



# SPEC<sup>®</sup> CFP2006 Result

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Fujitsu Limited

SPECfp<sup>®</sup>2006 = 14.4

Fujitsu SPARC Enterprise M8000

SPECfp\_base2006 = 13.6

CPU2006 license: 19

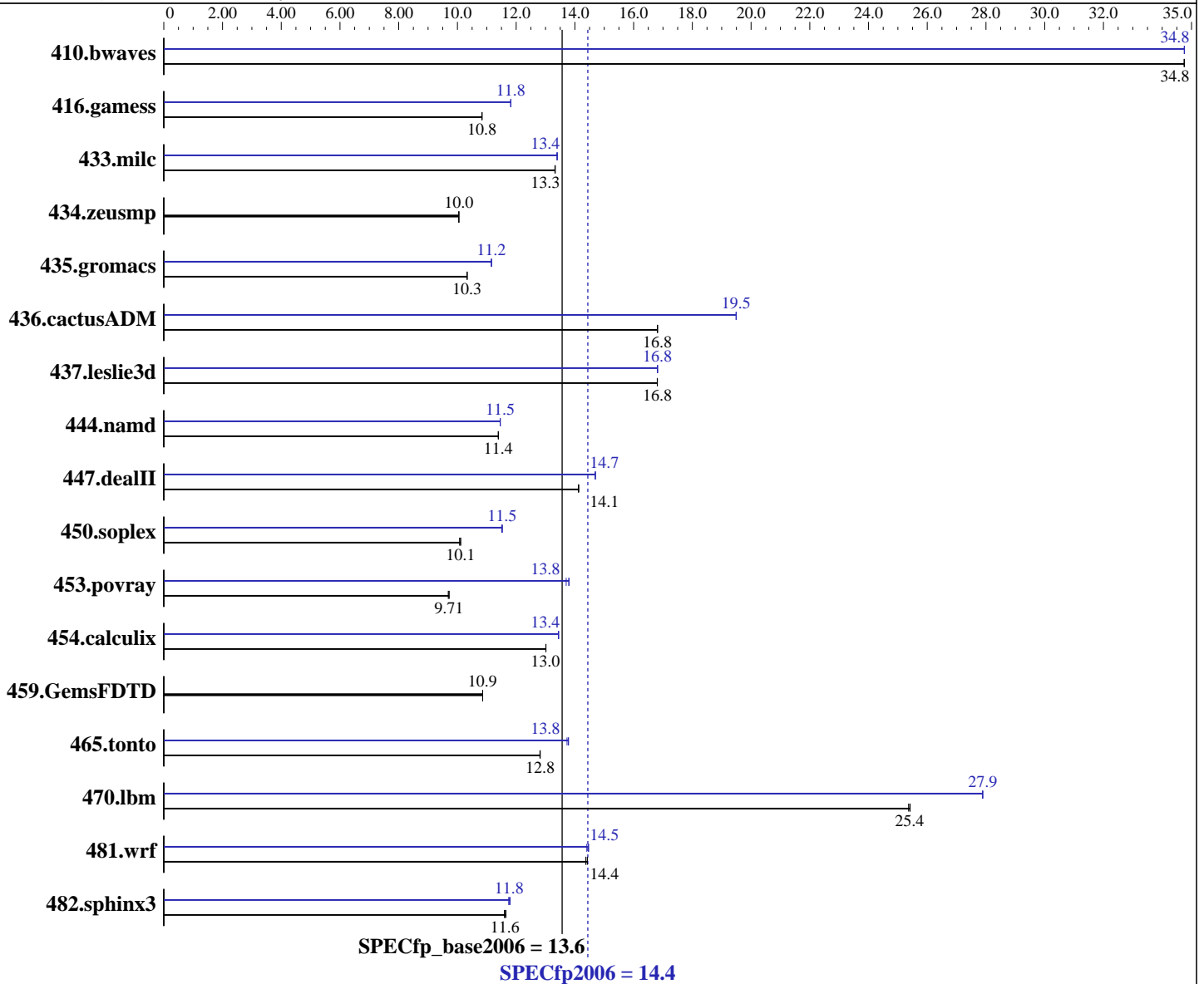
Test date: Jul-2008

Test sponsor: Fujitsu Limited

Hardware Availability: Jul-2008

Tested by: Sun Microsystems

Software Availability: Jul-2008



**Hardware**

CPU Name: SPARC64 VII  
 CPU Characteristics:  
 CPU MHz: 2520  
 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 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 6 MB I+D on chip per chip

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**Software**

Operating System: Solaris 10 5/08 with Patch 137111-03  
 Compiler: Sun Studio 12 with patches  
 124867-06, 124861-07, 124863-05, 127000-05  
 (see patch information below)  
 Auto Parallel: No  
 File System: ufs  
 System State: Default  
 Base Pointers: 32-bit  
 Peak Pointers: 32-bit

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L3 Cache: None  
Other Cache: None  
Memory: 256 GB (128 x 2 GB)  
Disk Subsystem: Fujitsu 73 GB 10000 RPM SAS  
Other Hardware: None

Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	391	34.8	391	34.8	<u>391</u>	<u>34.8</u>	391	34.8	391	34.8	<u>391</u>	<u>34.8</u>
416.gamess	1807	10.8	1807	10.8	<u>1807</u>	<u>10.8</u>	1657	11.8	1657	11.8	<u>1657</u>	<u>11.8</u>
433.milc	689	13.3	<u>689</u>	<u>13.3</u>	689	13.3	686	13.4	<u>685</u>	<u>13.4</u>	685	13.4
434.zeusmp	906	10.0	906	10.0	<u>906</u>	<u>10.0</u>	906	10.0	906	10.0	<u>906</u>	<u>10.0</u>
435.gromacs	<u>691</u>	<u>10.3</u>	691	10.3	691	10.3	640	11.2	<u>640</u>	<u>11.2</u>	640	11.2
436.cactusADM	711	16.8	<u>711</u>	<u>16.8</u>	711	16.8	613	19.5	613	19.5	<u>613</u>	<u>19.5</u>
437.leslie3d	<u>559</u>	<u>16.8</u>	559	16.8	559	16.8	559	16.8	559	16.8	<u>559</u>	<u>16.8</u>
444.namd	704	11.4	<u>704</u>	<u>11.4</u>	704	11.4	700	11.5	700	11.5	<u>700</u>	<u>11.5</u>
447.dealII	809	14.1	810	14.1	<u>810</u>	<u>14.1</u>	779	14.7	<u>778</u>	<u>14.7</u>	778	14.7
450.soplex	<u>825</u>	<u>10.1</u>	825	10.1	828	10.1	<u>724</u>	<u>11.5</u>	723	11.5	725	11.5
453.povray	549	9.69	<u>548</u>	<u>9.71</u>	548	9.72	388	13.7	<u>386</u>	<u>13.8</u>	385	13.8
454.calculix	634	13.0	634	13.0	<u>634</u>	<u>13.0</u>	<u>614</u>	<u>13.4</u>	614	13.4	614	13.4
459.GemsFDTD	<u>977</u>	<u>10.9</u>	977	10.9	977	10.9	<u>977</u>	<u>10.9</u>	977	10.9	977	10.9
465.tonto	<u>768</u>	<u>12.8</u>	768	12.8	767	12.8	714	13.8	<u>714</u>	<u>13.8</u>	717	13.7
470.lbm	<u>541</u>	<u>25.4</u>	542	25.4	541	25.4	493	27.9	<u>493</u>	<u>27.9</u>	493	27.9
481.wrf	777	14.4	<u>777</u>	<u>14.4</u>	774	14.4	775	14.4	772	14.5	<u>772</u>	<u>14.5</u>
482.sphinx3	1680	11.6	<u>1678</u>	<u>11.6</u>	1672	11.7	1652	11.8	<u>1657</u>	<u>11.8</u>	1659	11.7

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](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 processor to use in the 'BIND' variable, to generate the pbind commands. (For details, please see the config file.)



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## Operating System Notes

System Tunables (/etc/system parameters):

tune\_t\_fsflushr=10

Controls how many seconds elapse between runs of the page flush daemon, fsflush.

autoup=300

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=3

Set maximum percent memory for file system cache

lpg\_alloc\_prefer=1

Set lgroup page allocation to strongly prefer local pages

Other System Settings:

The webconsole service was turned off using  
svcadm disable webconsole

## Platform Notes

Memory is 8-way interleaved by filling all slots with the same capacity DIMMs.

## 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  
-xalias\_level=std -xprefetch\_auto\_type=indirect\_array\_access

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## Base Optimization Flags (Continued)

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

`-fast(cc) -fast(f90) -fma=fused -xipo=2 -xpagesize=4M  
-xprefetch_level=2 -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`

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`



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## Peak Optimization Flags

C benchmarks:

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

```
470.lbm: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -xarch=v8plusb -xprefetch_level=2
```

```
482.sphinx3: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M
-xipo=2 -fma=fused
```

C++ benchmarks:

```
444.namd: -xdepend -library=stlport4 -fast -xpagesize=4M
-xalias_level=compatible -fma=fused -xprefetch=latx:7
```

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

```
450.soplex: -xdepend -library=stlport4 -fast -xpagesize=4M
-xalias_level=compatible -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
```

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

Fortran benchmarks:

```
410.bwaves: -fast -xpagesize=4M -xipo=2 -xprefetch_level=2 -fma=fused
```

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

```
434.zeusmp: basepeak = yes
```

```
437.leslie3d: -fast -xpagesize=4M -fma=fused -xipo=2 -xprefetch=latx:4
-xprefetch_level=2
```

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## Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M  
-xipo=2 -xprefetch=no -xarch=generic -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

436.cactusADM: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)  
-xpagesize=4M -xipo=2 -fma=fused -qoption cg -Qlp-prt=1  
-qoption cg -Qlp-pwt=3 -qoption cg -Qlp-prwt=3

454.calculix: -fast(cc) -fast(f90) -xpagesize=4M -xipo=2  
-xprefetch\_level=3 -fma=fused -xprefetch=latx:3.0  
-xalias\_level=std

481.wrf: -fast(cc) -fast(f90) -xpagesize=4M -xipo=2  
-xprefetch\_level=3 -fma=fused -xunroll=8

## 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/Sun-Solaris-Studio12-and-gccfss4.2.20090713.00.html>

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

<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio12-and-gccfss4.2.20090713.00.xml>



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