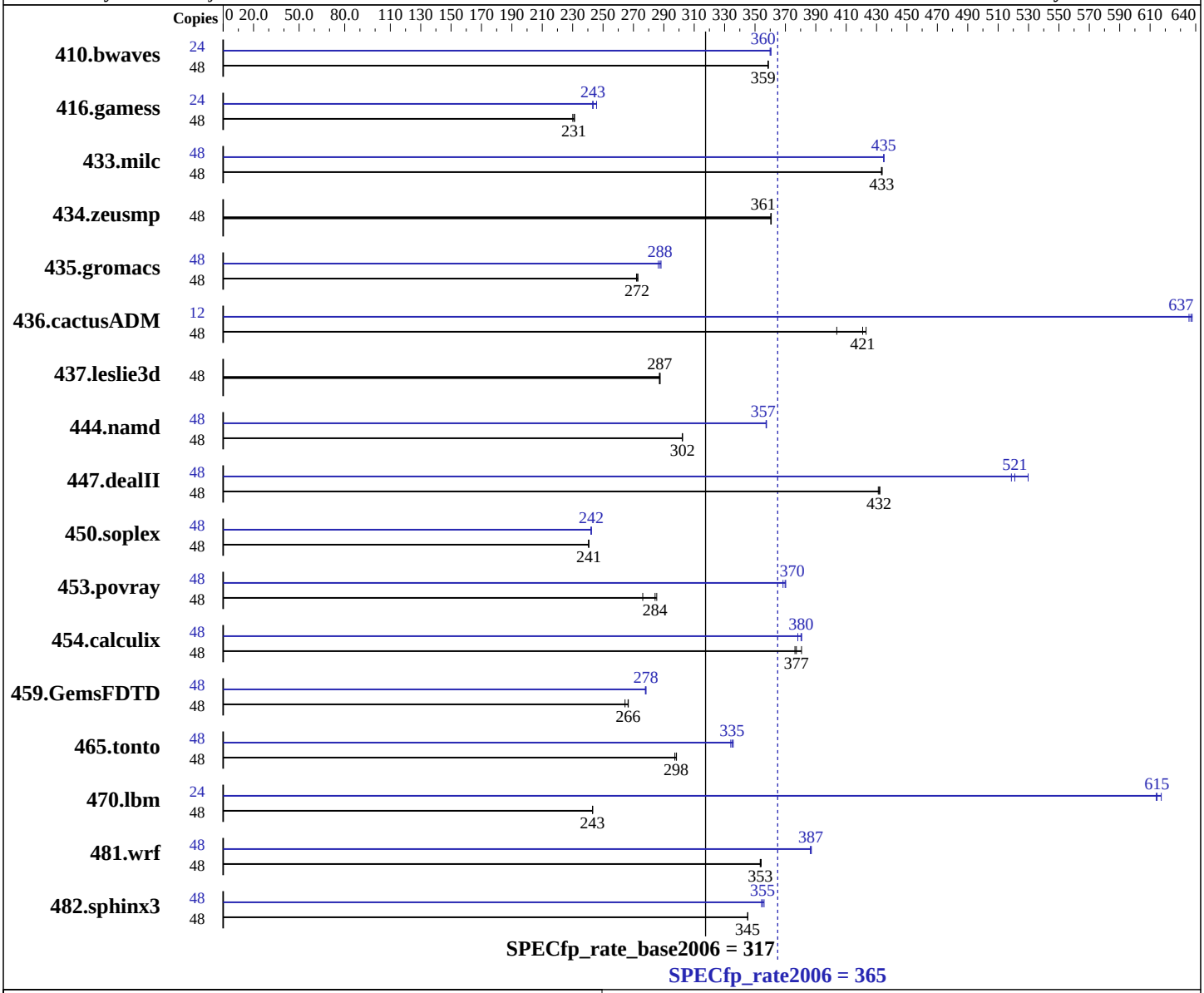
## Fujitsu
## Fujitsu SPARC M12-1

SPECfp®_rate2006 = 365

SPECfp_rate_base2006 = 317

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

**Test date:** Jun-2017
**Hardware Availability:** Jul-2017
**Software Availability:** Jul-2017




### Hardware

| | |
|---|---|
| CPU Name: | SPARC64 XII |
| CPU Characteristics: | |
| CPU MHz: | 3200 |
| FPU: | Integrated |
| CPU(s) enabled: | 6 cores, 1 chip, 6 cores/chip, 8 threads/core |
| CPU(s) orderable: | the number of orderable total cores is 1, 2, 3, .. 6 |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 512 KB I+D on chip per core |

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### Software

| | |
|---|---|
| Operating System: | Solaris 11.3 SRU 20.6 |
| Compiler: | C/C++/Fortran: Version 12.6 of Oracle Developer Studio |
| Auto Parallel: | No |
| File System: | tmpfs |
| System State: | Default |
| Base Pointers: | 32-bit |
| Peak Pointers: | 32-bit |
| Other Software: | None |

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L3 Cache: 16 MB I+D on chip per chip
Other Cache: None
Memory: 512 GB (16 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 600 GB 10K RPM SAS (for system disk)
Other Hardware: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 48 | **1819** | **359** | 1818 | 359 | 1819 | 359 | 24 | 906 | 360 | **905** | **360** | 905 | 360 |
| 416.gamess | 48 | **4071** | **231** | 4085 | 230 | 4063 | 231 | 24 | **1930** | **243** | 1912 | 246 | 1933 | 243 |
| 433.milc | 48 | **1017** | **433** | 1016 | 434 | 1017 | 433 | 48 | **1013** | **435** | 1014 | 435 | 1013 | 435 |
| 434.zeusmp | 48 | **1211** | **361** | 1212 | 360 | 1211 | 361 | 48 | **1211** | **361** | 1212 | 360 | 1211 | 361 |
| 435.gromacs | 48 | 1260 | 272 | 1255 | 273 | **1258** | **272** | 48 | **1192** | **288** | 1197 | 286 | 1189 | 288 |
| 436.cactusADM | 48 | **1363** | **421** | 1356 | 423 | 1420 | 404 | 12 | 225 | 638 | **225** | **637** | 226 | 636 |
| 437.leslie3d | 48 | 1569 | 288 | 1572 | 287 | **1571** | **287** | 48 | 1569 | 288 | 1572 | 287 | **1571** | **287** |
| 444.namd | 48 | 1273 | 302 | **1274** | **302** | 1274 | 302 | 48 | 1077 | 357 | **1077** | **357** | 1077 | 358 |
| 447.dealII | 48 | 1274 | 431 | 1271 | 432 | **1272** | **432** | 48 | **1054** | **521** | 1059 | 519 | 1037 | 530 |
| 450.soplex | 48 | 1663 | 241 | 1665 | 240 | **1664** | **241** | 48 | 1654 | 242 | 1652 | 242 | **1652** | **242** |
| 453.povray | 48 | 925 | 276 | 895 | 285 | **898** | **284** | 48 | 690 | 370 | 693 | 368 | **691** | **370** |
| 454.calculix | 48 | **1050** | **377** | 1052 | 376 | 1040 | 381 | 48 | 1047 | 378 | 1040 | 381 | **1041** | **380** |
| 459.GemsFDTD | 48 | 1926 | 264 | **1911** | **266** | 1910 | 267 | 48 | 1833 | 278 | **1831** | **278** | 1830 | 278 |
| 465.tonto | 48 | 1583 | 298 | 1589 | 297 | **1584** | **298** | 48 | **1410** | **335** | 1414 | 334 | 1407 | 336 |
| 470.lbm | 48 | 2713 | 243 | 2712 | 243 | **2713** | **243** | 24 | **537** | **615** | 534 | 617 | 537 | 614 |
| 481.wrf | 48 | 1514 | 354 | **1517** | **353** | 1517 | 353 | 48 | 1387 | 386 | **1386** | **387** | 1385 | 387 |
| 482.sphinx3 | 48 | 2709 | 345 | **2710** | **345** | 2711 | 345 | 48 | **2635** | **355** | 2640 | 354 | 2628 | 356 |

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:
```

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## Operating System Notes (Continued)

```
(/etc/system parameters)
   autoup = 86400
      Causes pages older than the listed number of seconds to be written by fsflush.
   doiflush = 0
     Controls whether file system metadata syncs will be executed during fsflush invocations.
   dopageflush = 0
      Controls whether memory is examined for modified pages during fsflush invocations.
   zfs:zfs_arc_max=1073741824
      Determines the maximum size of the ZFS Adaptive Replacement Cache (ARC).
```

## Platform Notes

```
Sysinfo program /export/cpu2006/config/sysinfo
Revision 6993 of 2015-11-06 (975e92c7086bc383773e22882bdda8dd)
running on H1S-201-D0 Fri Jun 23 11:18:34 2017

This section contains SUT (System Under Test) info as seen by
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-XII (chipid 0, clock 3200 MHz)
   1 chips
   48 threads
   3200 MHz

From kstat:        6 cores

From prtconf: 521728 Megabytes

/etc/release:
     Oracle Solaris 11.3 SPARC
uname -a:
   SunOS H1S-201-D0 5.11 11.3 sun4v sparc sun4v

SPEC is set to: /export/cpu2006

disk: df -h  /export/cpu2006
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G   6.8G       465G     2%    /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

SPEC CPU2006 benchmark:
```

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## General Notes (Continued)

```
Updated with runspec --update
```

## Base Compiler Invocation

C benchmarks:
```
cc
```

C++ benchmarks:
```
CC
```

Fortran benchmarks:
```
f90
```

Benchmarks using both Fortran and C:
```
cc f90
```

## Base Portability Flags

447.dealII: `-DBOOST_NO_COMPILER_CONFIG`

## Base Optimization Flags

C benchmarks:
```
-std=c99 -m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xalias_level=std -xprefetch_level=2
```

C++ benchmarks:
```
-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xalias_level=compatible
-library=stlport4
```

Fortran benchmarks:
```
-m32 -fast -xtarget=sparc64xii -xipo=2 -xpagesize=4M
-xsegment_align=4M -xthroughput -xvector=no%lib
```

Benchmarks using both Fortran and C:
```
-std=c99 -m32 -fast(cc) -fast(f95) -xtarget=sparc64xii -xipo=2
-xpagesize=4M -xsegment_align=4M -xthroughput -xalias_level=std
-xprefetch_level=2 -xvector=no%lib
```

## Base Other Flags

C benchmarks:
```
-xjobs=8
```

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## Base Other Flags (Continued)

C++ benchmarks:
`-xjobs=8`

Fortran benchmarks:
`-xjobs=8`

Benchmarks using both Fortran and C:
`-xjobs=8`

## Peak Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

## Peak Portability Flags

447.dealII: `-DBOOST_NO_COMPILER_CONFIG`

## Peak Optimization Flags

C benchmarks:

433.milc: `-std=c99 -m32 -fast -xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M -xthroughput -xipo=2 -xalias_level=std -fsimple=1 -W2,-Ainline:rs=400 -Qoption cg -Qms_pipe+alldoall -W2,-Asac -xthroughput=no`

470.lbm: `-std=c99 -m32 -fast -xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M -xthroughput -xipo=2 -xalias_level=std -xprefetch_level=2 -xpagesize=256M -xsegment_align=256M -xthroughput=no -lbsdmalloc`

482.sphinx3: `-std=c99 -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-m32 -fast -xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M -xthroughput -xO4 -xipo=2 -xprefetch=latx:0.6`

Continued on next page

## Peak Optimization Flags (Continued)

482.sphinx3 (continued):
-xinline_param=level:1 -xprefetch=no%auto -lbsdmalloc

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xalias_level=compatible -xprefetch=no%auto
-Wc,-Qms_pipe+alldoall

447.dealII: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xtarget=sparc64xplus -xipo=1
-xalias_level=compatible -xrestrict -xprefetch=no%auto
-Qoption cg -Qiselect-funcalign=64 -xthroughput=yes
-library=stdcxx4 -template=extdef

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xipo=2 -Wc,-Qlp=0

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xO4 -xtarget=sparc64xplus -xipo=2
-xalias_level=compatible -xlinkopt=2 -xprefetch=no%auto
-xunroll=7 -Qoption iropt -Ainline:rs=1024
-Qoption iropt -Ainline:cs=1024
-Qoption iropt -Ainline:inc=900 -lfast

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xipo=2 -xunroll=4 -xvector=%none
-xprefetch=no%auto

416.gamess: -m32 -fast -xtarget=sparc64xii -xpagesize=4M
-xsegment_align=4M -xthroughput -xvector=no%simd
-xprefetch=latx:0.1

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

Continued on next page

## Peak Optimization Flags (Continued)

459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xunroll=9 -xprefetch=latx:0.2
-xprefetch_level=3 -Qoption cg -Qlp-av=128
-Qoption iropt -Rujam

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xipo=1 -xO4 -xunroll=3 -xprefetch=no%auto
-xthroughput=no -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast(cc) -fast(f95)
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xalias_level=strong -Wc,-Qicache-chbab=1
-Wc,-Qiselect-rsqrta=2 -Wc,-Qiselect-rsqrta1x=2
-qoption cg -Qicache-chbab=1 -qoption cg -Qiselect-rsqrta=2
-qoption cg -Qiselect-rsqrta1x=2

436.cactusADM: -std=c99 -m32 -fast(cc) -fast(f95) -xtarget=sparc64xii
-xpagesize=4M -xsegment_align=4M -xthroughput
-xtarget=sparc64xplus -xunroll=10 -xprefetch=latx:2.0
-xpagesize=256M -xsegment_align=256M -xthroughput=no
-lbsdmalloc

454.calculix: -std=c99 -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m32 -fast(cc) -fast(f95)
-xtarget=sparc64xii -xpagesize=4M -xsegment_align=4M
-xthroughput -xtarget=sparc64xplus -xipo=1
-Wc,-Qiselect-funcalign=64 -xinline_param=level:3
-Qoption cg -Qiselect-funcalign=64

481.wrf: -std=c99 -m32 -fast(cc) -fast(f95) -xtarget=sparc64xii
-xpagesize=4M -xsegment_align=4M -xthroughput -xunroll=9
-xprefetch=latx:0.4 -Qoption iropt -Rujam -xO4
-xthroughput=no

## Peak Other Flags

C benchmarks:
-xjobs=8

C++ benchmarks:
-xjobs=8

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## Peak Other Flags (Continued)

Fortran benchmarks:
`-xjobs=8`

Benchmarks using both Fortran and C:
`-xjobs=8`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Oracle-Developer-Studio12.6.20170725.html`
`http://www.spec.org/cpu2006/flags/Fujitsu-M12-1.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Oracle-Developer-Studio12.6.20170725.xml`
`http://www.spec.org/cpu2006/flags/Fujitsu-M12-1.xml`



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

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