



# SPEC<sup>®</sup> CFP2006 Result

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Fujitsu Limited

SPECfp<sup>®</sup>\_rate2006 = 62.1

Fujitsu SPARC Enterprise T5120

SPECfp\_rate\_base2006 = 57.9

CPU2006 license: 19

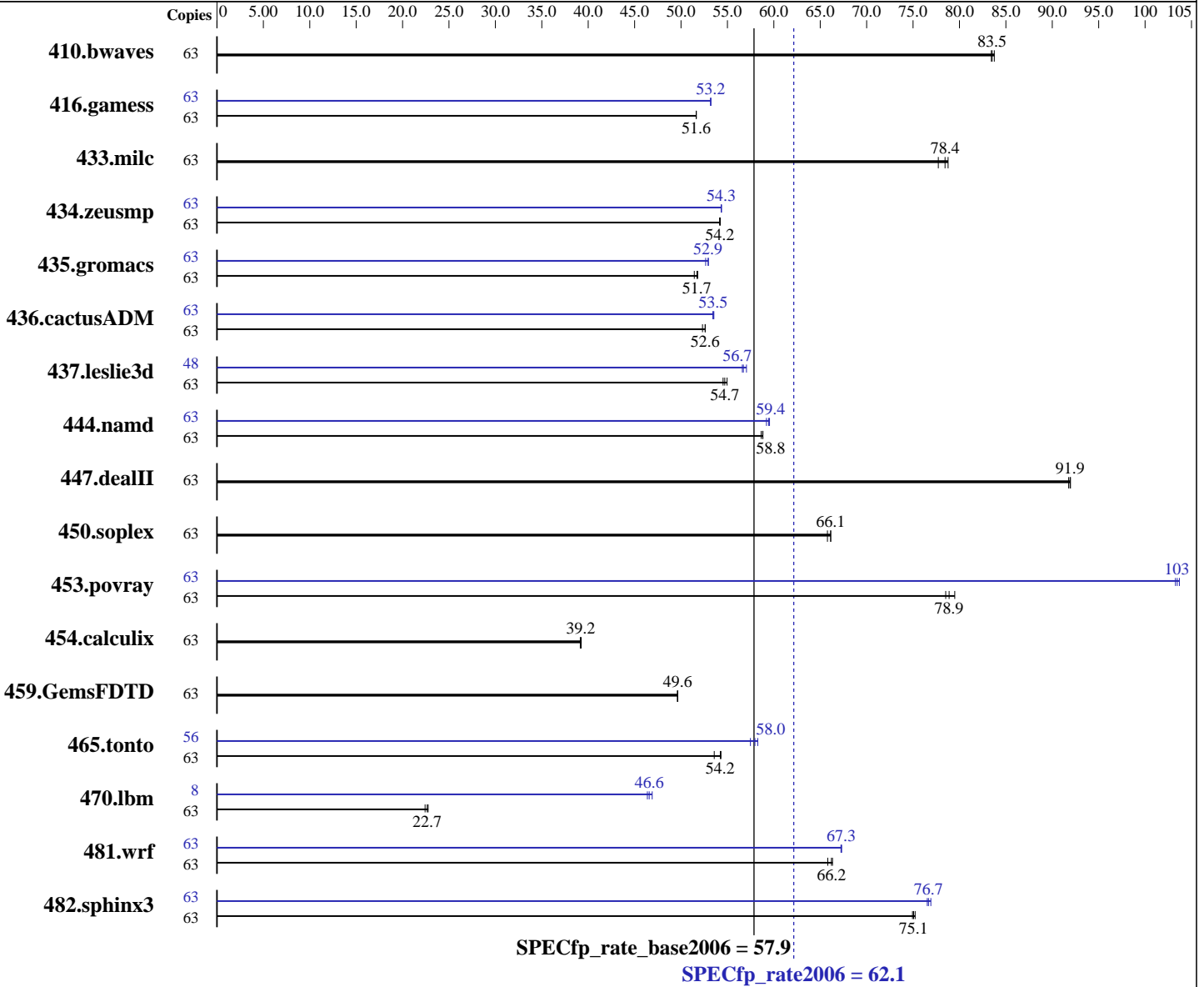
Test sponsor: Fujitsu Limited

Tested by: Sun Microsystems

Test date: Jul-2007

Hardware Availability: Oct-2007

Software Availability: Aug-2007



### Hardware

CPU Name: UltraSPARC T2  
 CPU Characteristics:  
 CPU MHz: 1417  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 1 chip, 8 cores/chip, 8 threads/core  
 CPU(s) orderable: 1 chip  
 Primary Cache: 16 KB I + 8 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per chip

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### Software

Operating System: Solaris 10 8/07 (build s10s\_u4wos\_10)  
 Compiler: Sun Studio 12 (build 2007/05/20)  
 Auto Parallel: No  
 File System: ufs  
 System State: Default  
 Base Pointers: 32-bit  
 Peak Pointers: 32-bit  
 Other Software: None



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L3 Cache: None  
Other Cache: None  
Memory: 64 GB  
Disk Subsystem: 1 x 10,000 RPM Seagate ST973402SS SAS  
Other Hardware: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	63	10222	83.8	<b><u>10251</u></b>	<b><u>83.5</u></b>	10261	83.4	63	10222	83.8	<b><u>10251</u></b>	<b><u>83.5</u></b>	10261	83.4
416.gamess	63	<b><u>23890</u></b>	<b><u>51.6</u></b>	23885	51.6	23890	51.6	63	23194	53.2	23181	53.2	<b><u>23185</u></b>	<b><u>53.2</u></b>
433.milc	63	7441	77.7	<b><u>7372</u></b>	<b><u>78.4</u></b>	7342	78.8	63	7441	77.7	<b><u>7372</u></b>	<b><u>78.4</u></b>	7342	78.8
434.zeusmp	63	10586	54.2	10572	54.2	<b><u>10577</u></b>	<b><u>54.2</u></b>	63	10545	54.4	10552	54.3	<b><u>10551</u></b>	<b><u>54.3</u></b>
435.gromacs	63	8747	51.4	8684	51.8	<b><u>8699</u></b>	<b><u>51.7</u></b>	63	<b><u>8501</u></b>	<b><u>52.9</u></b>	8543	52.7	8495	53.0
436.cactusADM	63	14310	52.6	<b><u>14313</u></b>	<b><u>52.6</u></b>	14391	52.3	63	<b><u>14078</u></b>	<b><u>53.5</u></b>	14061	53.5	14090	53.4
437.leslie3d	63	<b><u>10823</u></b>	<b><u>54.7</u></b>	10860	54.5	10775	55.0	48	7971	56.6	7908	57.1	<b><u>7955</u></b>	<b><u>56.7</u></b>
444.namd	63	<b><u>8593</u></b>	<b><u>58.8</u></b>	8589	58.8	8617	58.6	63	8487	59.5	8534	59.2	<b><u>8501</u></b>	<b><u>59.4</u></b>
447.dealII	63	7854	91.8	<b><u>7841</u></b>	<b><u>91.9</u></b>	7837	92.0	63	7854	91.8	<b><u>7841</u></b>	<b><u>91.9</u></b>	7837	92.0
450.soplex	63	7988	65.8	<b><u>7946</u></b>	<b><u>66.1</u></b>	7945	66.1	63	7988	65.8	<b><u>7946</u></b>	<b><u>66.1</u></b>	7945	66.1
453.povray	63	4269	78.5	<b><u>4249</u></b>	<b><u>78.9</u></b>	4216	79.5	63	3232	104	<b><u>3239</u></b>	<b><u>103</u></b>	3246	103
454.calculix	63	13277	39.1	13242	39.2	<b><u>13265</u></b>	<b><u>39.2</u></b>	63	13277	39.1	13242	39.2	<b><u>13265</u></b>	<b><u>39.2</u></b>
459.GemsFDTD	63	13462	49.7	<b><u>13465</u></b>	<b><u>49.6</u></b>	13475	49.6	63	13462	49.7	<b><u>13465</u></b>	<b><u>49.6</u></b>	13475	49.6
465.tonto	63	11415	54.3	<b><u>11431</u></b>	<b><u>54.2</u></b>	11570	53.6	56	<b><u>9507</u></b>	<b><u>58.0</u></b>	9456	58.3	9587	57.5
470.lbm	63	38600	22.4	<b><u>38212</u></b>	<b><u>22.7</u></b>	38040	22.8	8	2370	46.4	<b><u>2360</u></b>	<b><u>46.6</u></b>	2344	46.9
481.wrf	63	<b><u>10629</u></b>	<b><u>66.2</u></b>	10693	65.8	10611	66.3	63	<b><u>10463</u></b>	<b><u>67.3</u></b>	10466	67.2	10455	67.3
482.sphinx3	63	16385	74.9	16322	75.2	<b><u>16358</u></b>	<b><u>75.1</u></b>	63	<b><u>16017</u></b>	<b><u>76.7</u></b>	15964	76.9	16044	76.5

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

## Compiler Invocation Notes

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)

## Operating System Notes

Processes were bound to cores using "submit" and "pbind".

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.

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## Operating System Notes (Continued)

/etc/system parameters

autoup=600

Causes pages older than the listed number of seconds to be written by fsflush.

tune\_t\_fsflushr=10

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

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

## Platform Notes

This result was measured on a Sun SPARC Enterprise T5120. These models are electronically equivalent:

- Sun SPARC Enterprise T5120
- Fujitsu SPARC Enterprise T5120

## 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:

-g -fast -xipo=2 -xpagesize=4M -xprefetch\_level=2 -xalias\_level=std  
-xprefetch\_level=3 -xprefetch\_auto\_type=indirect\_array\_access

C++ benchmarks:

-g0 -library=stlport4 -fast -xipo=2 -xpagesize=4M -xprefetch\_level=2  
-xdepend -xalias\_level=compatible

Fortran benchmarks:

-g -fast -xipo=2 -xpagesize=4M -xprefetch\_level=2

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
-g -fast(cc) -fast(f90) -xipo=2 -xpagesize=4M -xprefetch_level=2  
-xalias_level=std -xprefetch_level=3  
-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
```

Benchmarks using both Fortran and C:

```
-xjobs=16 -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: basepeak = yes
```

```
470.lbm: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M  
-xprefetch_level=3 -xipo=2 -xrestrict
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M  
-xinline= -xprefetch\_level=2 -Wc,-Qlp-ol=1 -xrestrict  
-xalias\_level=strong -fsimple=1 -xlinkopt=2 -lfast

C++ benchmarks:

444.namd: -g0 -library=stlport4 -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M  
-xdepend -xalias\_level=compatible -xprefetch\_level=1  
-xlinkopt=2

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -g0 -library=stlport4 -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xpagesize=4M  
-xdepend -xalias\_level=compatible -xipo=2 -xrestrict  
-xlinkopt=2

Fortran benchmarks:

410.bwaves: basepeak = yes

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

434.zeusmp: -g -fast -xpagesize=4M -xipo=1 -qoption cg -Qeps:enabled=1  
-qoption cg -Qeps:ws=8 -lmopt

437.leslie3d: -g -fast -xpagesize\_heap=4M -xpagesize\_stack=64K  
-xprefetch\_level=3 -xprefetch=latx:1.6 -qoption cg -Qlp=1  
-qoption cg -Qlp-fa=0 -qoption cg -Qlp-fl=1  
-qoption cg -Qlp-av=448 -qoption cg -Qlp-t=4

459.GemsFDTD: basepeak = yes

465.tonto: -g -fast -xpagesize=4M -xipo=2 -lfast

Benchmarks using both Fortran and C:

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

436.cactusADM: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)  
-xpagesize=4M -xipo=2 -fsimple=1 -xlinkopt=2

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## Peak Optimization Flags (Continued)

454.calculix: basepeak = yes

481.wrf: -g -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)  
-xpagesize=4M -xlinkopt=2

## Peak Other Flags

C benchmarks:  
-xjobs=16 -V

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

Fortran benchmarks:  
-xjobs=16 -V

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

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

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

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

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

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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