



# SPEC® CFP2006 Result

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## Sun Microsystems Sun Blade T6320

SPECfp®\_rate2006 = 62.3

SPECfp\_rate\_base2006 = 58.1

CPU2006 license: 6

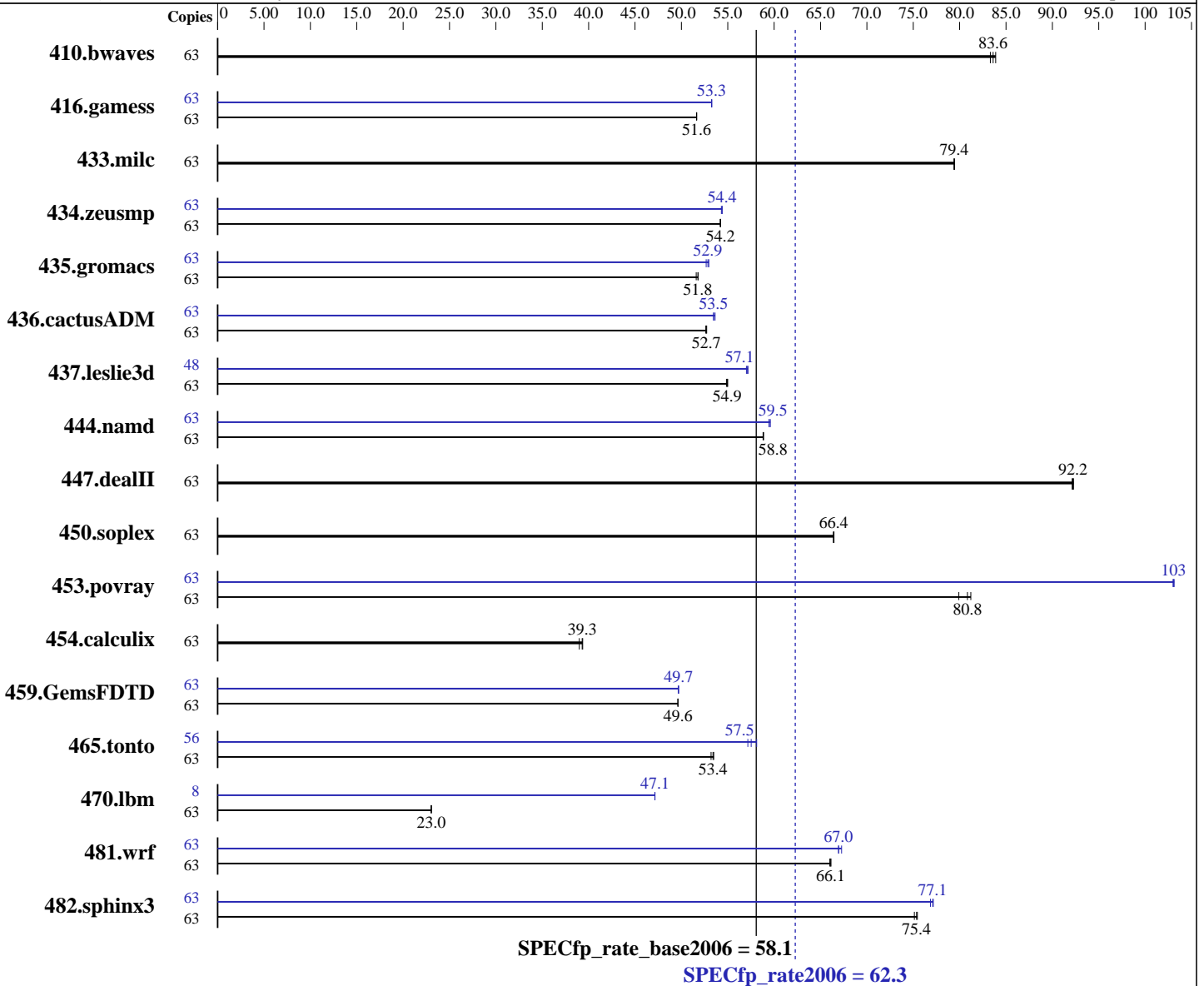
Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Oct-2007

Hardware Availability: Feb-2008

Software Availability: Sep-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\_12b)  
 Compiler: Sun Studio 12 (patch build 2007/08/30)  
 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 (16 x 4 GB)  
Disk Subsystem: 1 x SUN72G 10K RPM SAS disk  
ufs fragment size 8192 bytes  
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	10206	83.9	<b><u>10240</u></b>	<b><u>83.6</u></b>	10276	83.3	63	10206	83.9	<b><u>10240</u></b>	<b><u>83.6</u></b>	10276	83.3
416.gamess	63	23889	51.6	23886	51.6	<b><u>23887</u></b>	<b><u>51.6</u></b>	63	<b><u>23159</u></b>	<b><u>53.3</u></b>	23165	53.2	23156	53.3
433.milc	63	7284	79.4	7280	79.4	<b><u>7283</u></b>	<b><u>79.4</u></b>	63	7284	79.4	7280	79.4	<b><u>7283</u></b>	<b><u>79.4</u></b>
434.zeusmp	63	10580	54.2	10571	54.2	<b><u>10576</u></b>	<b><u>54.2</u></b>	63	<b><u>10541</u></b>	<b><u>54.4</u></b>	10540	54.4	10556	54.3
435.gromacs	63	8718	51.6	8683	51.8	<b><u>8687</u></b>	<b><u>51.8</u></b>	63	8540	52.7	8493	53.0	<b><u>8511</u></b>	<b><u>52.9</u></b>
436.cactusADM	63	14303	52.6	<b><u>14291</u></b>	<b><u>52.7</u></b>	14278	52.7	63	<b><u>14077</u></b>	<b><u>53.5</u></b>	14037	53.6	14079	53.5
437.leslie3d	63	10796	54.9	<b><u>10778</u></b>	<b><u>54.9</u></b>	10769	55.0	48	<b><u>7899</u></b>	<b><u>57.1</u></b>	7915	57.0	7890	57.2
444.namd	63	8592	58.8	<b><u>8586</u></b>	<b><u>58.8</u></b>	8585	58.9	63	8479	59.6	<b><u>8497</u></b>	<b><u>59.5</u></b>	8497	59.5
447.dealII	63	7823	92.1	<b><u>7816</u></b>	<b><u>92.2</u></b>	7810	92.3	63	7823	92.1	<b><u>7816</u></b>	<b><u>92.2</u></b>	7810	92.3
450.soplex	63	7907	66.5	<b><u>7908</u></b>	<b><u>66.4</u></b>	7915	66.4	63	7907	66.5	<b><u>7908</u></b>	<b><u>66.4</u></b>	7915	66.4
453.povray	63	<b><u>4146</u></b>	<b><u>80.8</u></b>	4127	81.2	4194	79.9	63	<b><u>3252</u></b>	<b><u>103</u></b>	3250	103	3254	103
454.calculix	63	13329	39.0	<b><u>13225</u></b>	<b><u>39.3</u></b>	13205	39.4	63	13329	39.0	<b><u>13225</u></b>	<b><u>39.3</u></b>	13205	39.4
459.GemsFDTD	63	13471	49.6	13467	49.6	<b><u>13467</u></b>	<b><u>49.6</u></b>	63	<b><u>13452</u></b>	<b><u>49.7</u></b>	13454	49.7	13452	49.7
465.tonto	63	<b><u>11609</u></b>	<b><u>53.4</u></b>	11653	53.2	11589	53.5	56	9639	57.2	9481	58.1	<b><u>9579</u></b>	<b><u>57.5</u></b>
470.lbm	63	<b><u>37575</u></b>	<b><u>23.0</u></b>	37561	23.0	37600	23.0	8	2331	47.2	2332	47.1	<b><u>2331</u></b>	<b><u>47.1</u></b>
481.wrf	63	10662	66.0	10643	66.1	<b><u>10646</u></b>	<b><u>66.1</u></b>	63	10460	67.3	10511	66.9	<b><u>10511</u></b>	<b><u>67.0</u></b>
482.sphinx3	63	16275	75.4	16346	75.1	<b><u>16294</u></b>	<b><u>75.4</u></b>	63	15913	77.2	15976	76.9	<b><u>15928</u></b>	<b><u>77.1</u></b>

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)  
The above result used a 30 August 2007 build of patch 124861-03.

## Operating System Notes

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

ulimit -s 131072 was used to limit the space consumed by the stack (and therefore make more space available to 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
```

## 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
```

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
```



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## Base Other Flags

C benchmarks:  
-xjobs=32 -V  
C++ benchmarks:  
-xjobs=32 -verbose=diags,version  
Fortran benchmarks:  
-xjobs=32 -V  
Benchmarks using both Fortran and C:  
-xjobs=32 -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  
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

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## Peak Optimization Flags (Continued)

447.dealII: 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: -g -fast -xpagesize=4M -fsimple=1

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

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



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## Peak Other Flags

C benchmarks:

-xjobs=32 -V

C++ benchmarks:

-xjobs=32 -verbose=diags,version

Fortran benchmarks:

-xjobs=32 -V

Benchmarks using both Fortran and C:

-xjobs=32 -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-gccfss.html>

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

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

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

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