



# SPEC<sup>®</sup> CFP2006 Result

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## Sun Microsystems Sun Fire X4200

SPECfp<sup>®</sup>2006 = 14.7

SPECfp\_base2006 = 12.2

CPU2006 license: 6

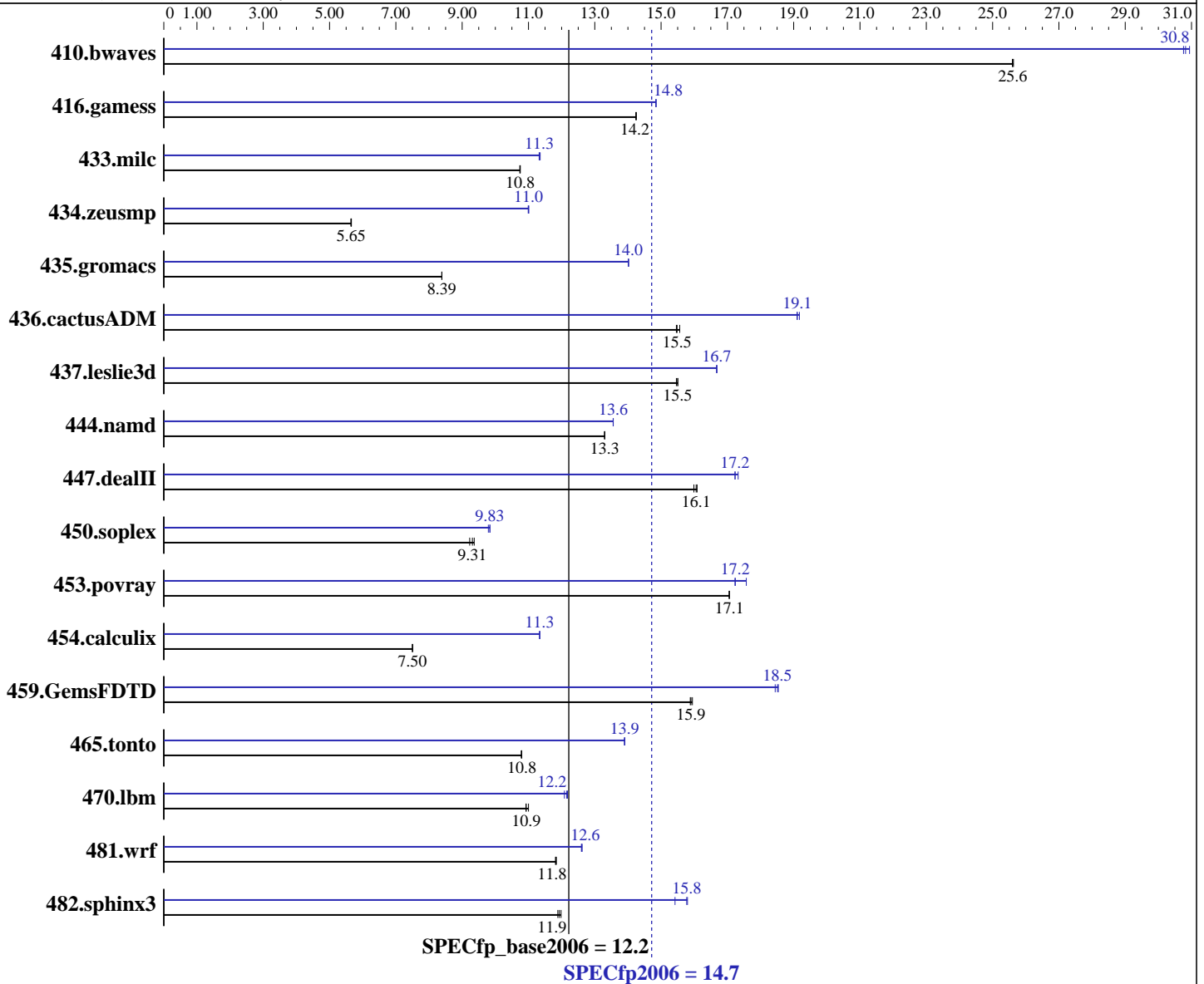
Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Apr-2006

Hardware Availability: May-2006

Software Availability: Jul-2006



### Hardware

CPU Name: AMD Opteron 256  
 CPU Characteristics:  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 2 chips, 1 core/chip  
 CPU(s) orderable: 1-2 chips  
 Primary Cache: 64 KB I + 64 KB D on chip per chip  
 Secondary Cache: 1 MB I+D on chip per chip

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### Software

Operating System: Solaris 10 1/06  
 Compiler: Sun Studio 11 with patch 120759-06  
 Auto Parallel: No  
 File System: ufs  
 System State: Default  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None



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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8x2 GB, PC3200 CL3 ECC Reg)  
Disk Subsystem: SAS,36GB,10K RPM  
Other Hardware: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>531</u>	<u>25.6</u>	530	25.6	531	25.6	442	30.8	<u>441</u>	<u>30.8</u>	439	30.9
416.gamess	1375	14.2	<u>1374</u>	<u>14.2</u>	1374	14.3	1319	14.8	1319	14.8	<u>1319</u>	<u>14.8</u>
433.milc	<u>854</u>	<u>10.8</u>	854	10.8	855	10.7	811	11.3	<u>810</u>	<u>11.3</u>	809	11.4
434.zeusmp	<u>1610</u>	<u>5.65</u>	1608	5.66	1613	5.64	<u>827</u>	<u>11.0</u>	828	11.0	827	11.0
435.gromacs	851	8.39	<u>851</u>	<u>8.39</u>	851	8.39	509	14.0	509	14.0	<u>509</u>	<u>14.0</u>
436.cactusADM	768	15.6	773	15.5	<u>772</u>	<u>15.5</u>	626	19.1	623	19.2	<u>625</u>	<u>19.1</u>
437.leslie3d	608	15.5	<u>606</u>	<u>15.5</u>	606	15.5	<u>564</u>	<u>16.7</u>	564	16.7	564	16.7
444.namd	603	13.3	603	13.3	<u>603</u>	<u>13.3</u>	592	13.6	592	13.6	<u>592</u>	<u>13.6</u>
447.dealII	<u>712</u>	<u>16.1</u>	711	16.1	715	16.0	664	17.2	<u>664</u>	<u>17.2</u>	660	17.3
450.soplex	891	9.36	904	9.23	<u>896</u>	<u>9.31</u>	<u>848</u>	<u>9.83</u>	848	9.84	852	9.79
453.povray	<u>312</u>	<u>17.1</u>	312	17.1	312	17.1	303	17.6	309	17.2	<u>309</u>	<u>17.2</u>
454.calculix	1100	7.50	1099	7.51	<u>1100</u>	<u>7.50</u>	<u>728</u>	<u>11.3</u>	728	11.3	728	11.3
459.GemsFDTD	<u>667</u>	<u>15.9</u>	668	15.9	665	15.9	<u>573</u>	<u>18.5</u>	575	18.4	572	18.5
465.tonto	911	10.8	<u>911</u>	<u>10.8</u>	913	10.8	708	13.9	708	13.9	<u>708</u>	<u>13.9</u>
470.lbm	1249	11.0	<u>1257</u>	<u>10.9</u>	1258	10.9	<u>1131</u>	<u>12.2</u>	1128	12.2	1137	12.1
481.wrf	<u>945</u>	<u>11.8</u>	945	11.8	943	11.8	<u>886</u>	<u>12.6</u>	887	12.6	885	12.6
482.sphinx3	1640	11.9	1627	12.0	<u>1634</u>	<u>11.9</u>	1234	15.8	1264	15.4	<u>1236</u>	<u>15.8</u>

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

## Operating System Notes

```

export PARALLEL=2
ulimit -s 131072 (shell): increases stack

/etc/system parameters
tune_t_fsflushr=1
Controls how many seconds elapse between runs of the
page flush daemon, fsflush.
autoup=900
Causes pages older than the listed number of seconds to
be written by fsflush.

```



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## Platform Notes

Default BIOS settings were used.

## Base Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Fortran benchmarks:

f90

Benchmarks using both Fortran and C:

cc f90

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_LP64  
416.gamess: -DSPEC\_CPU\_LP64  
433.milc: -DSPEC\_CPU\_LP64  
434.zeusmp: -DSPEC\_CPU\_LP64  
435.gromacs: -DSPEC\_CPU\_LP64  
436.cactusADM: -DSPEC\_CPU\_LP64  
437.leslie3d: -DSPEC\_CPU\_LP64  
444.namd: -DSPEC\_CPU\_LP64  
447.dealII: -DSPEC\_CPU\_LP64  
450.soplex: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64  
459.GemsFDTD: -DSPEC\_CPU\_LP64  
465.tonto: -DSPEC\_CPU\_LP64  
470.lbm: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_WORDS\_LITTLEENDIAN  
482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

-O -xautopar -xipo=2 -xarch=amd64a

C++ benchmarks:

-fast -xautopar -xipo=2 -xarch=amd64a -library=stlport4

Fortran benchmarks:

-O -xautopar -xipo=2 -xarch=amd64a

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:  
-O -xautopar -xipo=2 -xarch=amd64a

## Base Other Flags

C benchmarks:  
-V  
C++ benchmarks:  
-verbose=version  
Fortran benchmarks:  
-V  
Benchmarks using both Fortran and C:  
-V

## Peak Compiler Invocation

C benchmarks:  
cc  
C++ benchmarks:  
CC  
Fortran benchmarks:  
f90  
Benchmarks using both Fortran and C:  
cc f90

## Peak Portability Flags

436.cactusADM: -DSPEC\_CPU\_LP64  
453.povray: -DSPEC\_CPU\_LP64  
481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_WORDS\_LITTLEENDIAN

## Peak Optimization Flags

C benchmarks:

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## Peak Optimization Flags (Continued)

433.milc: -fast -xautopar -xarch=amd64a -xipo=2 -xprefetch=auto  
-xprefetch\_level=3 -xpagesize=2m

470.lbm: -fast -xautopar -xarch=amd64a -xpagesize=2m  
-W2,-Ainline:inc=200 -W2,-Ainline:cs=500 -xprefetch\_level=3

482.sphinx3: -fast -xautopar -xarch=amd64a -xrestrict -xipo=2  
-xprefetch=auto -xpagesize=2m -Wd,-iropt-prof  
-W2,-Ashort\_ldst:ldld -W2,-Ainline:rs=50  
-M /usr/lib/ld/map.bssalign

### C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xautopar  
-xarch=amd64a -xipo=2 -library=stlport4

447.dealII: -fast -xautopar -xarch=amd64a -xipo=2 -xvector  
-Qoption iropt -Abcopy -xalias\_level -xrestrict  
-xregs=frameptr -library=stlport4

450.soplex: -fast -xautopar -xipo=2 -xarch=sse2a -library=stlport4

453.povray: Same as 447.dealII

### Fortran benchmarks:

410.bwaves: -fast -xautopar -xarch=amd64a -unroll=5 -stackvar -xO4  
-xipo=2 -xprefetch\_level=3 -Qoption iropt -Rloop\_dist

416.gamess: -fast -xautopar -xarch=amd64a -xipo=2 -xprefetch\_level=3

434.zeusmp: -fast -xipo=2 -xarch=amd64a

437.leslie3d: -fast -xautopar -xipo=2 -xarch=sse2a

459.GemsFDTD: -fast -xautopar -xipo=2 -xarch=amd64a

465.tonto: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xautopar  
-xarch=amd64a -xipo=2 -xvector=lib -xalias -xdepend  
-lbsdmalloc

### Benchmarks using both Fortran and C:

435.gromacs: -fast(cc) -fast(f90) -xautopar -xipo=2 -xarch=amd64a  
-Wu,-fsimple=3 -Qoption ube -fsimple=3

436.cactusADM: -fast(cc) -fast(f90) -xautopar -xipo=2 -xarch=amd64a

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## Peak Optimization Flags (Continued)

454.calculix: -fast(cc) -fast(f90) -xipo=2 -xarch=amd64a  
481.wrf: Same as 436.cactusADM

## Peak Other Flags

C benchmarks:  
-V  
C++ benchmarks:  
-verbose=version  
Fortran benchmarks:  
-V  
Benchmarks using both Fortran and C:  
-V

The flags file that was used to format this result can be browsed at  
<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio-Opteron.20090715.02.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio-Opteron.20090715.02.xml>

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

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