



SPEC[®] CFP2006 Result

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Sun Microsystems

SPECfp[®]_rate2006 = 25.6

Sun SPARC Enterprise M3000

SPECfp_rate_base2006 = 24.4

CPU2006 license: 6

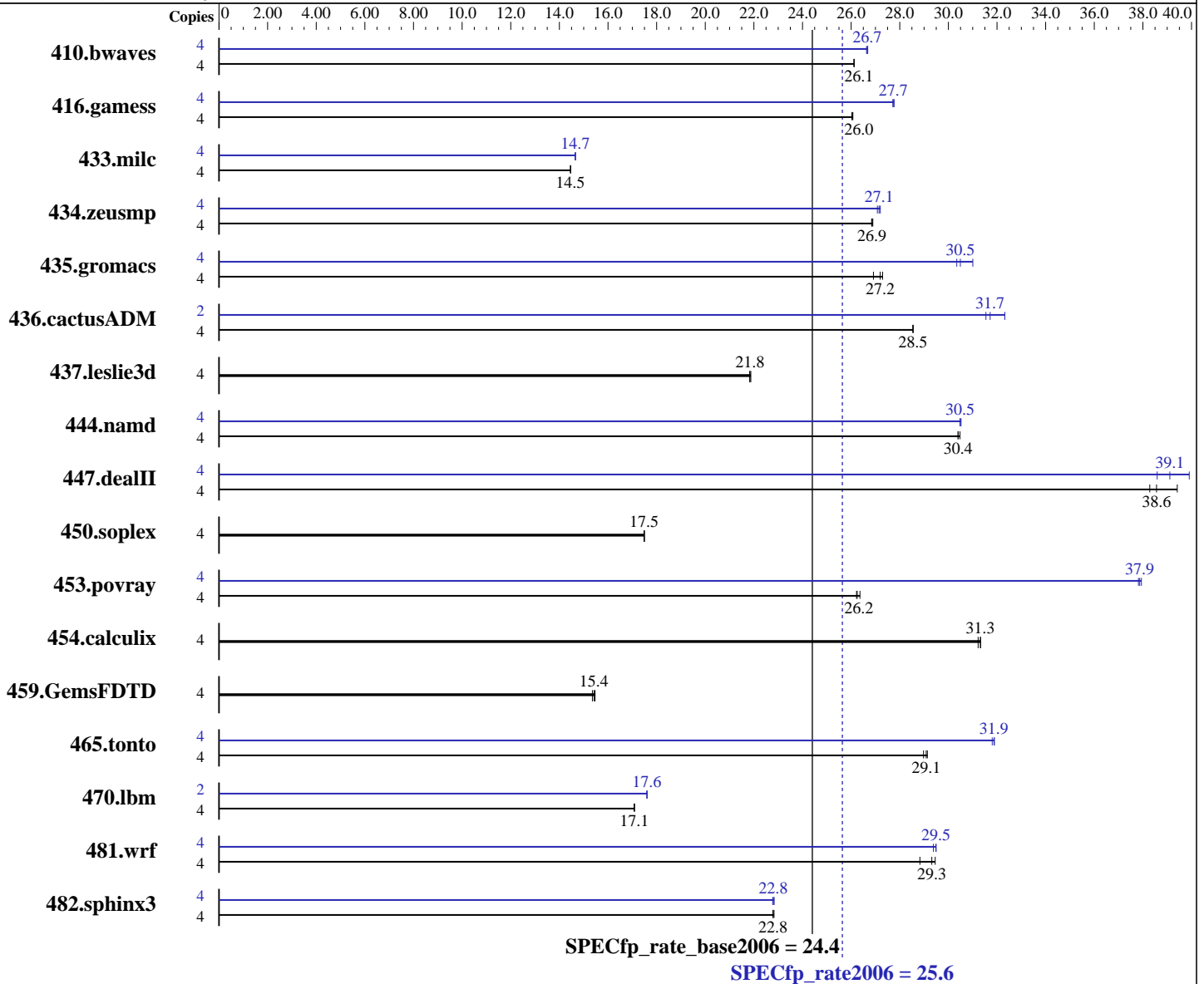
Test sponsor: Sun Microsystems

Tested by: Fujitsu Limited

Test date: Sep-2008

Hardware Availability: Jan-2009

Software Availability: Oct-2008



Hardware

CPU Name: SPARC64 VII
 CPU Characteristics: 2 Cores
 CPU MHz: 2520
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core
 CPU(s) orderable: 1 chip
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 5 MB I+D on chip per chip

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Software

Operating System: Solaris 10 10/08
 Compiler: Sun Studio 12 with patches
 124861-08, 124863-06, 124867-07, 127143-03,
 127000-05, 127001-01
 (see patch information below)
 Auto Parallel: No
 File System: ufs
 System State: Default
 Base Pointers: 32-bit

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Hardware (Continued)

L3 Cache: None
Other Cache: None
Memory: 16 GB (2 GB x 8), 2-way interleaved
Disk Subsystem: 73 GB 10,000 RPM Fujitsu MAY2073RC SAS
Other Hardware: None

Software (Continued)

Peak Pointers: 32-bit
Other Software: None

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | <u>2081</u> | <u>26.1</u> | 2081 | 26.1 | 2081 | 26.1 | 4 | 2041 | 26.6 | 2037 | 26.7 | <u>2039</u> | <u>26.7</u> |
| 416.gamess | 4 | <u>3008</u> | <u>26.0</u> | 3008 | 26.0 | 3004 | 26.1 | 4 | <u>2824</u> | <u>27.7</u> | 2821 | 27.8 | 2826 | 27.7 |
| 433.milc | 4 | 2540 | 14.5 | 2539 | 14.5 | <u>2540</u> | <u>14.5</u> | 4 | <u>2506</u> | <u>14.7</u> | 2504 | 14.7 | 2506 | 14.7 |
| 434.zeusmp | 4 | 1354 | 26.9 | <u>1355</u> | <u>26.9</u> | 1356 | 26.8 | 4 | 1338 | 27.2 | <u>1341</u> | <u>27.1</u> | 1344 | 27.1 |
| 435.gromacs | 4 | 1061 | 26.9 | <u>1050</u> | <u>27.2</u> | 1046 | 27.3 | 4 | 921 | 31.0 | 941 | 30.3 | <u>937</u> | <u>30.5</u> |
| 436.cactusADM | 4 | 1674 | 28.5 | <u>1675</u> | <u>28.5</u> | 1675 | 28.5 | 2 | 758 | 31.5 | <u>754</u> | <u>31.7</u> | 739 | 32.3 |
| 437.leslie3d | 4 | <u>1722</u> | <u>21.8</u> | 1719 | 21.9 | 1722 | 21.8 | 4 | <u>1722</u> | <u>21.8</u> | 1719 | 21.9 | 1722 | 21.8 |
| 444.namd | 4 | 1053 | 30.5 | <u>1055</u> | <u>30.4</u> | 1055 | 30.4 | 4 | 1051 | 30.5 | 1052 | 30.5 | <u>1052</u> | <u>30.5</u> |
| 447.dealII | 4 | 1195 | 38.3 | 1161 | 39.4 | <u>1187</u> | <u>38.6</u> | 4 | 1147 | 39.9 | 1186 | 38.6 | <u>1170</u> | <u>39.1</u> |
| 450.soplex | 4 | <u>1908</u> | <u>17.5</u> | 1908 | 17.5 | 1907 | 17.5 | 4 | <u>1908</u> | <u>17.5</u> | 1908 | 17.5 | 1907 | 17.5 |
| 453.povray | 4 | 812 | 26.2 | 807 | 26.4 | <u>811</u> | <u>26.2</u> | 4 | 563 | 37.8 | <u>562</u> | <u>37.9</u> | 561 | 37.9 |
| 454.calculix | 4 | 1054 | 31.3 | <u>1054</u> | <u>31.3</u> | 1057 | 31.2 | 4 | 1054 | 31.3 | <u>1054</u> | <u>31.3</u> | 1057 | 31.2 |
| 459.GemsFDTD | 4 | 2763 | 15.4 | 2744 | 15.5 | <u>2751</u> | <u>15.4</u> | 4 | 2763 | 15.4 | 2744 | 15.5 | <u>2751</u> | <u>15.4</u> |
| 465.tonto | 4 | <u>1353</u> | <u>29.1</u> | 1351 | 29.1 | 1358 | 29.0 | 4 | <u>1235</u> | <u>31.9</u> | 1238 | 31.8 | 1234 | 31.9 |
| 470.lbm | 4 | 3218 | 17.1 | 3216 | 17.1 | <u>3217</u> | <u>17.1</u> | 2 | 1561 | 17.6 | 1561 | 17.6 | <u>1561</u> | <u>17.6</u> |
| 481.wrf | 4 | 1550 | 28.8 | 1517 | 29.5 | <u>1524</u> | <u>29.3</u> | 4 | 1521 | 29.4 | <u>1515</u> | <u>29.5</u> | 1515 | 29.5 |
| 482.sphinx3 | 4 | <u>3421</u> | <u>22.8</u> | 3415 | 22.8 | 3421 | 22.8 | 4 | 3423 | 22.8 | <u>3419</u> | <u>22.8</u> | 3414 | 22.8 |

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

Compiler Invocation Notes

Sun Studio compiler patches are available at
http://developers.sun.com/sunstudio/downloads/patches/ss12_patches.jsp

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.)



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Operating System Notes

Shell Environments:
Default setting.

System Tunables:
(/etc/system parameters)

```
tune_t_fsflushr=10
Controls how many seconds elapse between runs of the
page flush daemon, fsflush.
autoup=600
Causes pages older than the listed number of seconds to
be written by fsflush.
bufhwm=3000
Memory byte limit for caching I/O buffers.
segmap_percent=1
Set maximum percent memory for file system cache.
```

Other System Settings:

The webconsole service was turned off using svcadm disable webconsole.

Platform Notes

Memory is 2-way interleaved by filling all slots with the same capacity DIMMs.

This result is measured on a Fujitsu SPARC Enterprise M3000 Server. Note that the Fujitsu SPARC Enterprise M3000 and Sun SPARC Enterprise M3000 are electrically equivalent.

Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90



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Base Optimization Flags

C benchmarks:

```
-fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=1  
-xalias_level=std -xprefetch_auto_type=indirect_array_access
```

C++ benchmarks:

```
-library=stlport4 -fast -fma=fused -xipo=2 -xpagesize=4M  
-xprefetch_level=1 -xalias_level=compatible
```

Fortran benchmarks:

```
-fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=1
```

Benchmarks using both Fortran and C:

```
-fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M  
-xprefetch_level=1 -xalias_level=std  
-xprefetch_auto_type=indirect_array_access
```

Peak Optimization Flags

C benchmarks:

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

```
470.lbm: -fast -fma=fused -xipo=2 -xpagesize=4M -xprefetch_level=3  
-xvector -xarch=generic
```

```
482.sphinx3: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -fma=fused -xipo=2  
-xpagesize=4M -xinline= -xprefetch=no -xalias_level=strong  
-lfast -ll2amm
```

C++ benchmarks:

```
444.namd: -library=stlport4 -fast -fma=fused -xipo=2 -xpagesize=4M  
-xdepend -xalias_level=compatible
```

```
447.dealIII: -library=stlport4 -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -fma=fused -xipo=2  
-xpagesize=4M -xdepend -xalias_level=compatible -xrestrict  
-xprefetch_level=2 -xprefetch_auto_type=indirect_array_access
```

```
450.soplex: basepeak = yes
```

```
453.povray: -library=stlport4 -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -fma=fused -xipo=2  
-xpagesize=4M -xdepend -xalias_level=compatible
```

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Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: -fast -xipo=2 -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access

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

434.zeusmp: -fast -fma=fused -xipo=2 -xpagesize=4M -lmopt

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -lfast

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-fma=fused -xipo=2 -xpagesize=4M -xinline= -xchip=generic
-fsimple=0

436.cactusADM: -fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M
-xprefetch_level=3 -xalias_level=std
-xprefetch_auto_type=indirect_array_access

454.calculix: basepeak = yes

481.wrf: -fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M
-xprefetch_level=2 -xalias_level=std -xprefetch_level=3
-xprefetch_auto_type=indirect_array_access

Other Flags

C benchmarks:

-xjobs=4

C++ benchmarks:

-xjobs=4

Fortran benchmarks:

-xjobs=4

Benchmarks using both Fortran and C:

-xjobs=4



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

<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.r3.html>

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

<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.r3.xml>

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

Tested with SPEC CPU2006 v1.1.
Report generated on Mon Jul 13 09:59:26 2009 by SPEC CPU2006 PS/PDF formatter v6323.