



SPEC® CFP2006 Result

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Oracle Corporation

SPECfp®2006 = **58.6**

Sun Fire X2270 M2 (Intel Xeon X5670 2.93GHz)

SPECfp_base2006 = **49.9**

CPU2006 license: 6

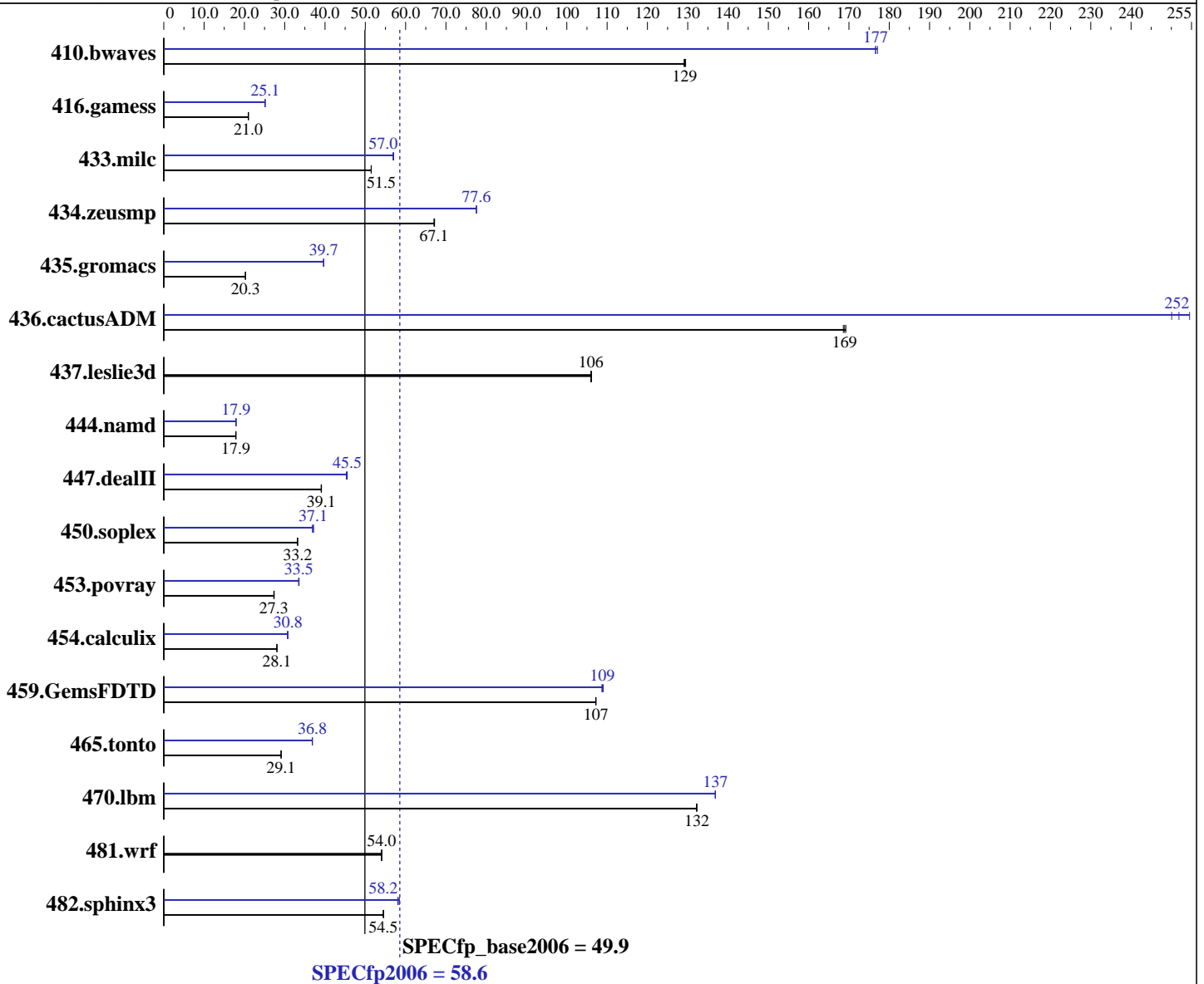
Test date: Mar-2010

Test sponsor: Oracle Corporation

Hardware Availability: May-2010

Tested by: Oracle Corporation

Software Availability: Jun-2010



Hardware

CPU Name: Intel Xeon X5670
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 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: zfs
 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	105	129	<u>105</u>	<u>129</u>	105	129	76.7	177	<u>76.9</u>	<u>177</u>	77.0	177
416.gamess	933	21.0	<u>933</u>	<u>21.0</u>	933	21.0	779	25.2	779	25.1	<u>779</u>	<u>25.1</u>
433.milc	<u>178</u>	<u>51.5</u>	178	51.5	178	51.4	161	57.0	<u>161</u>	<u>57.0</u>	161	56.9
434.zeusmp	135	67.2	136	67.1	<u>136</u>	<u>67.1</u>	117	77.6	117	77.5	<u>117</u>	<u>77.6</u>
435.gromacs	352	20.3	<u>353</u>	<u>20.3</u>	353	20.3	180	39.7	180	39.6	<u>180</u>	<u>39.7</u>
436.cactusADM	70.6	169	70.9	169	<u>70.7</u>	<u>169</u>	<u>47.4</u>	<u>252</u>	46.9	255	47.8	250
437.leslie3d	88.7	106	<u>88.7</u>	<u>106</u>	88.6	106	88.7	106	<u>88.7</u>	<u>106</u>	88.6	106
444.namd	449	17.9	<u>448</u>	<u>17.9</u>	448	17.9	447	17.9	448	17.9	<u>447</u>	<u>17.9</u>
447.dealII	<u>293</u>	<u>39.1</u>	292	39.1	293	39.0	251	45.5	253	45.3	<u>251</u>	<u>45.5</u>
450.soplex	251	33.2	<u>251</u>	<u>33.2</u>	251	33.2	<u>225</u>	<u>37.1</u>	226	36.9	224	37.2
453.povray	195	27.3	194	27.4	<u>195</u>	<u>27.3</u>	<u>159</u>	<u>33.5</u>	159	33.5	158	33.6
454.calculix	294	28.0	294	28.1	<u>294</u>	<u>28.1</u>	268	30.8	269	30.7	<u>268</u>	<u>30.8</u>
459.GemsFDTD	99.0	107	98.9	107	<u>98.9</u>	<u>107</u>	<u>97.5</u>	<u>109</u>	97.3	109	97.6	109
465.tonto	338	29.1	338	29.1	<u>338</u>	<u>29.1</u>	<u>267</u>	<u>36.8</u>	267	36.8	267	36.9
470.lbm	104	132	104	132	<u>104</u>	<u>132</u>	100	137	<u>100</u>	<u>137</u>	100	137
481.wrf	207	54.1	207	54.0	<u>207</u>	<u>54.0</u>	207	54.1	207	54.0	<u>207</u>	<u>54.0</u>
482.sphinx3	358	54.4	<u>357</u>	<u>54.5</u>	357	54.5	333	58.5	336	58.0	<u>335</u>	<u>58.2</u>

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 unlimited (shell)

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



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Platform Notes

Default BIOS settings used

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.dealIII (peak): "apache_stdccxx_4_2_1" src.alt was used.

447.dealIII (base): "apache_stdccxx_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.dealIII: -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

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Base Portability Flags (Continued)

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 -xtarget=nehalem -xipo=2 -m64 -xvector=simd -xautopar

C++ benchmarks:

-fast -xtarget=nehalem -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 -xtarget=nehalem -xipo=2 -m64 -xvector=simd -xautopar

Benchmarks using both Fortran and C:

-fast(cc) -xtarget=nehalem -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
437.leslie3d: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_WORDS_LITTLEENDIAN

Peak Optimization Flags

C benchmarks:

433.milc: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xalias_level=std

470.lbm: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -m64 -xpagesize=2M -xautopar -xreduction
-L/data1/SmartHeap_9/lib -R/data1/SmartHeap_9/lib -lsmartheap_mt64

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

C++ benchmarks:

444.namd: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -m64 -xpagesize=2M -xalias_level=compatible
-library=stlport4

447.dealII: -fast -xtarget=nehalem -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 -lstl8D

450.soplex: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -xpagesize=2M -xalias_level=compatible
-library=stlport4 -m64

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Peak Optimization Flags (Continued)

```
453.povray: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem
-xipo=2 -m64 -xpagesize=2M -xvector=no%simd
-xalias_level=compatible -library=stlport4
-qoption iropt -Atile:skewp -qoption iropt -Ainline:cs=700
```

Fortran benchmarks:

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

```
416.gamess: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xunroll=1 -xvector=no%simd
```

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

437.leslie3d: basepeak = yes

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

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

Benchmarks using both Fortran and C:

```
435.gromacs: -xprofile=collect:./feedback(pass 1)
-xprofile=use:./feedback(pass 2) -fast(cc) -fast(f90)
-xtarget=nehalem -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)
-xtarget=nehalem -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) -xtarget=nehalem -xipo=2 -m64
-xpagesize=2M -xunroll=3 -xprefetch_level=2
-xprefetch_auto_type=indirect_array_access
```

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Peak Optimization Flags (Continued)

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.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.xml

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For other inquiries, please contact webmaster@spec.org.

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