SPEC® CFP2006 Result

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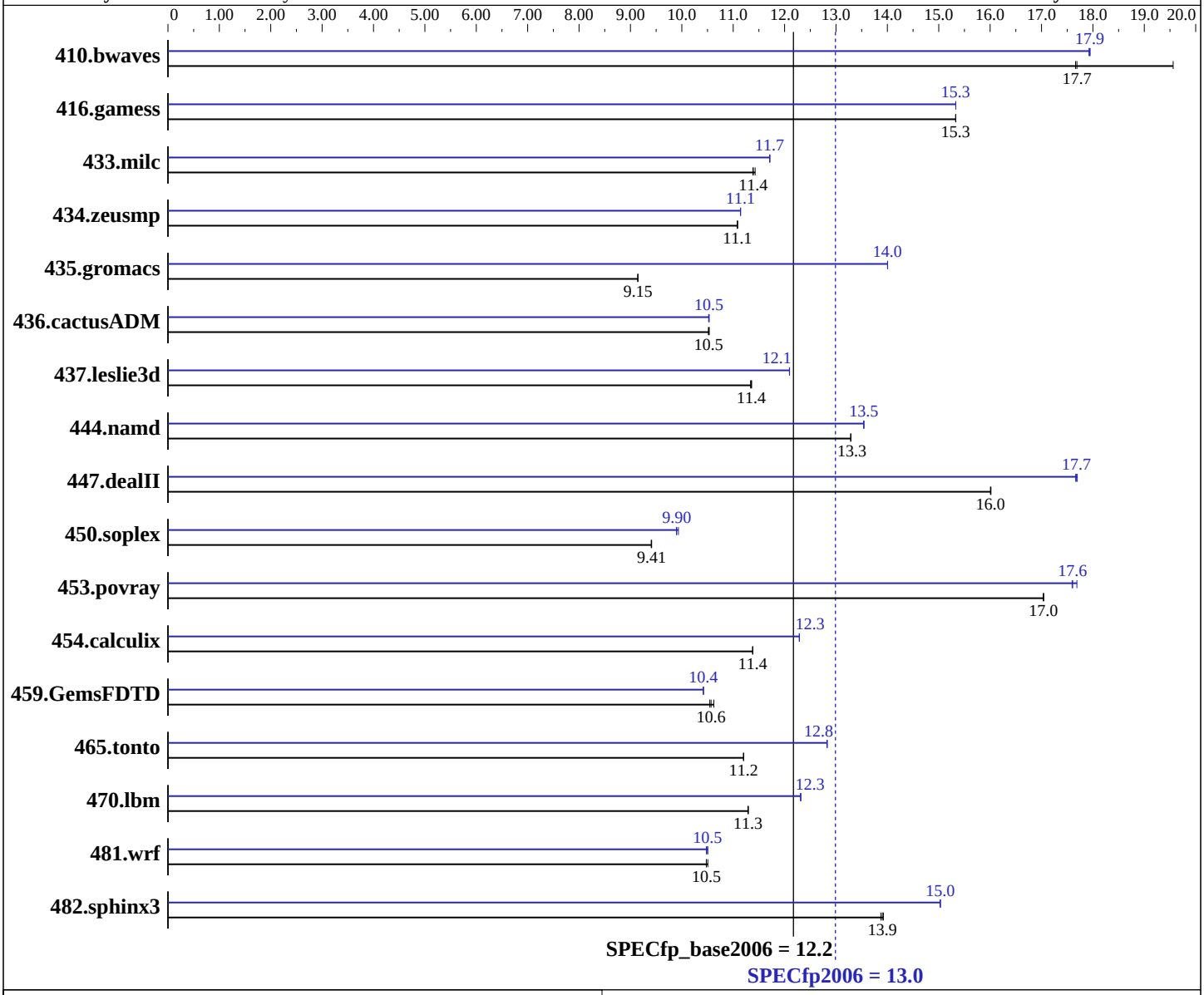
Sun Microsystems
Sun Fire X4200

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.
```

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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Tested with SPEC CPU2006 v91.
Report generated on Tue Jul 22 10:00:02 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 24 August 2006.