SPEC® CFP2006 Result

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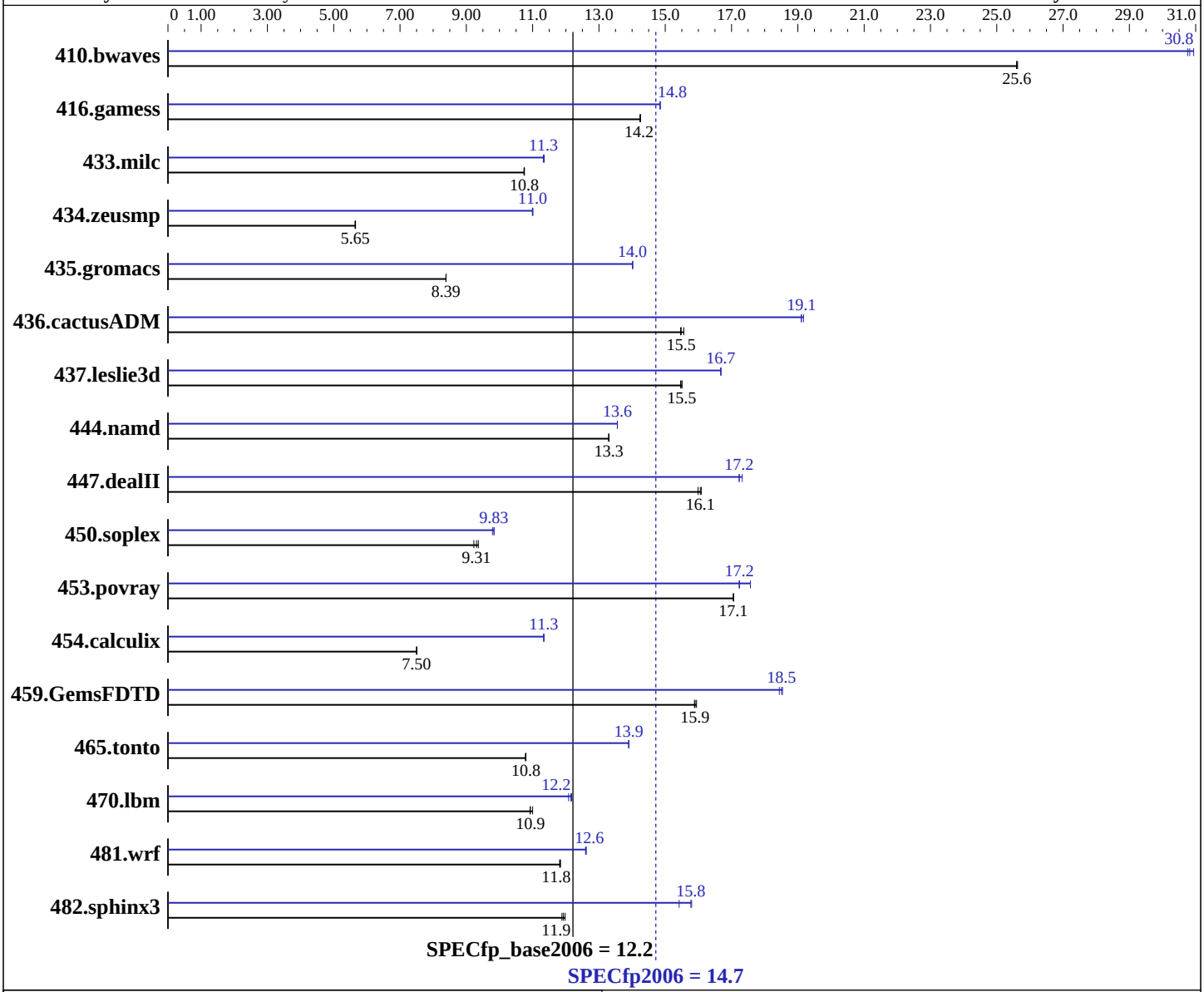
Sun Microsystems
Sun Fire X4200

SPECfp®2006 = 14.7

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:	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 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	**531**	**25.6**	530	25.6	531	25.6	442	30.8	**441**	**30.8**	439	30.9
416.gamess	1375	14.2	**1374**	**14.2**	1374	14.3	1319	14.8	1319	14.8	**1319**	**14.8**
433.milc	**854**	**10.8**	854	10.8	855	10.7	811	11.3	**810**	**11.3**	809	11.4
434.zeusmp	**1610**	**5.65**	1608	5.66	1613	5.64	**827**	**11.0**	828	11.0	827	11.0
435.gromacs	851	8.39	**851**	**8.39**	851	8.39	509	14.0	509	14.0	**509**	**14.0**
436.cactusADM	768	15.6	773	15.5	**772**	**15.5**	626	19.1	623	19.2	**625**	**19.1**
437.leslie3d	608	15.5	**606**	**15.5**	606	15.5	**564**	**16.7**	564	16.7	564	16.7
444.namd	603	13.3	603	13.3	**603**	**13.3**	592	13.6	592	13.6	**592**	**13.6**
447.dealII	**712**	**16.1**	711	16.1	715	16.0	664	17.2	**664**	**17.2**	660	17.3
450.soplex	891	9.36	904	9.23	**896**	**9.31**	**848**	**9.83**	848	9.84	852	9.79
453.povray	**312**	**17.1**	312	17.1	312	17.1	303	17.6	309	17.2	**309**	**17.2**
454.calculix	1100	7.50	1099	7.51	**1100**	**7.50**	**728**	**11.3**	728	11.3	728	11.3
459.GemsFDTD	**667**	**15.9**	668	15.9	665	15.9	**573**	**18.5**	575	18.4	572	18.5
465.tonto	911	10.8	**911**	**10.8**	913	10.8	708	13.9	708	13.9	**708**	**13.9**
470.lbm	1249	11.0	**1257**	**10.9**	1258	10.9	**1131**	**12.2**	1128	12.2	1137	12.1
481.wrf	**945**	**11.8**	945	11.8	943	11.8	**886**	**12.6**	887	12.6	885	12.6
482.sphinx3	1640	11.9	1627	12.0	**1634**	**11.9**	1234	15.8	1264	15.4	**1236**	**15.8**

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

Operating System Notes

```
export PARALLEL=2
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:
```
-O -xautopar -xipo=2 -xarch=amd64a
```

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

Fortran benchmarks:
```
-O -xautopar -xipo=2 -xarch=amd64a
```

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`-O -xautopar -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:

Continued on next page

Peak Optimization Flags (Continued)

433.milc: -fast -xautopar -xarch=amd64a -xipo=2 -xprefetch=auto
-xprefetch_level=3 -xpagesize=2m

470.lbm: -fast -xautopar -xarch=amd64a -xpagesize=2m
-W2,-Ainline:inc=200 -W2,-Ainline:cs=500 -xprefetch_level=3

482.sphinx3: -fast -xautopar -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 -xautopar
-xarch=amd64a -xipo=2 -library=stlport4

447.dealII: -fast -xautopar -xarch=amd64a -xipo=2 -xvector
-Qoption iropt -Abcopy -xalias_level -xrestrict
-xregs=frameptr -library=stlport4

450.soplex: -fast -xautopar -xipo=2 -xarch=sse2a -library=stlport4

453.povray: Same as 447.dealII

Fortran benchmarks:

410.bwaves: -fast -xautopar -xarch=amd64a -unroll=5 -stackvar -xO4
-xipo=2 -xprefetch_level=3 -Qoption iropt -Rloop_dist

416.gamess: -fast -xautopar -xarch=amd64a -xipo=2 -xprefetch_level=3

434.zeusmp: -fast -xipo=2 -xarch=amd64a

437.leslie3d: -fast -xautopar -xipo=2 -xarch=sse2a

459.GemsFDTD: -fast -xautopar -xipo=2 -xarch=amd64a

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xautopar
-xarch=amd64a -xipo=2 -xvector=lib -xalias -xdepend
-lbsdmalloc

Benchmarks using both Fortran and C:

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

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

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Peak Optimization Flags (Continued)

454.calculix: `-fast`(cc) `-fast`(f90) `-xipo=2 -xarch=amd64a`

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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