# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

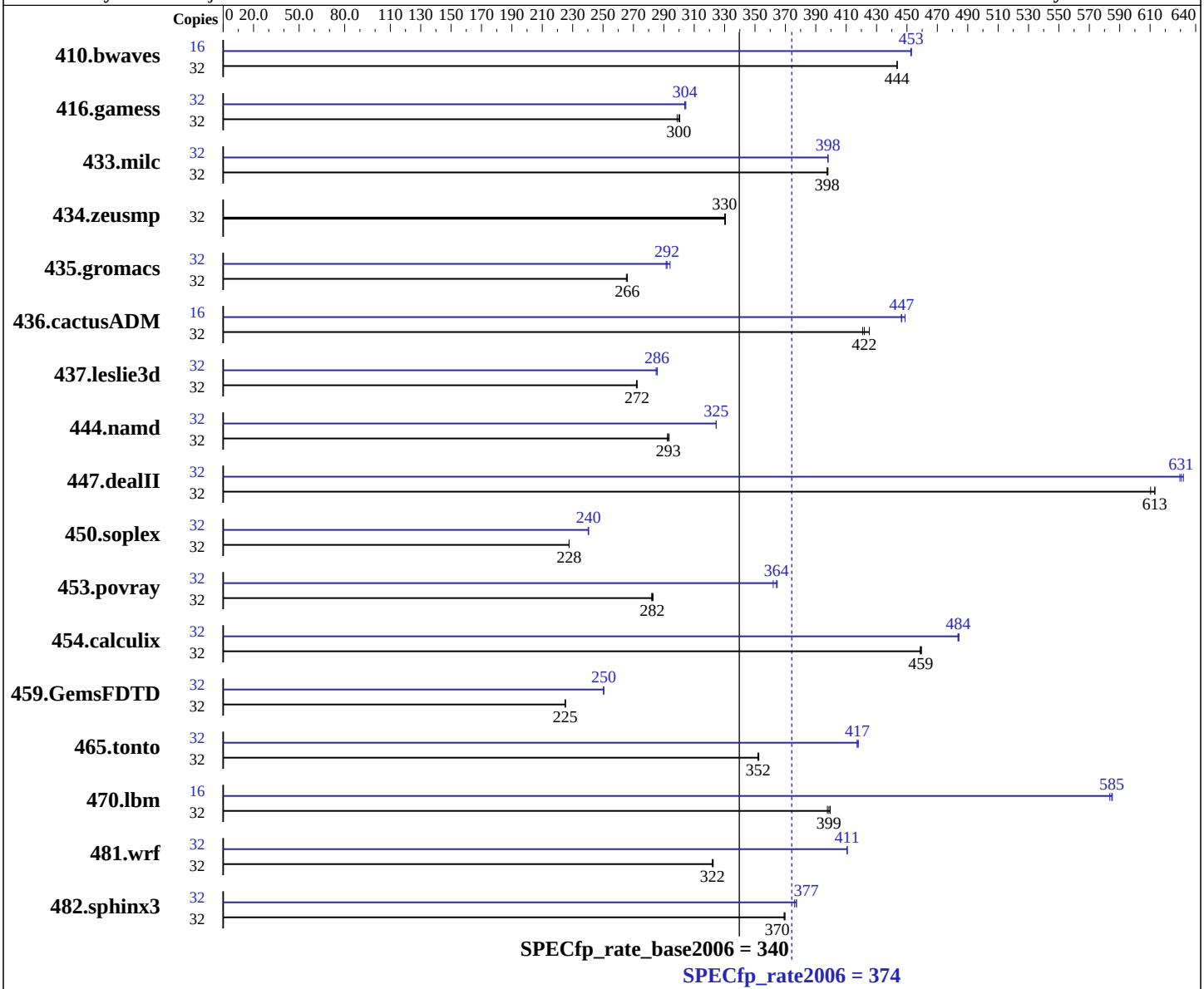
## Fujitsu
## Fujitsu SPARC M10-1

SPECfp®_rate2006 = 374

SPECfp_rate_base2006 = 340

**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: | 2800 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 1 chip, 16 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 22 MB I+D on chip per chip |

Continued on next page

## Software

| | |
|---|---|
| Operating System: | Solaris 11.1.6.4.0 |
| Compiler: | C/C++/Fortran: 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 |

# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Fujitsu
## Fujitsu SPARC M10-1

SPECfp_rate2006 = 374

SPECfp_rate_base2006 = 340

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

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

L3 Cache: None
Other Cache: None
Memory: 128 GB (8 x 16 GB 2Rx4 PC3L-12800R-11, ECC, running at 1600 MHz)
Disk Subsystem: 1 x 600 GB SAS, 10025 RPM Toshiba MBF2600RC
Other Hardware: None

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 32 | **981** | **444** | 981 | 443 | 980 | 444 | 16 | 480 | 453 | 481 | 452 | **480** | **453** |
| 416.gamess | 32 | 2085 | 300 | **2089** | **300** | 2097 | 299 | 32 | **2061** | **304** | 2058 | 304 | 2063 | 304 |
| 433.milc | 32 | 738 | 398 | 739 | 398 | **739** | **398** | 32 | 738 | 398 | 738 | 398 | **738** | **398** |
| 434.zeusmp | 32 | **882** | **330** | 881 | 330 | 882 | 330 | 32 | **882** | **330** | 881 | 330 | 882 | 330 |
| 435.gromacs | 32 | **859** | **266** | 861 | 265 | 859 | 266 | 32 | **782** | **292** | 777 | 294 | 784 | 292 |
| 436.cactusADM | 32 | **906** | **422** | 909 | 421 | 899 | 425 | 16 | 426 | 449 | **428** | **447** | 428 | 446 |
| 437.leslie3d | 32 | 1106 | 272 | **1105** | **272** | 1104 | 272 | 32 | 1053 | 286 | **1053** | **286** | 1056 | 285 |
| 444.namd | 32 | 874 | 293 | **876** | **293** | 878 | 292 | 32 | **791** | **325** | 791 | 324 | 791 | 325 |
| 447.dealII | 32 | 600 | 610 | 597 | 613 | **597** | **613** | 32 | 579 | 632 | 581 | 630 | **580** | **631** |
| 450.soplex | 32 | 1172 | 228 | **1172** | **228** | 1173 | 228 | 32 | 1110 | 240 | 1111 | 240 | **1110** | **240** |
| 453.povray | 32 | 602 | 283 | 604 | 282 | **603** | **282** | 32 | **468** | **364** | 470 | 362 | 467 | 365 |
| 454.calculix | 32 | 576 | 459 | 574 | 460 | **575** | **459** | 32 | 545 | 484 | **546** | **484** | 546 | 484 |
| 459.GemsFDTD | 32 | 1508 | 225 | 1508 | 225 | **1508** | **225** | 32 | **1356** | **250** | 1355 | 250 | 1357 | 250 |
| 465.tonto | 32 | **894** | **352** | 893 | 353 | 895 | 352 | 32 | 755 | 417 | **755** | **417** | 753 | 418 |
| 470.lbm | 32 | **1103** | **399** | 1101 | 400 | 1106 | 398 | 16 | **376** | **585** | 377 | 584 | 376 | 585 |
| 481.wrf | 32 | 1110 | 322 | 1108 | 323 | **1110** | **322** | 32 | **870** | **411** | 870 | 411 | 871 | 411 |
| 482.sphinx3 | 32 | 1690 | 369 | **1687** | **370** | 1687 | 370 | 32 | 1653 | 377 | **1654** | **377** | 1659 | 376 |

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.
```

## Platform Notes

```
Sysinfo program /export/cpu2006-v1.2/config/sysinfo.rev6818
$Rev: 6818 $ $Date:: 2012-07-17 #$ e86d102572650a6e4d596a3cee98f191
running on 1S-027-D0 Tue Apr 23 20:25:13 2013

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-X (chipid 0, clock 2800 MHz)
   1 chips
   32 threads
   2800 MHz

From kstat:       16 cores

From prtconf: 129280 Megabytes

/etc/release:
     Oracle Solaris 11.1 SPARC
uname -a:
   SunOS 1S-027-D0 5.11 11.1 sun4v sparc sun4v

disk: df -h  $SPEC
Filesystem             Size   Used  Available Capacity  Mounted on
rpool/export           547G   6.4G       467G     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

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

## Base Optimization Flags

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

C++ benchmarks:
```
-fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xalias_level=compatible -xunroll=7 -xprefetch_level=2
-library=no%Cstd,no%stlport4 -I/export/cpu2006-v1.2/stdcxx-4.2.1/include
-I/export/cpu2006-v1.2/stdcxx-4.2.1/build/include
-L/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib
-R/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib -lstd8d
-M /usr/lib/ld/map.bssalign
```

Fortran benchmarks:
```
-fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xvector=%none -M /usr/lib/ld/map.bssalign
```

Benchmarks using both Fortran and C:
```
-fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused -xpagesize=4M
-xipo=2 -xalias_level=std -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access -xvector=%none
-M /usr/lib/ld/map.bssalign
```

## Base Other Flags

C benchmarks:
```
-xjobs=16
```

C++ benchmarks:
```
-xjobs=16
```

Fortran benchmarks:
```
-xjobs=16
```

Benchmarks using both Fortran and C:
```
-xjobs=16
```

## Peak Compiler Invocation

C benchmarks:
```
cc
```

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

Continued on next page

## Peak Compiler Invocation (Continued)

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

## Peak Optimization Flags

C benchmarks:

433.milc: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=2
-xalias_level=std -fsimple=1
-xprefetch_auto_type=indirect_array_access
-xprefetch=latx:0.8 -W2,-Ainline:rs=400
-Qoption cg -Qms_pipe+alldoall -M /usr/lib/ld/map.bssalign

470.lbm: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xalias_level=std
-xprefetch_level=2 -xprefetch_auto_type=indirect_array_access
-xpagesize=256M -lbsdmalloc

482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=2
-xunroll=4 -xprefetch=no%auto -lbsdmalloc

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xalias_level=simple
-xprefetch=no%auto -Qoption cg -Qms_pipe+alldoall
-xcache=32/128/4/1:704/128/22/1 -library=stlport4

447.dealII: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii -xipo=1
-xalias_level=compatible -xrestrict -xprefetch=no%auto
-library=no%Cstd,no%stlport4
-I/export/cpu2006-v1.2/stdcxx-4.2.1/include
-I/export/cpu2006-v1.2/stdcxx-4.2.1/build/include
-L/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib
-R/export/cpu2006-v1.2/stdcxx-4.2.1/build/lib -lstd8d

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xtarget=sparc64vii
-library=stlport4 -xO3 -xunroll=7 -xrestrict

Continued on next page

## Peak Optimization Flags (Continued)

450.soplex (continued):
-xprefetch_auto_type=indirect_array_access
-Qoption cg -Qlp-ol=1 -Qoption cg -Qlp-it=3
-Qoption cg -Qlp-imb=1 -Qoption iropt -Apf:pdl=3
-xprefetch=latx:0.2 -lbsdmalloc

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xalias_level=compatible
-xunroll=4 -xprefetch=no%auto -xlinkopt=2
-Qoption iropt -Ainline:rs=1024
-Qoption iropt -Ainline:cs=1024
-Qoption iropt -Ainline:inc=900
-xcache=32/128/4/1:704/128/22/1 -library=stlport4 -lfast

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=2 -xunroll=4 -xvector=%none
-xprefetch=no%auto

416.gamess: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M
-xtarget=sparc64vii -xprefetch=no%auto -xunroll=6
-xcache=32/128/4/1:704/128/22/1 -M /usr/lib/ld/map.bssalign

434.zeusmp: basepeak = yes

437.leslie3d: -fast -xtarget=sparc64x -fma=fused -xpagesize=4M
-xtarget=sparc64vii -xvector=%none -xprefetch=latx:0.8
-Qoption cg -Qms_pipe+alldoall -W2,-Rloop_dist
-M /usr/lib/ld/map.bssalign

459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xunroll=9 -xprefetch=latx:0.2
-xprefetch_auto_type=indirect_array_access -xprefetch_level=3
-Qoption cg -Qlp-av=128 -Qoption iropt -Rujam

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=sparc64x
-fma=fused -xpagesize=4M -xipo=1 -xO4 -xunroll=3
-xprefetch=no%auto -lbsdmalloc

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xtarget=sparc64x -fma=fused -xpagesize=4M
-xalias_level=strong -xprefetch=latx:0.4 -W2,-Rloop_dist
-xtarget=sparc64vii

Continued on next page

## Peak Optimization Flags (Continued)

435.gromacs (continued):
-xprefetch_auto_type=indirect_array_access

436.cactusADM: -fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused
-xpagesize=4M -xunroll=10 -xprefetch=latx:2.0
-M /export/cpu2006-v1.2/mapfiles/map.256M.align -lbsdmalloc
-M /usr/lib/ld/map.bssalign

454.calculix: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xtarget=sparc64x -fma=fused -xpagesize=4M -xipo=1
-xalias_level=strong -xprefetch=latx:2.0 -stackvar

481.wrf: -fast(cc) -fast(f90) -xtarget=sparc64x -fma=fused
-xpagesize=4M -xtarget=sparc64vii -xunroll=9
-xprefetch=latx:1.3 -Qoption iropt -Rujam -xO4
-M /usr/lib/ld/map.bssalign

## Peak Other Flags

C benchmarks:
-xjobs=16

C++ benchmarks:
-xjobs=16

Fortran benchmarks:
-xjobs=16

Benchmarks using both Fortran and C:
-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

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.


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 Thu Jul 24 15:26:03 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 22 May 2013.