



SPEC® CFP2006 Result

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Sun Microsystems

SPECfp®2006 = 48.9

Sun Fire X4170 (Intel Xeon X5570 2.93GHz)

SPECfp_base2006 = 43.9

CPU2006 license: 6

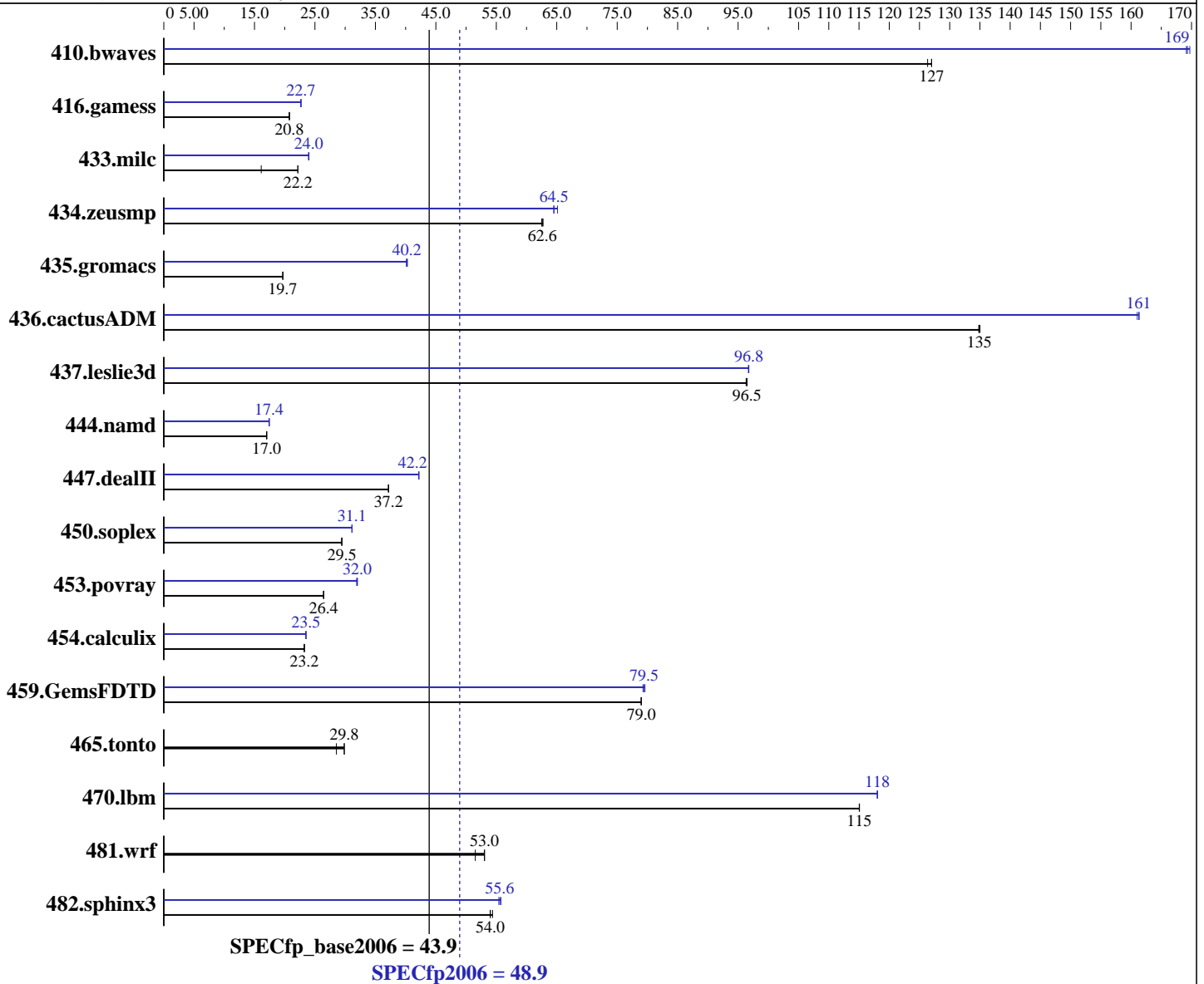
Test sponsor: Sun Microsystems

Tested by: Sun Microsystems

Test date: Apr-2009

Hardware Availability: Apr-2009

Software Availability: Jun-2009



Hardware

CPU Name: Intel Xeon X5570
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 or 2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: OpenSolaris 2008.11
 Compiler: Sun Studio 12 Update 1 (internal build 39.0)
 Auto Parallel: Yes
 File System: zfs with gzip compression
 System State: Default
 Base Pointers: 64-bit
 Peak Pointers: 32/64-bit

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB DDR3-1333)
Disk Subsystem: 1 x 146 GB, SAS, 10 K RPM
Other Hardware: None

Other Software: MicroQuill SmartHeap Library 9.01 for x64
Apache C++ Standard Library V4.2.1

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	108	126	107	127	107	127	80.3	169	80.1	170	80.3	169
416.gamess	943	20.8	943	20.8	943	20.8	863	22.7	863	22.7	863	22.7
433.milc	414	22.2	570	16.1	414	22.2	382	24.0	383	24.0	384	23.9
434.zeusmp	146	62.5	145	62.7	145	62.6	141	64.5	141	64.5	140	65.1
435.gromacs	363	19.7	363	19.7	363	19.7	178	40.2	178	40.1	177	40.3
436.cactusADM	88.6	135	88.6	135	88.5	135	74.2	161	74.1	161	74.1	161
437.leslie3d	97.6	96.3	97.4	96.5	97.5	96.5	97.1	96.8	97.2	96.7	97.1	96.8
444.namd	471	17.0	471	17.0	471	17.0	460	17.4	460	17.4	460	17.4
447.dealII	308	37.2	308	37.2	308	37.2	271	42.2	271	42.2	271	42.2
450.soplex	283	29.4	283	29.5	283	29.5	268	31.1	268	31.1	268	31.1
453.povray	201	26.4	201	26.5	201	26.4	167	31.9	166	32.0	166	32.0
454.calculix	355	23.3	355	23.2	355	23.2	351	23.5	351	23.5	351	23.5
459.GemsFDTD	134	79.0	134	79.0	134	79.0	134	79.5	134	79.3	133	79.6
465.tonto	330	29.8	330	29.9	345	28.6	330	29.8	330	29.9	345	28.6
470.lbm	119	115	119	115	119	115	116	118	116	118	116	118
481.wrf	217	51.5	211	53.1	211	53.0	217	51.5	211	53.1	211	53.0
482.sphinx3	361	54.0	361	54.0	358	54.4	351	55.6	349	55.8	352	55.4

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

/etc/system parameters
tune_t_fsflushr=10
autoup=900
set lpg_alloc_prefer=1
set zfs:zfs_arc_max = 0x10000000
```



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Platform Notes

Default BIOS settings used except:
Intel VT-d: Disabled. VT-d, if enabled, supports
remapping of I/O DMA transfers for virtualization.

General Notes

Environment variables set by runspec before the start of the run:

OMP_NUM_THREADS = "8"
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:

/data1/SUNWspro.b39/SUNWspro/bin/cc

C++ benchmarks:

/data1/SUNWspro.b39/SUNWspro/bin/CC

Fortran benchmarks:

/data1/SUNWspro.b39/SUNWspro/bin/f90

Benchmarks using both Fortran and C:

/data1/SUNWspro.b39/SUNWspro/bin/cc /data1/SUNWspro.b39/SUNWspro/bin/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

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Base Portability Flags (Continued)

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 -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=16

C++ benchmarks:

-verbose=diags,version -xjobs=16

Fortran benchmarks:

-V -v -xjobs=16

Benchmarks using both Fortran and C:

-V -# -xjobs=16 -v

Peak Compiler Invocation

C benchmarks:

/data1/SUNWspro.b39/SUNWspro/bin/cc

C++ benchmarks:

/data1/SUNWspro.b39/SUNWspro/bin/CC

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Peak Compiler Invocation (Continued)

Fortran benchmarks:

/data1/SUNWspro.b39/SUNWspro/bin/f90

Benchmarks using both Fortran and C:

/data1/SUNWspro.b39/SUNWspro/bin/cc /data1/SUNWspro.b39/SUNWspro/bin/f90

Peak Portability Flags

436.cactusADM: -DSPEC_CPU_LP64

465.tonto: -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
-xpagesize=2M

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.deallI: -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 -xdepend
-library=stlport4

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

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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: basepeak = yes

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 -xpagesize=2M -fsimple=2
-Qoption ube -fsimple=3 -xprefetch=no%auto -xautopar
-xreduction

436.cactusADM: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xipo=2 -m64 -xvector=simd -xautopar
-W2,-Aparallel:nthreads=16
-Qoption iropt -Aparallel:nthreads=16

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

481.wrf: basepeak = yes

Peak Other Flags

C benchmarks:

-V -# -xjobs=16

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Peak Other Flags (Continued)

C++ benchmarks:

-verbose=diags,version -xjobs=16

Fortran benchmarks:

-V -v -xjobs=16

Benchmarks using both Fortran and C:

-V -# -xjobs=16 -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_64.20090710.00.html

You can also download the XML flags source by saving the following link:

http://www.spec.org/cpu2006/flags/Sun-OpenSolaris-Studio-x86_64.20090710.00.xml

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