



SPEC® CFP2006 Result

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Sun Microsystems Sun Blade X8420

SPECfp®_rate2006 = 87.3

SPECfp_rate_base2006 = 82.5

CPU2006 license: 6

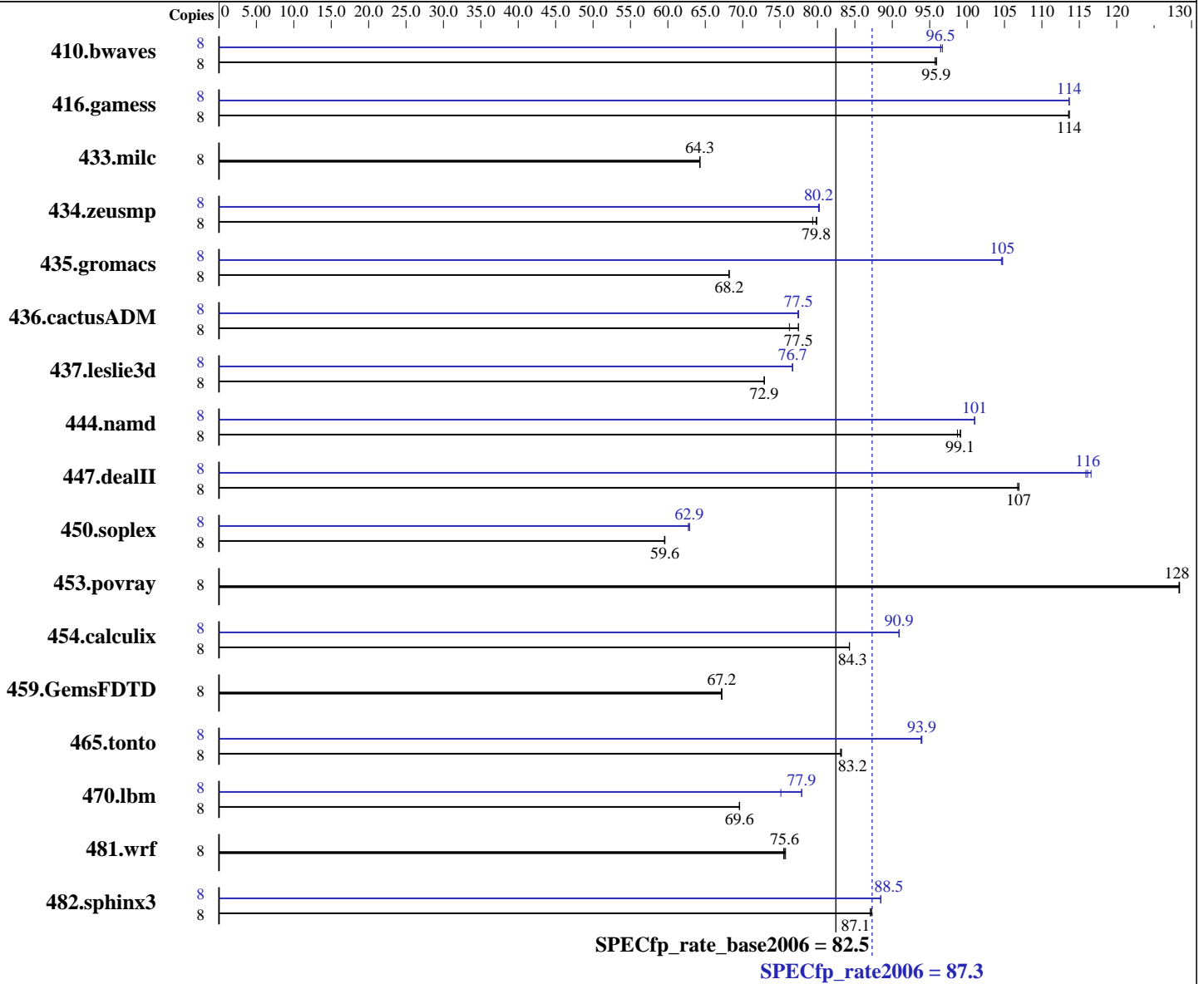
Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Jan-2007

Hardware Availability: Feb-2007

Software Availability: Jul-2006



Hardware

CPU Name: AMD Opteron 8220
 CPU Characteristics:
 CPU MHz: 2800
 FPU: Integrated
 CPU(s) enabled: 8 cores, 4 chips, 2 cores/chip
 CPU(s) orderable: 4 chips
 Primary Cache: 64 KB I + 64 KB D on chip per core
 Secondary Cache: 1 MB I+D on chip per core

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Software

Operating System: Solaris 10 6/06
 Compiler: Sun Studio 11 with Patches
 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: 64 GB (16x4GB, DDR2-667 CL5 ECC REG Quad Rank)
Disk Subsystem: SAS, 72 GB, 10K RPM
Other Hardware: None

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1136	95.7	1133	95.9	1134	95.9	8	1124	96.7	1127	96.5	1127	96.5
416.gamess	8	1378	114	1379	114	1378	114	8	1378	114	1379	114	1378	114
433.milc	8	1142	64.3	1142	64.3	1143	64.3	8	1142	64.3	1142	64.3	1143	64.3
434.zeusmp	8	911	79.9	917	79.4	912	79.8	8	907	80.3	908	80.1	908	80.2
435.gromacs	8	838	68.2	838	68.2	838	68.2	8	545	105	545	105	546	105
436.cactusADM	8	1254	76.2	1234	77.5	1234	77.5	8	1234	77.5	1235	77.4	1234	77.5
437.leslie3d	8	1031	72.9	1032	72.9	1032	72.9	8	980	76.7	980	76.7	981	76.6
444.namd	8	647	99.1	650	98.7	648	99.1	8	635	101	635	101	635	101
447.dealII	8	856	107	856	107	857	107	8	788	116	790	116	785	117
450.soplex	8	1119	59.6	1119	59.6	1121	59.5	8	1062	62.9	1063	62.7	1061	62.9
453.povray	8	331	128	331	128	332	128	8	331	128	331	128	332	128
454.calculix	8	783	84.3	783	84.3	783	84.3	8	726	90.9	726	90.9	726	90.9
459.GemsFDTD	8	1263	67.2	1263	67.2	1264	67.2	8	1263	67.2	1263	67.2	1264	67.2
465.tonto	8	946	83.2	948	83.1	946	83.2	8	838	94.0	838	93.9	839	93.8
470.lbm	8	1580	69.6	1579	69.6	1580	69.6	8	1412	77.9	1411	77.9	1464	75.1
481.wrf	8	1182	75.6	1180	75.7	1184	75.5	8	1182	75.6	1180	75.7	1184	75.5
482.sphinx3	8	1790	87.1	1791	87.1	1787	87.2	8	1762	88.5	1763	88.4	1763	88.5

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

Operating System Notes

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

```
ulimit -s 131072 (shell): increases stack
```

The following patches were applied to Sun Studio 11 compiler:

```
120759-07 : x86/x64
121016-03 : x86 C
121020-03 : x86 F90
121018-03 : x86 C++
```



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Platform Notes

Default BIOS settings was 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

433.milc: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
459.GemsFDTD: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN



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Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

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.deallI: -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: basepeak = yes

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: basepeak = yes

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

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

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Peak Optimization Flags (Continued)

```
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: basepeak = yes
```

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.20090715.01.html>

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

<http://www.spec.org/cpu2006/flags/Sun-Solaris-Studio-Opteron.20090715.01.xml>

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For other inquiries, please contact webmaster@spec.org.

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