



SPEC® CFP2006 Result

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Sun Microsystems Sun Fire X4200

SPECfp®2006 = 13.0

SPECfp_base2006 = 12.2

CPU2006 license: 6

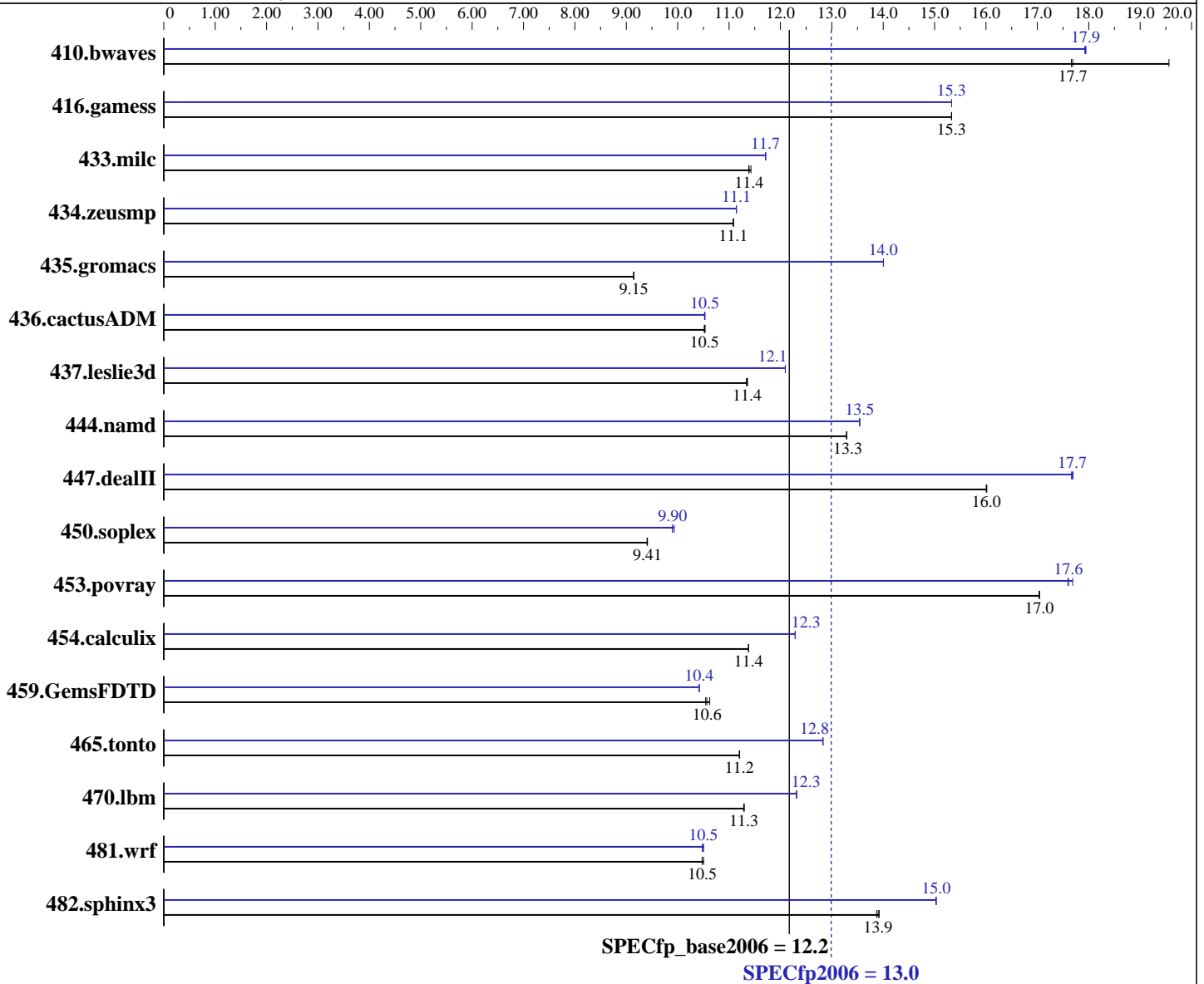
Test sponsor: Sun Microsystems

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: 1 core, 1 chip, 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: 8 GB (4x2 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 | 695 | 19.6 | 768 | 17.7 | 769 | 17.7 | 758 | 17.9 | 758 | 17.9 | 757 | 17.9 |
| 416.gamess | 1277 | 15.3 | 1277 | 15.3 | 1277 | 15.3 | 1277 | 15.3 | 1277 | 15.3 | 1277 | 15.3 |
| 433.milc | 806 | 11.4 | 806 | 11.4 | 803 | 11.4 | 784 | 11.7 | 784 | 11.7 | 784 | 11.7 |
| 434.zeusmp | 821 | 11.1 | 821 | 11.1 | 821 | 11.1 | 817 | 11.1 | 817 | 11.1 | 817 | 11.1 |
| 435.gromacs | 781 | 9.15 | 781 | 9.14 | 781 | 9.15 | 510 | 14.0 | 510 | 14.0 | 510 | 14.0 |
| 436.cactusADM | 1134 | 10.5 | 1136 | 10.5 | 1135 | 10.5 | 1136 | 10.5 | 1135 | 10.5 | 1135 | 10.5 |
| 437.leslie3d | 829 | 11.3 | 828 | 11.4 | 828 | 11.4 | 777 | 12.1 | 777 | 12.1 | 777 | 12.1 |
| 444.namd | 604 | 13.3 | 604 | 13.3 | 604 | 13.3 | 592 | 13.5 | 592 | 13.5 | 592 | 13.5 |
| 447.dealII | 714 | 16.0 | 715 | 16.0 | 715 | 16.0 | 646 | 17.7 | 648 | 17.7 | 647 | 17.7 |
| 450.soplex | 886 | 9.41 | 887 | 9.40 | 886 | 9.41 | 842 | 9.90 | 843 | 9.89 | 840 | 9.93 |
| 453.povray | 312 | 17.0 | 312 | 17.0 | 312 | 17.0 | 301 | 17.7 | 302 | 17.6 | 302 | 17.6 |
| 454.calculix | 725 | 11.4 | 725 | 11.4 | 725 | 11.4 | 671 | 12.3 | 672 | 12.3 | 671 | 12.3 |
| 459.GemsFDTD | 999 | 10.6 | 1004 | 10.6 | 1006 | 10.5 | 1018 | 10.4 | 1018 | 10.4 | 1018 | 10.4 |
| 465.tonto | 879 | 11.2 | 878 | 11.2 | 879 | 11.2 | 767 | 12.8 | 767 | 12.8 | 767 | 12.8 |
| 470.lbm | 1216 | 11.3 | 1217 | 11.3 | 1217 | 11.3 | 1116 | 12.3 | 1116 | 12.3 | 1116 | 12.3 |
| 481.wrf | 1063 | 10.5 | 1066 | 10.5 | 1066 | 10.5 | 1063 | 10.5 | 1064 | 10.5 | 1066 | 10.5 |
| 482.sphinx3 | 1400 | 13.9 | 1405 | 13.9 | 1402 | 13.9 | 1297 | 15.0 | 1297 | 15.0 | 1297 | 15.0 |

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

Operating System Notes

```
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:
-fast -xipo=2 -xarch=amd64a

C++ benchmarks:
-fast -xipo=2 -xarch=amd64a -library=stlport4

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Base Optimization Flags (Continued)

Fortran benchmarks:
-fast -xipo=2 -xarch=amd64a
Benchmarks using both Fortran and C:
-fast(cc) -fast(f90) -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



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Peak Optimization Flags

C benchmarks:

433.milc: -fast -xarch=amd64a -xipo=2 -xprefetch=auto
-xprefetch_level=3 -xpagesize=2m
470.lbm: -fast -xarch=amd64a -xpagesize=2m -W2,-Ainline:inc=200
-W2,-Ainline:cs=500 -xprefetch_level=3
482.sphinx3: -fast -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 -xarch=amd64a
-xipo=2 -library=stlport4
447.dealII: -fast -xarch=amd64a -xipo=2 -xvector
-Qoption iropt -Abcopy -xalias_level -xrestrict
-xregs=frameptr -library=stlport4
450.soplex: -fast -xipo=2 -xarch=sse2a -library=stlport4
453.povray: Same as 447.dealII

Fortran benchmarks:

410.bwaves: -fast -xarch=amd64a -unroll=5 -stackvar -xO4 -xipo=2
-xprefetch_level=3 -Qoption iropt -Rloop_dist
416.gamess: -fast -xarch=amd64a -xipo=2 -xprefetch_level=3
434.zeusmp: -fast -xarch=amd64a -xipo=2 -xregs=frameptr
437.leslie3d: -fast -xipo=2 -xarch=sse2a
459.GemsFDTD: -fast -xarch=amd64a -xipo=2 -xprefetch_level=3
-xpagesize=2m
465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xarch=amd64a
-xipo=2 -xvector=lib -xalias -xdepend -lbsdmalloc

Benchmarks using both Fortran and C:

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

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Peak Optimization Flags (Continued)

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

454.calculix: -fast(cc) -fast(f90) -xarch=amd64a -xpagesize=2m
-xprefetch=auto -xprefetch_level=3 -W2,-Ainline:inc=200
-W2,-Ainline:cs=500 -unroll=5 -stackvar -xO4 -xipo=2
-Qoption iropt -Rloop_dist

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.

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