



# SPEC<sup>®</sup> CFP2006 Result

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## Oracle Corporation

SPECfp<sup>®</sup>2006 = **50.5**

Sun Server X2-4 (Intel Xeon E7-4820 2.0 GHz)

SPECfp\_base2006 = **47.7**

CPU2006 license: 6

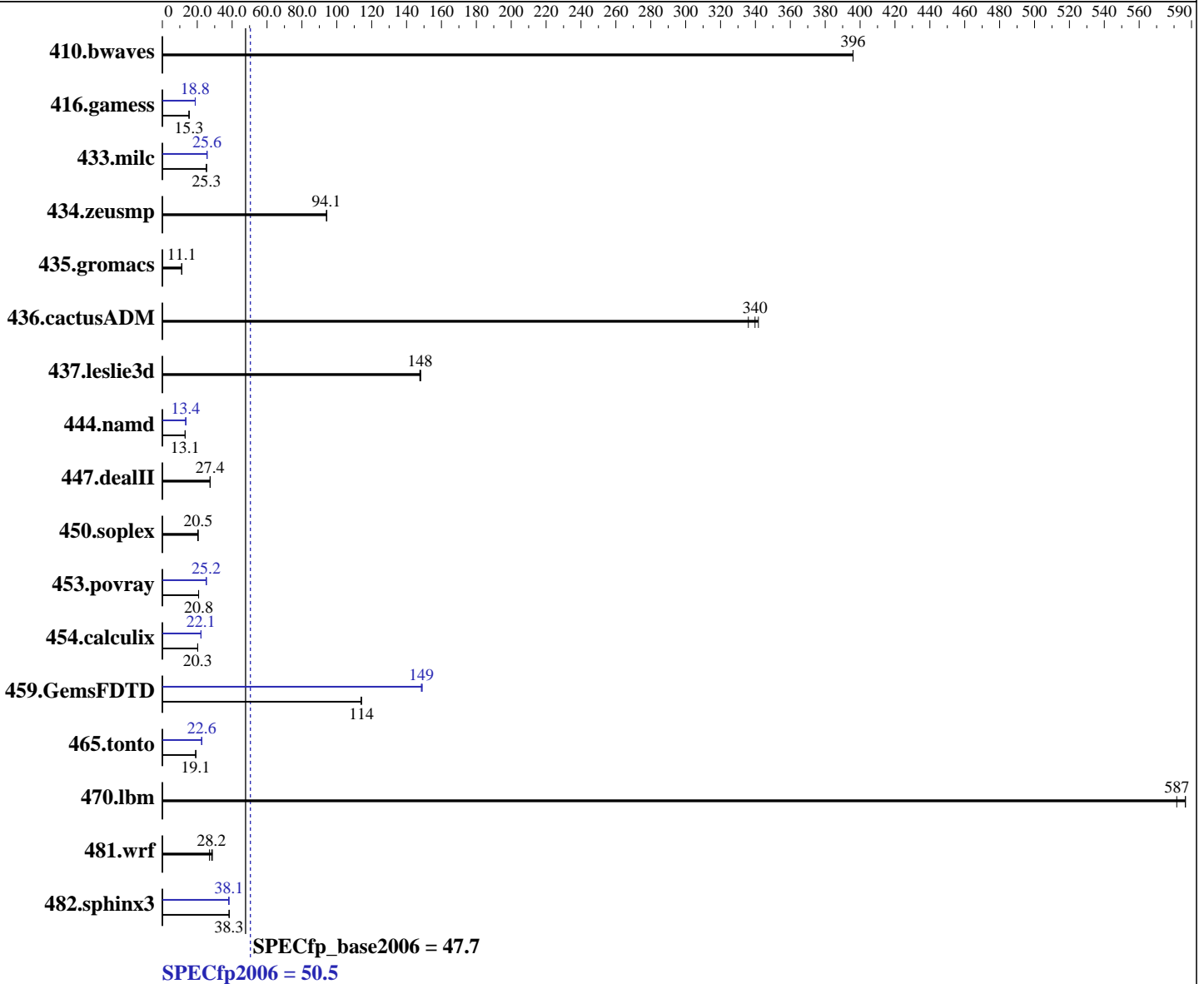
Test date: Dec-2011

Test sponsor: Oracle Corporation

Hardware Availability: Jun-2011

Tested by: Oracle Corporation

Software Availability: Oct-2011



**Hardware**

CPU Name: Intel Xeon E7-4820  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.27 GHz  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip  
 CPU(s) orderable: 2,4 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

**Software**

Operating System: Oracle Linux 6.1  
 kernel 2.6.32-100.34.1.el6uek.x86\_64  
 Compiler: C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;  
 Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 5 (multi-user)

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L3 Cache: 18 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 256 GB (64 x 4 GB 2Rx8 PC3L-10600R-9, ECC)  
 Disk Subsystem: 1 x 300 GB, SATA, 7200 RPM  
 Other Hardware: None

Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	34.3	396	<b>34.3</b>	<b>396</b>	34.3	396	34.3	396	<b>34.3</b>	<b>396</b>	34.3	396
416.gamess	1274	15.4	<b>1279</b>	<b>15.3</b>	1282	15.3	1038	18.9	<b>1039</b>	<b>18.8</b>	1039	18.8
433.milc	363	25.3	363	25.3	<b>363</b>	<b>25.3</b>	<b>359</b>	<b>25.6</b>	358	25.7	359	25.6
434.zeusmp	<b>96.7</b>	<b>94.1</b>	96.5	94.3	96.7	94.1	<b>96.7</b>	<b>94.1</b>	96.5	94.3	96.7	94.1
435.gromacs	644	11.1	640	11.1	<b>642</b>	<b>11.1</b>	644	11.1	640	11.1	<b>642</b>	<b>11.1</b>
436.cactusADM	<b>35.2</b>	<b>340</b>	35.6	336	35.0	342	<b>35.2</b>	<b>340</b>	35.6	336	35.0	342
437.leslie3d	63.5	148	<b>63.7</b>	<b>148</b>	63.7	148	63.5	148	<b>63.7</b>	<b>148</b>	63.7	148
444.namd	614	13.1	<b>614</b>	<b>13.1</b>	613	13.1	597	13.4	597	13.4	<b>597</b>	<b>13.4</b>
447.dealII	<b>418</b>	<b>27.4</b>	418	27.4	418	27.4	<b>418</b>	<b>27.4</b>	418	27.4	418	27.4
450.soplex	406	20.5	<b>407</b>	<b>20.5</b>	412	20.3	406	20.5	<b>407</b>	<b>20.5</b>	412	20.3
453.povray	256	20.7	256	20.8	<b>256</b>	<b>20.8</b>	212	25.1	<b>211</b>	<b>25.2</b>	211	25.2
454.calculix	406	20.3	408	20.2	<b>407</b>	<b>20.3</b>	372	22.2	<b>373</b>	<b>22.1</b>	373	22.1
459.GemsFDTD	93.2	114	93.0	114	<b>93.0</b>	<b>114</b>	71.2	149	<b>71.4</b>	<b>149</b>	71.4	149
465.tonto	513	19.2	<b>514</b>	<b>19.1</b>	514	19.1	436	22.6	437	22.5	<b>436</b>	<b>22.6</b>
470.lbm	23.6	582	23.4	587	<b>23.4</b>	<b>587</b>	23.6	582	23.4	587	<b>23.4</b>	<b>587</b>
481.wrf	<b>396</b>	<b>28.2</b>	414	27.0	389	28.7	<b>396</b>	<b>28.2</b>	414	27.0	389	28.7
482.sphinx3	<b>509</b>	<b>38.3</b>	510	38.2	507	38.4	<b>511</b>	<b>38.1</b>	511	38.1	511	38.1

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Platform Notes

Load Default BIOS Settings and then change the following  
Intel Hyperthreading Option Disabled

Oracle's Sun Server X2-4 was formerly known as the Sun Fire X4470 M2



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## General Notes

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

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/home/cpu2006v1.2/libs/32:/home/cpu2006v1.2/libs/64"

OMP\_NUM\_THREADS = "32"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory using RHEL5.5

## Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## 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 -nofor\_main  
 436.cactusADM: -DSPEC\_CPU\_LP64 -nofor\_main  
 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 -nofor\_main  
 459.GemsFDTD: -DSPEC\_CPU\_LP64  
 465.tonto: -DSPEC\_CPU\_LP64  
 470.lbm: -DSPEC\_CPU\_LP64  
 481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX  
 482.sphinx3: -DSPEC\_CPU\_LP64

## Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

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## Base Optimization Flags (Continued)

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

## Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

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## Peak Optimization Flags (Continued)

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-alloc  
-opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html>

[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.CPUv1.2-RevA.html](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.html)

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml>

[http://www.spec.org/cpu2006/flags/Oracle-platform-x86\\_64.CPUv1.2-RevA.xml](http://www.spec.org/cpu2006/flags/Oracle-platform-x86_64.CPUv1.2-RevA.xml)

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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