



SPEC® CFP2006 Result

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Sun Microsystems

SPECfp®2006 = 28.3

Sun Fire X4440 (AMD Opteron 8435 2.6GHz)

SPECfp_base2006 = 25.1

CPU2006 license: 6

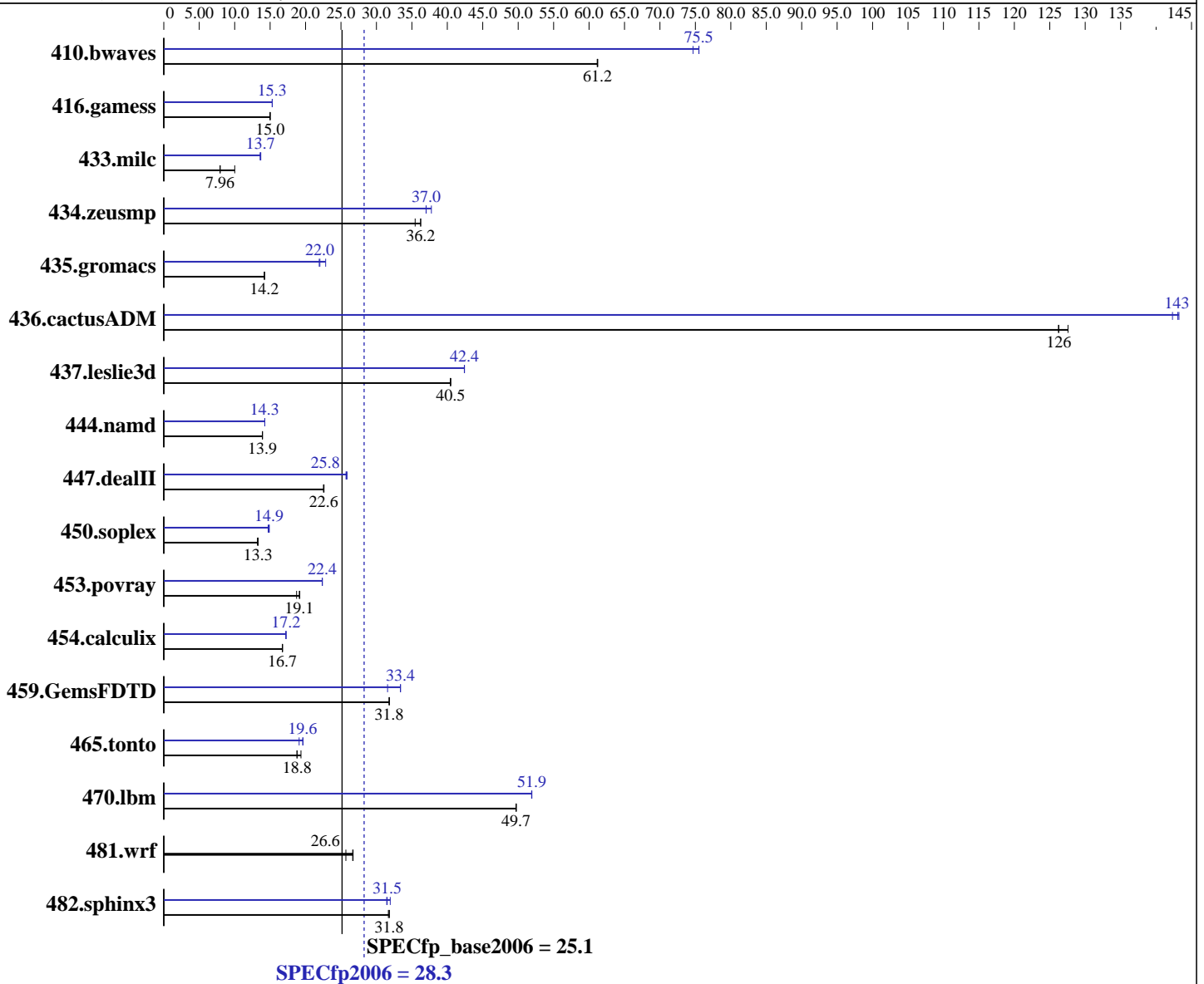
Test date: Jul-2009

Test sponsor: Sun Microsystems

Hardware Availability: Jul-2009

Tested by: Sun Microsystems

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



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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_stdccx_4_2_1" src.alt was used.

447.dealII (base): "apache_stdccx_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

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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 -lsmarheap_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.dealIII: -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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