SPEC® CFP2006 Result

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Sun Microsystems

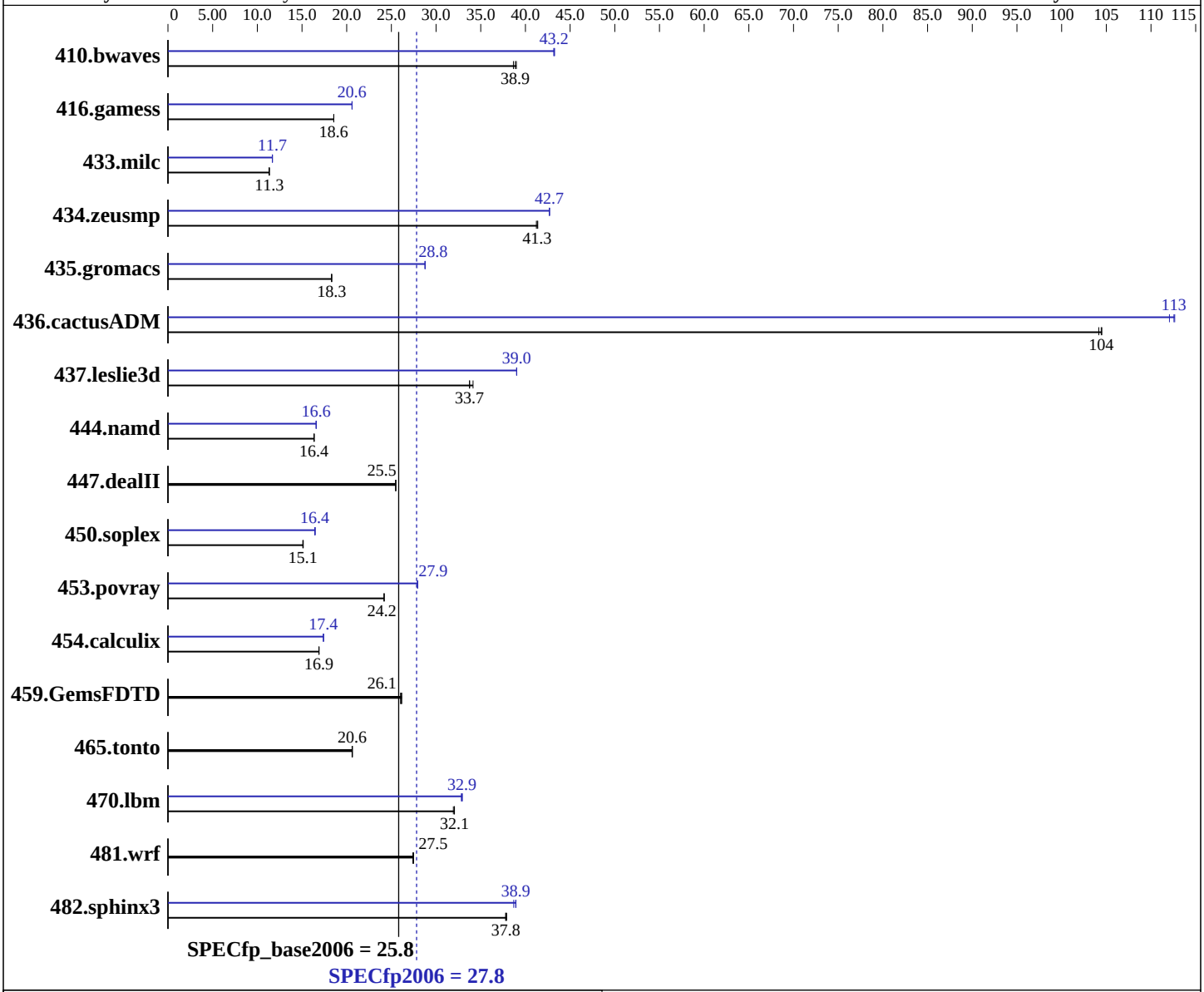
Sun Fire X2250 (Intel Xeon X5482 3.2GHz)

SPECfp®2006 = 27.8

SPECfp_base2006 = 25.8

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

Test date: Sep-2008
Hardware Availability: Oct-2008
Software Availability: Nov-2008



Hardware

CPU Name:	Intel Xeon X5482
CPU Characteristics:	
CPU MHz:	3200
FPU:	Integrated
CPU(s) enabled:	8 cores, 2 chips, 4 cores/chip
CPU(s) orderable:	1,2 chips
Primary Cache:	32 KB I + 32 KB D on chip per core
Secondary Cache:	12 MB I+D on chip per chip, 6 MB shared / 2 cores

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Software

Operating System:	OpenSolaris 2008.05
Compiler:	Sun Studio Express 11/08
Auto Parallel:	Yes
File System:	OS on zfs, Benchmark on 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 (4*4GB Dual-rank PC2-6400 CL5-5-5 FB-DIMMs)
Disk Subsystem: 2 x 250 GB SATA 7200 RPM
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	352	38.7	**350**	**38.9**	349	39.0	**315**	**43.2**	315	43.2	314	43.3
416.gamess	1056	18.5	**1055**	**18.6**	1055	18.6	951	20.6	**950**	**20.6**	950	20.6
433.milc	812	11.3	**809**	**11.3**	809	11.3	785	11.7	**785**	**11.7**	786	11.7
434.zeusmp	221	41.2	**220**	**41.3**	220	41.4	**213**	**42.7**	213	42.7	213	42.7
435.gromacs	**390**	**18.3**	390	18.3	390	18.3	**248**	**28.8**	248	28.8	248	28.8
436.cactusADM	115	104	114	105	**114**	**104**	107	112	**106**	**113**	106	113
437.leslie3d	**279**	**33.7**	279	33.7	275	34.1	**241**	**39.0**	241	39.0	241	39.0
444.namd	**490**	**16.4**	490	16.4	490	16.4	484	16.6	**484**	**16.6**	484	16.6
447.dealII	449	25.5	449	25.5	**449**	**25.5**	449	25.5	449	25.5	**449**	**25.5**
450.soplex	**552**	**15.1**	551	15.1	552	15.1	508	16.4	506	16.5	**507**	**16.4**
453.povray	220	24.2	**220**	**24.2**	220	24.2	190	27.9	**190**	**27.9**	191	27.9
454.calculix	**488**	**16.9**	488	16.9	488	16.9	474	17.4	**474**	**17.4**	474	17.4
459.GemsFDTD	408	26.0	**407**	**26.1**	406	26.2	408	26.0	**407**	**26.1**	406	26.2
465.tonto	478	20.6	477	20.6	**477**	**20.6**	478	20.6	477	20.6	**477**	**20.6**
470.lbm	430	31.9	**429**	**32.1**	429	32.1	417	32.9	**418**	**32.9**	419	32.8
481.wrf	407	27.4	407	27.5	**407**	**27.5**	407	27.4	407	27.5	**407**	**27.5**
482.sphinx3	514	37.9	516	37.8	**516**	**37.8**	**501**	**38.9**	504	38.7	501	38.9

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

Operating System Notes

```
Environment variable SUNW_MP_THR_IDLE set to SPIN
Environment variable OMP_NUM_THREADS set to 8
'ulimit -s unlimited' was used to set environment stack size

Added additional 8GB of swap from UFS filesystem, using following commands:
mkfile 8g /data1/swapfile;  swap -a /data1/swapfile

Kernel Parameters (/etc/system):
autoup=900
tune_t_fsflushr=1
max_utext_lpsize=0x200000
```

Platform Notes

```
BIOS configuration:
Hardware Prefetch : Enabled; Adjacent Sector Prefetch : Enabled
```

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 -xautopar -xipo=2 -xvector=simd -m64
```

C++ benchmarks:
```
-fast -xipo=2 -xvector=simd -m64 -library=stlport4
```

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Base Optimization Flags (Continued)

Fortran benchmarks:
`-fast -xautopar -xipo=2 -xvector=simd -m64`

Benchmarks using both Fortran and C:
`-fast`(cc) `-xautopar -xipo=2 -xvector=simd -m64 -fast`(f90)

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`
447.dealII: `-DSPEC_CPU_LP64`
459.GemsFDTD: `-DSPEC_CPU_LP64`
465.tonto: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN`

Peak Optimization Flags

C benchmarks:

433.milc: `-fast -xautopar -xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64`

470.lbm: `-fast -xautopar -xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64 -lmtmalloc`

482.sphinx3: `-fast -xipo=2 -xvector=simd -m64 -xpagesize=2M -xautopar -xreduction`

C++ benchmarks:

444.namd: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -xvector=simd -m64 -xpagesize=2M -xautopar -xreduction -library=stlport4`

447.dealII: `basepeak = yes`

450.soplex: `-fast -xipo=2 -m32 -xpagesize=2M -library=stlport4`

453.povray: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64 -xvector=simd -lumem -xalias_level=compatible -xautopar -xpagesize=2M -lmtmalloc -Qoption ube -fsimple=3 -library=stlport4`

Fortran benchmarks:

410.bwaves: `-O2 -m64 -xipo=2 -xprefetch -xprefetch_level=2 -xautopar -xreduction -Qoption ube -fsimple=3 -lmvec -lmtmalloc`

416.gamess: `-xprofile=collect:./feedback`(pass 1) `-xprofile=use:./feedback`(pass 2) `-fast -xipo=2 -m64 -xdepend -xalias -stackvar -aligncommon=16 -Qoption ube -fsimple=3 -xpagesize=2M`

434.zeusmp: `-fast -xautopar`

437.leslie3d: `-fast -xautopar -xipo=2 -xvector=lib -xprefetch -xprefetch_level=3 -m64`

459.GemsFDTD: `basepeak = yes`

465.tonto: `basepeak = yes`

Benchmarks using both Fortran and C:

Continued on next page

Peak Optimization Flags (Continued)

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -m64 -xpagesize=2M -xautopar -xreduction -lmvec
-lmtmalloc -Wu,-fsimple=3 -Qoption ube -fsimple=3

436.cactusADM: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -xautopar
-xipo=2 -xvector=simd -m64 -xpagesize_heap=2m
-Wu,-fsimple=3 -fast(f90) -Qoption ube -fsimple=3
-Qoption iropt -Aujam:noinner

454.calculix: -fast(cc) -fast(f90) -xipo=2 -m64 -xvector=simd
-Wu,-sched_first_pass=0 -lmvec -lmtmalloc
-Qoption ube -sched_first_pass=1

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-OpenSolaris-Studio-x86_64.20090713.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090713.xml

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