# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

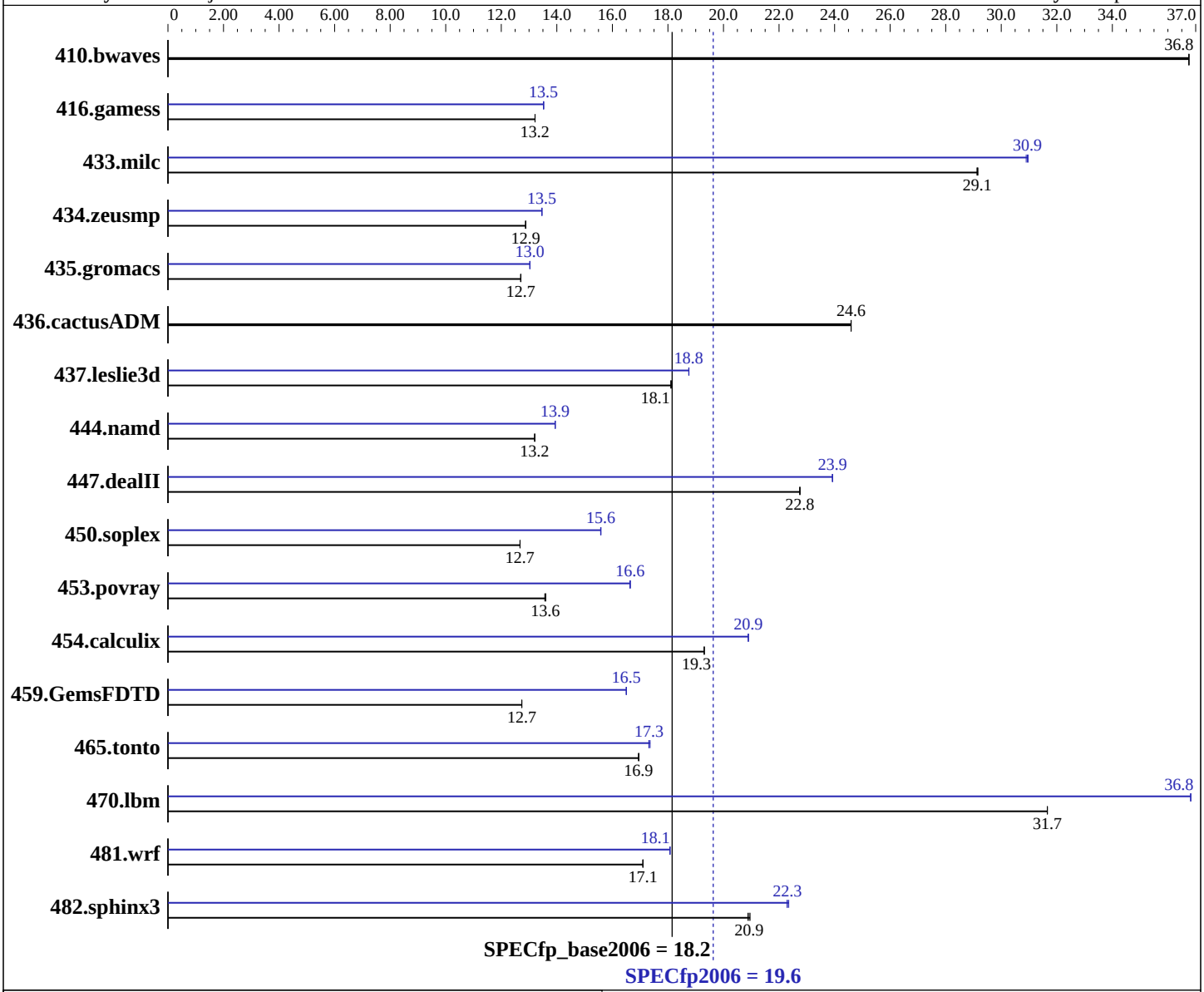
## Fujitsu
## SPARC Enterprise M8000

SPECfp®2006 = 19.6

SPECfp_base2006 = 18.2

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

**Test date:** Oct-2010
**Hardware Availability:** Dec-2010
**Software Availability:** Sep-2010




### Hardware

| | |
|---|---|
| CPU Name: | SPARC64 VII+ |
| CPU Characteristics: | |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 64 cores, 16 chips, 4 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1 to 4 CMUs; each CMU contains 2 or 4 CPU chips |
| Primary Cache: | 64 KB I + 64 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip |

Continued on next page

### Software

| | |
|---|---|
| Operating System: | Oracle Solaris 10 9/10 |
| Compiler: | Oracle Solaris Studio 12.2 |
| Auto Parallel: | No |
| File System: | zfs |
| 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
## SPARC Enterprise M8000

SPECfp2006 = 19.6

SPECfp_base2006 = 18.2

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

**Test date:** Oct-2010
**Hardware Availability:** Dec-2010
**Software Availability:** Sep-2010

L3 Cache: None
Other Cache: None
Memory: 512 GB (128 x 4 GB, 8-way interleaved)
Disk Subsystem: 4 x 300 GB 10,000 RPM SAS
Other Hardware: None

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 370 | 36.8 | 370 | 36.8 | **370** | **36.8** | 370 | 36.8 | 370 | 36.8 | **370** | **36.8** |
| 416.gamess | **1482** | **13.2** | 1481 | 13.2 | 1482 | 13.2 | 1449 | 13.5 | **1448** | **13.5** | 1447 | 13.5 |
| 433.milc | 315 | 29.2 | **315** | **29.1** | 315 | 29.1 | 297 | 30.9 | 296 | 31.0 | **297** | **30.9** |
| 434.zeusmp | **707** | **12.9** | 707 | 12.9 | 707 | 12.9 | **676** | **13.5** | 676 | 13.5 | 676 | 13.5 |
| 435.gromacs | 562 | 12.7 | 562 | 12.7 | **562** | **12.7** | 548 | 13.0 | 548 | 13.0 | **548** | **13.0** |
| 436.cactusADM | 486 | 24.6 | **486** | **24.6** | 486 | 24.6 | 486 | 24.6 | **486** | **24.6** | 486 | 24.6 |
| 437.leslie3d | 519 | 18.1 | **519** | **18.1** | 519 | 18.1 | 501 | 18.8 | 501 | 18.8 | **501** | **18.8** |
| 444.namd | 607 | 13.2 | **607** | **13.2** | 607 | 13.2 | **575** | **13.9** | 575 | 13.9 | 575 | 13.9 |
| 447.dealII | **503** | **22.8** | 503 | 22.7 | 503 | 22.8 | **478** | **23.9** | 478 | 23.9 | 478 | 23.9 |
| 450.soplex | 658 | 12.7 | 658 | 12.7 | **658** | **12.7** | 535 | 15.6 | **535** | **15.6** | 535 | 15.6 |
| 453.povray | 392 | 13.6 | 391 | 13.6 | **391** | **13.6** | **320** | **16.6** | 320 | 16.6 | 320 | 16.6 |
| 454.calculix | 427 | 19.3 | **427** | **19.3** | 427 | 19.3 | 395 | 20.9 | 395 | 20.9 | **395** | **20.9** |
| 459.GemsFDTD | **833** | **12.7** | 833 | 12.7 | 833 | 12.7 | 643 | 16.5 | **643** | **16.5** | 643 | 16.5 |
| 465.tonto | 580 | 17.0 | **581** | **16.9** | 581 | 16.9 | 568 | 17.3 | **568** | **17.3** | 567 | 17.4 |
| 470.lbm | **434** | **31.7** | 434 | 31.7 | 434 | 31.7 | 373 | 36.8 | 373 | 36.8 | **373** | **36.8** |
| 481.wrf | 653 | 17.1 | 653 | 17.1 | **653** | **17.1** | 618 | 18.1 | **618** | **18.1** | 618 | 18.1 |
| 482.sphinx3 | 933 | 20.9 | 930 | 21.0 | **931** | **20.9** | 874 | 22.3 | **874** | **22.3** | 872 | 22.3 |

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

## Compiler Invocation Notes

```
 Oracle Solaris Studio 12.2 is distributed with mandatory OS patches
  118683-05  119963-20  120753-08
 Oracle Solaris Studio 12.2 and patches are available at
  http://oracle.com/goto/solarisstudio

The Apache C++ Standard Library V4.2.1 was installed from
   http://stdcxx.apache.org/download.html using:
     alias gmake=specmake
     gmake BUILDTYPE=8d CONFIG=sunpro.config
```

## Submit Notes

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

## Operating System Notes

```
ulimit -s 131072 was used to allow the stack to grow
up to 131072 KB (aka 128 MB).  Note that saying "131072"
is preferable to "unlimited", because there is a tradeoff
between space for the stack vs. space for the heap.


System Tunables (/etc/system parameters):

autoup=600
    Causes pages older than the listed number of seconds to
    be written by fsflush.
zfs:zfs_arc_max = 0x10000000
    Control the amount of memory used by ZFS for caching
lpg_alloc_prefer=1
    Prefer local pages, even if not easily available

Other System Settings:

The webconsole service was turned off using
    svcadm disable webconsole
```

## Platform Notes

```
Memory is 8-way interleaved by filling each CMU's slots with the same
capacity DIMMs.

This result is measured on a SPARC Enterprise M8000 server from
Fujitsu.  The SPARC Enterprise M8000 server from Oracle and from
Fujitsu are electrically equivalent.
```

## General Notes

```
447.dealII (peak): "apache_stdcxx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdcxx_4_2_1" src.alt was used.
```

## 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 -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -xlinkopt
-xvector -xalias_level=std -xprefetch_auto_type=indirect_array_access

C++ benchmarks:
-xdepend -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2
-xlinkopt -xvector -xalias_level=compatible -library=no%Cstd
-I/mnt/spec//stdcxx-4.2.1/include
-I/mnt/spec//stdcxx-4.2.1/build/include
-L/mnt/spec//stdcxx-4.2.1/build/lib -R/mnt/spec//stdcxx-4.2.1/build/lib
-lstd8d

Fortran benchmarks:
-fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=2 -xlinkopt
-xvector

Benchmarks using both Fortran and C:
-fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M
-xprefetch_level=2 -xlinkopt -xvector -xalias_level=std
-xprefetch_auto_type=indirect_array_access

## Base Other Flags

C benchmarks:
-xjobs=16 -V -#

C++ benchmarks:
-xjobs=16 -verbose=diags,version

Fortran benchmarks:
-xjobs=16 -V -v

Continued on next page

## Base Other Flags (Continued)

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

## Peak Compiler Invocation

C benchmarks:
`cc`

C++ benchmarks:
`CC`

Fortran benchmarks:
`f90`

Benchmarks using both Fortran and C:
`cc f90`

## Peak Optimization Flags

C benchmarks:

433.milc: `-fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=2 -fsimple=1 -xprefetch_auto_type=indirect_array_access -W2,-Ainline:rs=400 -xalias_level=std -xprefetch=latx:2.0`

470.lbm: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xipo=2 -xprefetch_level=2 -xprefetch=latx:2.0`

482.sphinx3: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -fma=fused -xipo=2 -xO4 -xcache=generic -xprefetch_level=2 -xprefetch=latx:0.5`

C++ benchmarks:

444.namd: `-xdepend -fast -xpagesize=4M -xalias_level=compatible -library=stlport4 -fma=fused -xalias_level=any -xchip=generic`

447.dealII: `-xdepend -xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xpagesize=4M -xalias_level=compatible -library=no%Cstd -I/mnt/spec//stdcxx-4.2.1/include -I/mnt/spec//stdcxx-4.2.1/build/include -fma=fused -xipo=2 -xprefetch_level=2 -xrestrict -xO4 -xprefetch=latx:0.5 -L/mnt/spec//stdcxx-4.2.1/build/lib`

Continued on next page

## Peak Optimization Flags (Continued)

447.dealII (continued):
-R/mnt/spec//stdcxx-4.2.1/build/lib -lstd8d

450.soplex: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -library=stlport4 -xipo=2
-xprefetch_level=2 -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
-xalias_level=simple -xrestrict

453.povray: -xdepend -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xalias_level=compatible -library=stlport4 -fma=fused
-xipo=2 -xrestrict -xprefetch=no%auto

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2 -xO4 -xprefetch_level=2

434.zeusmp: -fast -xpagesize=4M -fma=fused -xipo=2 -xO4
-xprefetch=latx:2.0 -lmopt

437.leslie3d: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2 -xprefetch=latx:4 -xprefetch_level=2

459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-fma=fused -xipo=2 -xprefetch_level=2 -xprefetch=latx:2.0
-xcache=generic

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xarch=generic -xprefetch=latx:1.0 -lfast

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xpagesize=4M -xipo=2 -xarch=generic -xchip=generic
-fsimple=0 -xunroll=5 -xprefetch=latx:0.5
-xprefetch_level=3 -xlinkopt -xvector

436.cactusADM: basepeak = yes

Continued on next page

## Peak Optimization Flags (Continued)

454.calculix: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xpagesize=4M -fma=fused -xipo=2 -xprefetch_level=3
-xprefetch=latx:3.0 -xalias_level=std

481.wrf: -fast(cc) -fast(f90) -xpagesize=4M -fma=fused -xipo=2
-xprefetch_level=3 -xunroll=8 -xcache=generic

## Peak Other Flags

C benchmarks:
-xjobs=16 -V -#

C++ benchmarks:
-xjobs=16 -verbose=diags,version

Fortran benchmarks:
-xjobs=16 -V -v

Benchmarks using both Fortran and C:
-xjobs=16 -V -# -v

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio12.2-SPARC.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 v1.1.
Report generated on Wed Jul 23 13:42:14 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 21 December 2010.