SPEC® CFP2006 Result

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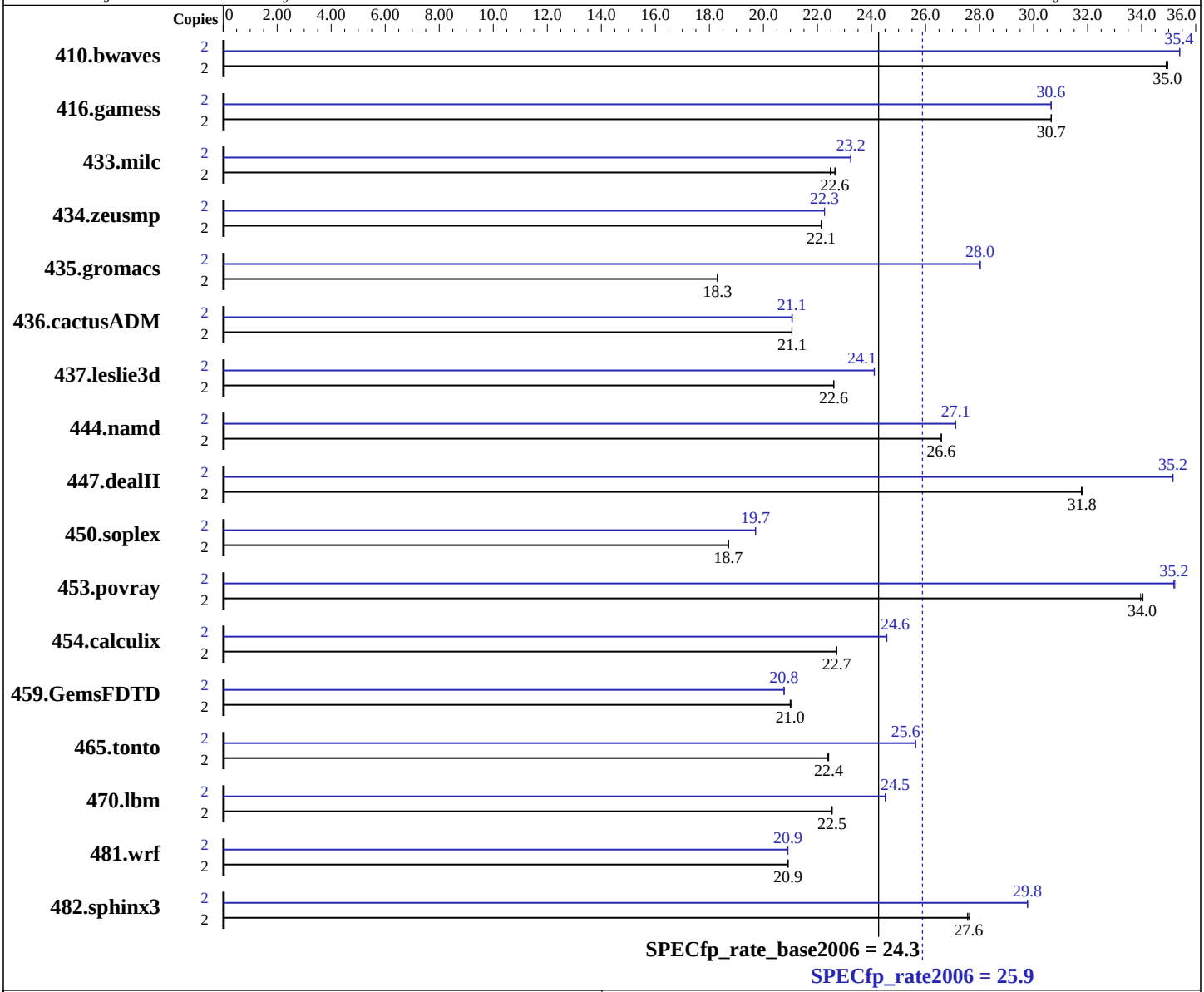
Sun Microsystems
Sun Fire X4200

SPECfp®_rate2006 = 25.9

SPECfp_rate_base2006 = 24.3

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 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	2	777	35.0	**778**	**35.0**	779	34.9	2	**768**	**35.4**	768	35.4	767	35.4
416.gamess	2	1277	30.7	1278	30.7	**1278**	**30.7**	2	1278	30.7	1278	30.6	**1278**	**30.6**
433.milc	2	817	22.5	811	22.7	**811**	**22.6**	2	790	23.2	790	23.2	**790**	**23.2**
434.zeusmp	2	822	22.1	**822**	**22.1**	822	22.1	2	**818**	**22.3**	818	22.3	818	22.3
435.gromacs	2	780	18.3	**780**	**18.3**	781	18.3	2	510	28.0	**510**	**28.0**	510	28.0
436.cactusADM	2	1135	21.1	**1135**	**21.1**	1135	21.1	2	**1135**	**21.1**	1135	21.1	1134	21.1
437.leslie3d	2	832	22.6	**832**	**22.6**	832	22.6	2	**780**	**24.1**	780	24.1	780	24.1
444.namd	2	603	26.6	**603**	**26.6**	603	26.6	2	591	27.1	**591**	**27.1**	591	27.1
447.dealII	2	720	31.8	**720**	**31.8**	719	31.8	2	651	35.2	651	35.2	**651**	**35.2**
450.soplex	2	892	18.7	**892**	**18.7**	892	18.7	2	846	19.7	846	19.7	**846**	**19.7**
453.povray	2	312	34.0	**313**	**34.0**	313	34.0	2	302	35.2	**302**	**35.2**	302	35.2
454.calculix	2	**726**	**22.7**	726	22.7	726	22.7	2	671	24.6	672	24.6	**672**	**24.6**
459.GemsFDTD	2	1009	21.0	1011	21.0	**1011**	**21.0**	2	**1022**	**20.8**	1022	20.8	1022	20.8
465.tonto	2	878	22.4	879	22.4	**878**	**22.4**	2	**768**	**25.6**	768	25.6	768	25.6
470.lbm	2	**1219**	**22.5**	1220	22.5	1219	22.5	2	**1121**	**24.5**	1121	24.5	1121	24.5
481.wrf	2	**1068**	**20.9**	1068	20.9	1068	20.9	2	1069	20.9	1068	20.9	**1069**	**20.9**
482.sphinx3	2	**1412**	**27.6**	1415	27.5	1410	27.6	2	1309	29.8	**1309**	**29.8**	1309	29.8

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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