SPEC® CFP2006 Result

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Sun Microsystems

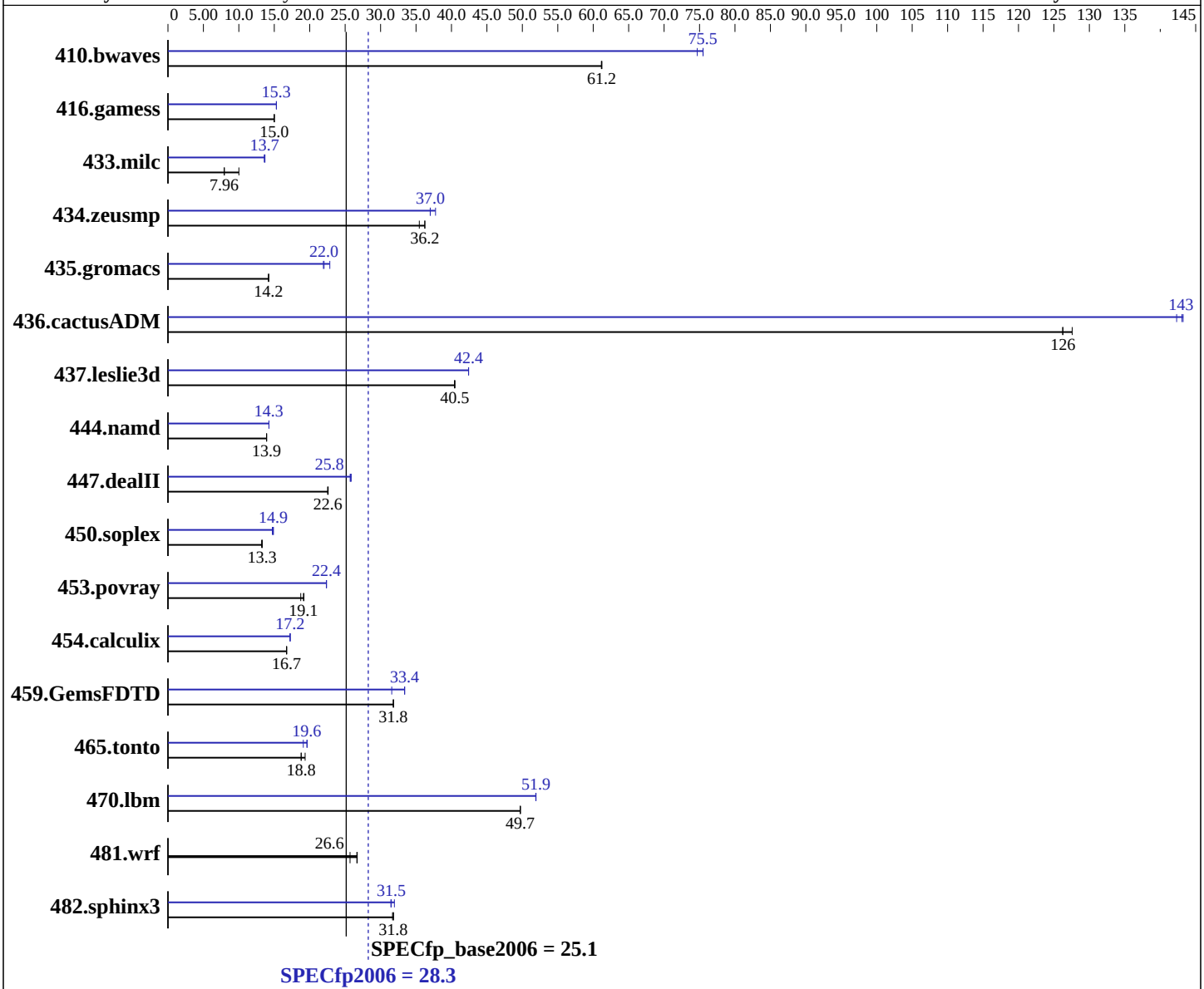
Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp®2006 = 28.3

SPECfp_base2006 = 25.1

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

Test date: Jul-2009
Hardware Availability: Jul-2009
Software Availability: Jun-2009



Hardware

CPU Name:	AMD Opteron 8435
CPU Characteristics:	
CPU MHz:	2600
FPU:	Integrated
CPU(s) enabled:	24 cores, 4 chips, 6 cores/chip
CPU(s) orderable:	2 or 4 chips
Primary Cache:	64 KB I + 64 KB D on chip per core
Secondary Cache:	512 KB I+D on chip per core

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Software

Operating System:	OpenSolaris 2009.06
Compiler:	Sun Studio 12 Update 1
Auto Parallel:	Yes
File System:	zfs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	None

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L3 Cache: 6 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (16x4GB, DDR2-667, CL5, Reg, Dual Rank)
Disk Subsystem: 1 x 146 GB SATA 10 K RPM
Other Hardware: None

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**222**	**61.2**	222	61.1	222	61.2	182	74.7	**180**	**75.5**	180	75.5
416.gamess	**1306**	**15.0**	1305	15.0	1306	15.0	**1280**	**15.3**	1279	15.3	1280	15.3
433.milc	**1154**	**7.96**	1156	7.94	917	10.0	**672**	**13.7**	671	13.7	676	13.6
434.zeusmp	257	35.5	251	36.2	**251**	**36.2**	241	37.8	246	37.0	**246**	**37.0**
435.gromacs	**503**	**14.2**	503	14.2	503	14.2	**324**	**22.0**	313	22.8	326	21.9
436.cactusADM	94.7	126	93.7	128	**94.6**	**126**	84.0	142	**83.5**	**143**	83.4	143
437.leslie3d	**232**	**40.5**	232	40.5	233	40.4	222	42.4	**222**	**42.4**	222	42.4
444.namd	576	13.9	**576**	**13.9**	576	13.9	563	14.2	**563**	**14.3**	563	14.3
447.dealII	506	22.6	**507**	**22.6**	508	22.5	442	25.9	**444**	**25.8**	445	25.7
450.soplex	**628**	**13.3**	627	13.3	631	13.2	560	14.9	**562**	**14.9**	566	14.7
453.povray	**278**	**19.1**	284	18.7	277	19.2	**238**	**22.4**	238	22.4	238	22.3
454.calculix	**493**	**16.7**	492	16.8	493	16.7	478	17.2	479	17.2	**479**	**17.2**
459.GemsFDTD	**334**	**31.8**	334	31.8	334	31.8	**318**	**33.4**	318	33.4	336	31.6
465.tonto	**523**	**18.8**	524	18.8	508	19.4	**502**	**19.6**	501	19.6	515	19.1
470.lbm	276	49.7	276	49.7	**276**	**49.7**	265	51.9	**265**	**51.9**	265	51.9
481.wrf	435	25.7	418	26.7	**419**	**26.6**	435	25.7	418	26.7	**419**	**26.6**
482.sphinx3	**613**	**31.8**	612	31.8	615	31.7	**618**	**31.5**	620	31.5	610	31.9

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

Compiler Invocation Notes

```
The Apache C++ Standard Library V4.2.1 was installed from
http://stdcxx.apache.org/download.html using:
    alias gmake=specmake
    gmake BUILDTYPE=8D CONFIG=sunpro.config
```

Operating System Notes

```
ulimit -s 131072  (shell): increases stack
```

Platform Notes

```
Default BIOS settings used except:
DCT Unganged Mode set to "Always" to enable Unganged Mode
```

General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "12"
SUNW_MP_PROCBIND = "true"
SUNW_MP_THR_IDLE = "SPIN"

447.dealII (peak): "apache_stdcxx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdcxx_4_2_1" src.alt was 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

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Base Portability Flags (Continued)

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 -m64 -xvector=simd -xautopar

C++ benchmarks:
-fast -xipo=2 -m64 -xvector=simd -library=no%Cstd
-I/data1/stdcxx-4.2.1/include -I/data1/stdcxx-4.2.1/build/include
-L/data1/stdcxx-4.2.1/build/lib -R/data1/stdcxx-4.2.1/build/lib -lstd8D

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

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

Base Other Flags

C benchmarks:
-V -# -xjobs=24

C++ benchmarks:
-verbose=diags,version -xjobs=24

Fortran benchmarks:
-V -v -xjobs=24

Benchmarks using both Fortran and C:
-V -# -xjobs=24 -v

Peak Compiler Invocation

C benchmarks:
cc

C++ benchmarks:
CC

Continued on next page

Peak Compiler Invocation (Continued)

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Peak Portability Flags

436.cactusADM: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xunroll=4 -xvector=simd

470.lbm: -fast -xipo=2 -m64 -xvector=simd -xautopar -xreduction
-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap_mt64
-lmvec

482.sphinx3: -fast -xipo=2 -m64 -xpagesize=2M -xvector=simd
-xprefetch=no%auto -xautopar -xreduction

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xunroll=8 -library=stlport4

447.dealII: -fast -xipo=1 -m64 -xpagesize=2M -xalias_level=compatible
-xdepend -library=no%Cstd -I/data1/stdcxx-4.2.1/include
-I/data1/stdcxx-4.2.1/build/include
-L/data1/stdcxx-4.2.1/build/lib
-R/data1/stdcxx-4.2.1/build/lib -lstd8D

450.soplex: -fast -xipo=2 -xpagesize=2M -xrestrict
-xalias_level=simple -xprefetch=no%auto -library=stlport4
-xdepend

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xalias_level=simple -library=stlport4 -xpagesize=2M

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Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xprefetch=no%auto -xautopar -xreduction

416.gamess: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xunroll=1 -qoption iropt -Ainline:cp=19
-qoption iropt -Ainline:rs=50 -qoption iropt -Ainline:irs=30

434.zeusmp: -fast -xipo=2 -m64 -xvector=simd -xautopar -xreduction

437.leslie3d: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xvector=simd -xautopar -xreduction -lumem

459.GemsFDTD: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xvector=simd -xautopar -xreduction

465.tonto: -fast -xipo=2 -m64 -xvector=lib -xalias -xdepend
-xpagesize=2M -xautopar -stackvar -xreduction
-xprefetch=no%auto

Benchmarks using both Fortran and C:

435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -m64 -fsimple=2 -Qoption ube -fsimple=3
-xprefetch=no%auto -xpagesize=2M -xautopar -xreduction

436.cactusADM: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -xaddr32=yes -m64 -xvector=simd -xautopar
-W2,-Aparallel:nthreads=24
-Qoption iropt -Aparallel:nthreads=24

454.calculix: -fast(cc) -fast(f90) -xipo=2 -m64 -xpagesize=2M
-xvector=simd

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:
-V -# -xjobs=24

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Peak Other Flags (Continued)

C++ benchmarks:
```
-verbose=diags,version -xjobs=24
```

Fortran benchmarks:
```
-V -v -xjobs=24
```

Benchmarks using both Fortran and C:
```
-V -# -xjobs=24 -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_64.20090818.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090818.xml

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