SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Oracle Corporation

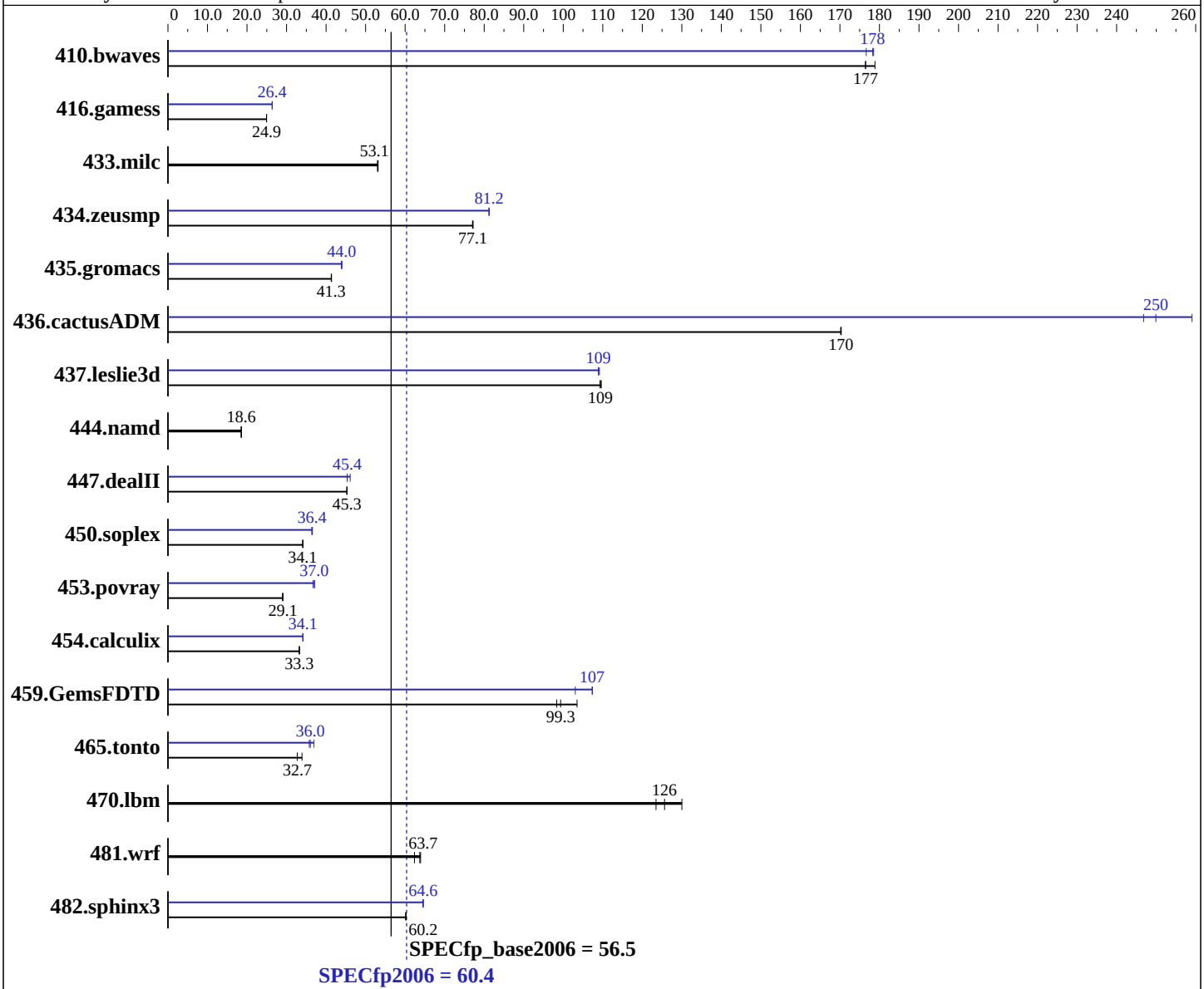
Sun Fire X4270 M2 (Intel Xeon X5680 3.33GHz)

SPECfp®2006 = 60.4

SPECfp_base2006 = 56.5

CPU2006 license: 6
Test sponsor: Oracle Corporation
Tested by: Oracle Corporation

Test date: Jul-2010
Hardware Availability: Aug-2010
Software Availability: Jun-2010



Hardware

CPU Name:	Intel Xeon X5680
CPU Characteristics:	Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz:	3333
FPU:	Integrated
CPU(s) enabled:	12 cores, 2 chips, 6 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:	Oracle Solaris 10 10/09
Compiler:	Oracle Solaris Studio Express 6/10
Auto Parallel:	Yes
File System:	ufs
System State:	Default
Base Pointers:	64-bit
Peak Pointers:	32/64-bit
Other Software:	Apache C++ Standard Library V4.2.1

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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB DDR3-1333 CL9, 2 Rank, ECC)
Disk Subsystem: 1 x 1 TB, 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	**77.0**	**177**	77.0	176	76.0	179	76.9	177	**76.2**	**178**	76.1	179
416.gamess	785	24.9	785	24.9	**785**	**24.9**	**743**	**26.4**	743	26.4	742	26.4
433.milc	173	53.2	173	53.0	**173**	**53.1**	173	53.2	173	53.0	**173**	**53.1**
434.zeusmp	118	77.2	118	77.0	**118**	**77.1**	112	81.3	**112**	**81.2**	112	81.2
435.gromacs	173	41.4	173	41.3	**173**	**41.3**	163	43.9	**162**	**44.0**	162	44.0
436.cactusADM	70.2	170	**70.2**	**170**	70.2	170	**47.8**	**250**	48.4	247	46.1	259
437.leslie3d	85.7	110	86.0	109	**85.9**	**109**	86.3	109	**86.3**	**109**	86.1	109
444.namd	432	18.6	432	18.6	**432**	**18.6**	432	18.6	432	18.6	**432**	**18.6**
447.dealII	253	45.2	252	45.3	**253**	**45.3**	**252**	**45.4**	248	46.1	252	45.3
450.soplex	**245**	**34.1**	244	34.2	245	34.1	229	36.4	228	36.6	**229**	**36.4**
453.povray	183	29.1	183	29.0	**183**	**29.1**	143	37.1	**144**	**37.0**	145	36.7
454.calculix	248	33.2	**248**	**33.3**	248	33.3	241	34.2	242	34.1	**242**	**34.1**
459.GemsFDTD	108	98.4	**107**	**99.3**	103	103	98.8	107	**98.9**	**107**	103	103
465.tonto	**301**	**32.7**	290	33.9	301	32.7	266	36.9	275	35.8	**273**	**36.0**
470.lbm	106	130	**109**	**126**	111	123	106	130	**109**	**126**	111	123
481.wrf	**175**	**63.7**	179	62.4	175	63.9	**175**	**63.7**	179	62.4	175	63.9
482.sphinx3	**324**	**60.2**	324	60.2	324	60.1	302	64.6	302	64.5	**302**	**64.6**

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
   lpg_alloc_prefer=1
```

Platform Notes

```
Default BIOS settings used except:
  Hardware Prefetch            : Enabled
  Adjacent Cache Line Prefetch : Enabled
  Data Reuse Optimization      : Disabled
  Intel C-STATE technology     : Disabled
```

General Notes

```
Environment variables set by runspec before the start of the run:
OMP_NUM_THREADS = "12"
SUNW_MP_PROCBIND = "23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 0"
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

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Base Portability Flags (Continued)

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 -xipo=2 -m64 -xautopar -xreduction

C++ benchmarks:
-fast -xipo=2 -m64 -xalias_level=compatible -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 -xautopar -xreduction

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

Continued on next page

Peak Compiler Invocation (Continued)

C++ benchmarks:
CC

Fortran benchmarks:
f90

Benchmarks using both Fortran and C:
cc f90

Peak Portability Flags

433.milc: -DSPEC_CPU_LP64
436.cactusADM: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -fast -xipo=2 -m64 -xpagesize=2M -xalias_level=std
-xrestrict -xprefetch=no%auto -xautopar -xreduction

C++ benchmarks:

444.namd: basepeak = yes

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

453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xvector=no%simd -xalias_level=compatible
-library=stlport4 -qoption iropt -Atile:skewp

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Peak Optimization Flags (Continued)

453.povray (continued):
-qoption iropt -Ainline:cs=700

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: -fast -xipo=2 -m64 -xpagesize=2M -xunroll=1
-xvector=no%simd

434.zeusmp: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xautopar -xreduction

437.leslie3d: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-Qoption ube -xprefetch_mult=2 -xautopar -xreduction

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

465.tonto: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xipo=2 -m64
-xpagesize=2M -xautopar -xreduction -xprefetch=no%auto
-stackvar -xalias -lumem

Benchmarks using both Fortran and C:

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

436.cactusADM: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -m64 -fast(cc) -fast(f90)
-xipo=0 -xpagesize=2M -xprefetch_level=2
-W2,-Aparallel:nthreads=24
-Qoption iropt -Aparallel:nthreads=24 -xautopar -xreduction
-lumem -lmvec

454.calculix: -fast(cc) -fast(f90) -xipo=2 -m64 -xpagesize=2M
-xunroll=3 -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access

481.wrf: basepeak = yes

Peak 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
```

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.20100901.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.20100901.xml

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