



# SPEC® CFP2006 Result

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## Oracle Corporation

### SPECfp®\_rate2006 = 240

### Sun Fire X2270 M2 (Intel Xeon X5670 2.93GHz)

### SPECfp\_rate\_base2006 = 231

CPU2006 license: 6

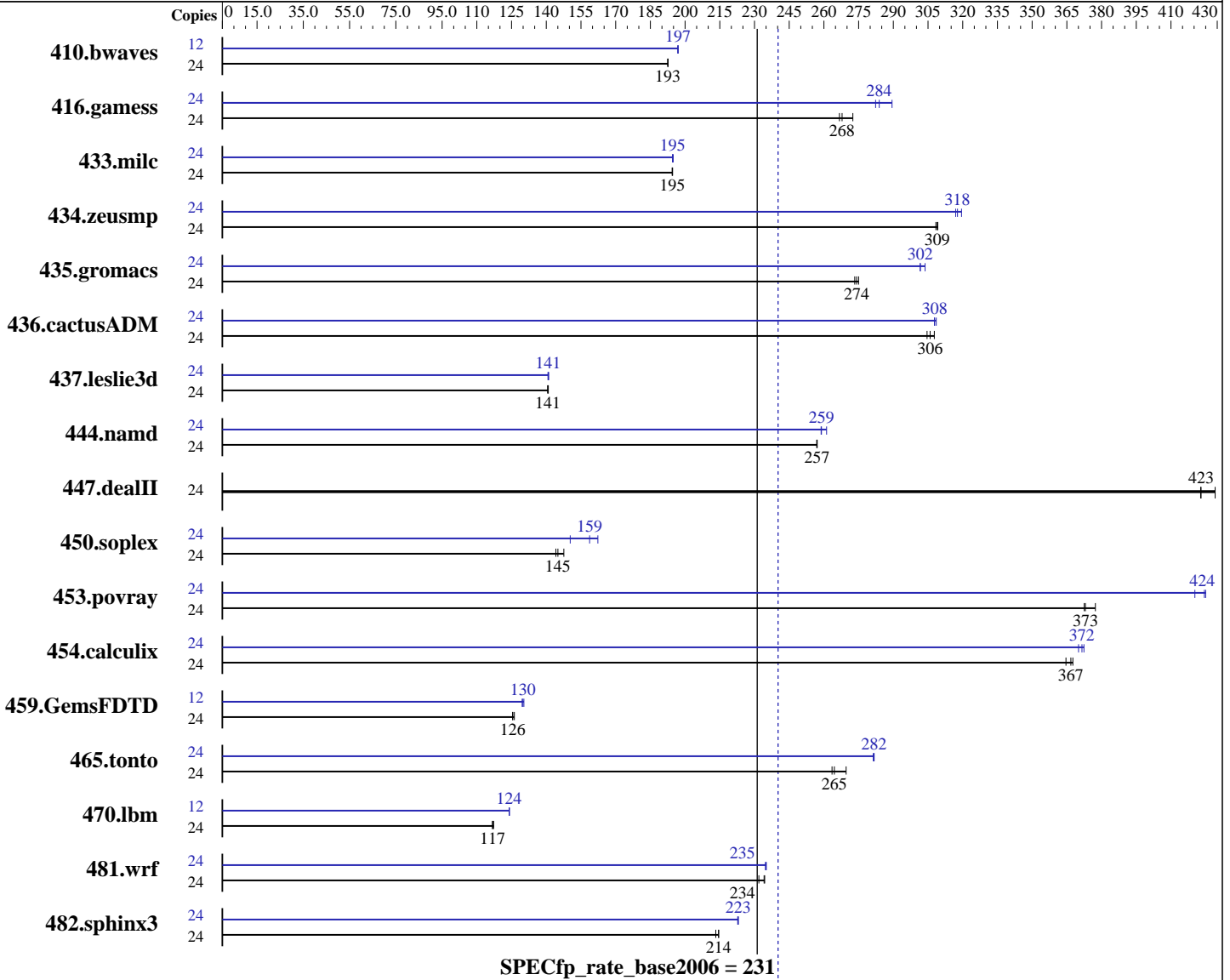
Test date: Mar-2010

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: No  
 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							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	24	1695	192	<b><u>1693</u></b>	<b><u>193</u></b>	1693	193	12	828	197	829	197	<b><u>828</u></b>	<b><u>197</u></b>		
416.gamess	24	1724	273	<b><u>1754</u></b>	<b><u>268</u></b>	1762	267	24	1623	289	<b><u>1655</u></b>	<b><u>284</u></b>	1664	282		
433.milc	24	1133	194	1132	195	<b><u>1133</u></b>	<b><u>195</u></b>	24	<b><u>1132</u></b>	<b><u>195</u></b>	1132	195	1131	195		
434.zeusmp	24	706	309	<b><u>707</u></b>	<b><u>309</u></b>	708	308	24	684	319	<b><u>687</u></b>	<b><u>318</u></b>	689	317		
435.gromacs	24	623	275	<b><u>625</u></b>	<b><u>274</u></b>	627	273	24	564	304	<b><u>568</u></b>	<b><u>302</u></b>	568	302		
436.cactusADM	24	<b><u>938</u></b>	<b><u>306</u></b>	932	308	942	305	24	<b><u>932</u></b>	<b><u>308</u></b>	932	308	929	309		
437.leslie3d	24	1601	141	<b><u>1603</u></b>	<b><u>141</u></b>	1605	141	24	<b><u>1601</u></b>	<b><u>141</u></b>	1599	141	1603	141		
444.namd	24	749	257	749	257	<b><u>749</u></b>	<b><u>257</u></b>	24	737	261	<b><u>743</u></b>	<b><u>259</u></b>	744	259		
447.dealII	24	649	423	<b><u>649</u></b>	<b><u>423</u></b>	640	429	24	649	423	<b><u>649</u></b>	<b><u>423</u></b>	640	429		
450.soplex	24	1356	148	<b><u>1380</u></b>	<b><u>145</u></b>	1388	144	24	<b><u>1261</u></b>	<b><u>159</u></b>	1331	150	1233	162		
453.povray	24	<b><u>342</u></b>	<b><u>373</u></b>	338	377	343	373	24	300	425	<b><u>301</u></b>	<b><u>424</u></b>	304	420		
454.calculix	24	539	368	<b><u>540</u></b>	<b><u>367</u></b>	543	365	24	<b><u>533</u></b>	<b><u>372</u></b>	532	372	535	370		
459.GemsFDTD	24	2018	126	<b><u>2028</u></b>	<b><u>126</u></b>	2029	125	12	<b><u>980</u></b>	<b><u>130</u></b>	977	130	983	130		
465.tonto	24	<b><u>893</u></b>	<b><u>265</u></b>	876	270	896	264	24	839	281	<b><u>839</u></b>	<b><u>282</u></b>	838	282		
470.lbm	24	2812	117	<b><u>2822</u></b>	<b><u>117</u></b>	2825	117	12	1330	124	1328	124	<b><u>1330</u></b>	<b><u>124</u></b>		
481.wrf	24	1144	234	<b><u>1145</u></b>	<b><u>234</u></b>	1156	232	24	1142	235	<b><u>1141</u></b>	<b><u>235</u></b>	1140	235		
482.sphinx3	24	2193	213	<b><u>2181</u></b>	<b><u>214</u></b>	2181	215	24	<b><u>2098</u></b>	<b><u>223</u></b>	2100	223	2097	223		

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

## Submit Notes

The config file option 'submit' was used.



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## 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
```

## Platform Notes

Default BIOS settings used.

## General Notes

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
```

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## Base Portability Flags (Continued)

```
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
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 -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M -xalias_level=std
```

C++ benchmarks:

```
-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
```

Fortran benchmarks:

```
-fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
```

Benchmarks using both Fortran and C:

```
-fast(cc) -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M
-xalias_level=std -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
```



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## Peak Compiler Invocation

C benchmarks:

cc

C++ benchmarks:

CC

Fortran benchmarks:

f90

Benchmarks using both Fortran and C:

cc f90

## Peak Portability Flags

436.cactusADM: -DSPEC\_CPU\_LP64

447.deallI: -DSPEC\_CPU\_LP64

481.wrf: -DSPEC\_CPU\_WORDS\_LITTLEENDIAN

## Peak Optimization Flags

C benchmarks:

433.milc: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M  
-xalias\_level=std

470.lbm: -fast -xtarget=nehalem -xipo=2 -m64 -lbsdmalloc

482.sphinx3: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M  
-xalias\_level=std -xunroll=3 -xprefetch=no%auto

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.deallI: basepeak = yes

450.soplex: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem  
-xipo=2 -xpagesize=2M -xalias\_level=compatible  
-library=stlport4 -m32 -qoption iropt -Rujam  
-qoption iropt -Rtile

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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

Fortran benchmarks:

410.bwaves: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem  
-xipo=2 -m64 -xpagesize=2M

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

434.zeusmp: Same as 410.bwaves

437.leslie3d: -fast -xtarget=nehalem -xipo=2 -m64 -xpagesize=2M  
-Qoption ube -xprefetch\_mult=2

459.GemsFDTD: Same as 410.bwaves

465.tonto: -xprofile=collect:./feedback(pass 1)  
-xprofile=use:./feedback(pass 2) -fast -xtarget=nehalem  
-xipo=2 -m64 -xvector=lib -xalias -xdepend -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

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  
-lumem

454.calculix: -fast(cc) -fast(f90) -xtarget=nehalem -xipo=2 -m64  
-xpagesize=2M -xunroll=3 -xprefetch\_level=2  
-xprefetch\_auto\_type=indirect\_array\_access

481.wrf: -fast(cc) -fast(f90) -xtarget=nehalem -xipo=2 -m64  
-xpagesize=2M

## 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/Oracle-Solaris-Studio-x86\\_64.html](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](http://www.spec.org/cpu2006/flags/Oracle-Solaris-Studio-x86_64.xml)

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.

Report generated on Wed Jul 23 13:11:21 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 8 July 2010.