SPEC® CFP2006 Result

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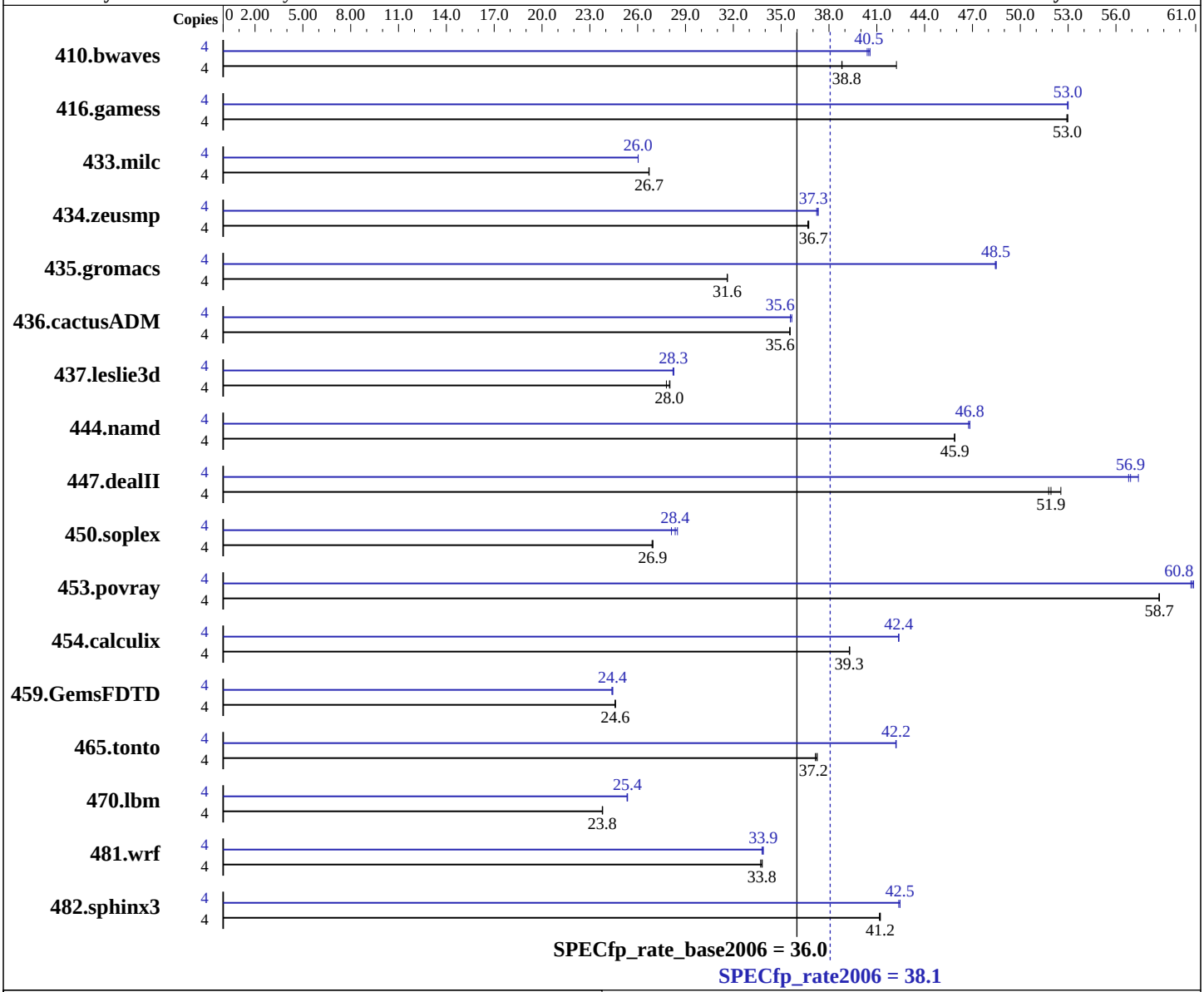
Sun Microsystems
Sun Fire X4200

SPECfp®_rate2006 = 38.1

SPECfp_rate_base2006 = 36.0

CPU2006 license: 6
Test sponsor: Sun Microsystems
Tested by: Sun Microsystems

Test date: Apr-2006
Hardware Availability: Dec-2005
Software Availability: Jul-2006



Hardware

CPU Name:	AMD Opteron 285
CPU Characteristics:	
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	4 cores, 2 chips, 2 cores/chip
CPU(s) orderable:	1-2 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 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 DDR ECC Reg)
Disk Subsystem: SAS,36GB,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	4	1287	42.2	**1400**	**38.8**	1401	38.8	4	1346	40.4	1340	40.6	**1342**	**40.5**
416.gamess	4	1478	53.0	**1479**	**53.0**	1480	52.9	4	**1478**	**53.0**	1478	53.0	1479	53.0
433.milc	4	1375	26.7	1374	26.7	**1375**	**26.7**	4	**1411**	**26.0**	1410	26.0	1411	26.0
434.zeusmp	4	991	36.7	**991**	**36.7**	993	36.7	4	978	37.2	975	37.3	**976**	**37.3**
435.gromacs	4	903	31.6	903	31.6	**903**	**31.6**	4	590	48.4	589	48.5	**589**	**48.5**
436.cactusADM	4	1345	35.5	**1344**	**35.6**	1344	35.6	4	1344	35.6	1340	35.7	**1343**	**35.6**
437.leslie3d	4	**1343**	**28.0**	1352	27.8	1342	28.0	4	1333	28.2	1330	28.3	**1331**	**28.3**
444.namd	4	699	45.9	**699**	**45.9**	699	45.9	4	686	46.7	**685**	**46.8**	685	46.8
447.dealII	4	871	52.5	884	51.8	**881**	**51.9**	4	806	56.8	**804**	**56.9**	797	57.4
450.soplex	4	**1238**	**26.9**	1238	27.0	1240	26.9	4	1186	28.1	**1177**	**28.4**	1171	28.5
453.povray	4	362	58.7	363	58.7	**362**	**58.7**	4	351	60.7	350	60.9	**350**	**60.8**
454.calculix	4	840	39.3	840	39.3	**840**	**39.3**	4	779	42.4	**779**	**42.4**	779	42.4
459.GemsFDTD	4	**1726**	**24.6**	1724	24.6	1726	24.6	4	1737	24.4	1741	24.4	**1738**	**24.4**
465.tonto	4	1060	37.1	1056	37.3	**1057**	**37.2**	4	**933**	**42.2**	932	42.2	933	42.2
470.lbm	4	2311	23.8	**2311**	**23.8**	2309	23.8	4	2167	25.4	**2168**	**25.4**	2170	25.3
481.wrf	4	1321	33.8	**1322**	**33.8**	1325	33.7	4	1319	33.9	**1319**	**33.9**	1322	33.8
482.sphinx3	4	1894	41.2	1891	41.2	**1892**	**41.2**	4	1840	42.4	1836	42.5	**1837**	**42.5**

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

/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.
```

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`

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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