



# SPEC<sup>®</sup> CFP2006 Result

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## Dell Inc.

### SPECfp<sup>®</sup>\_rate2006 = 56.6

### Dell Precision R5400 (Intel Xeon X5270, 3.50 GHz)

### SPECfp\_rate\_base2006 = 55.4

CPU2006 license: 55

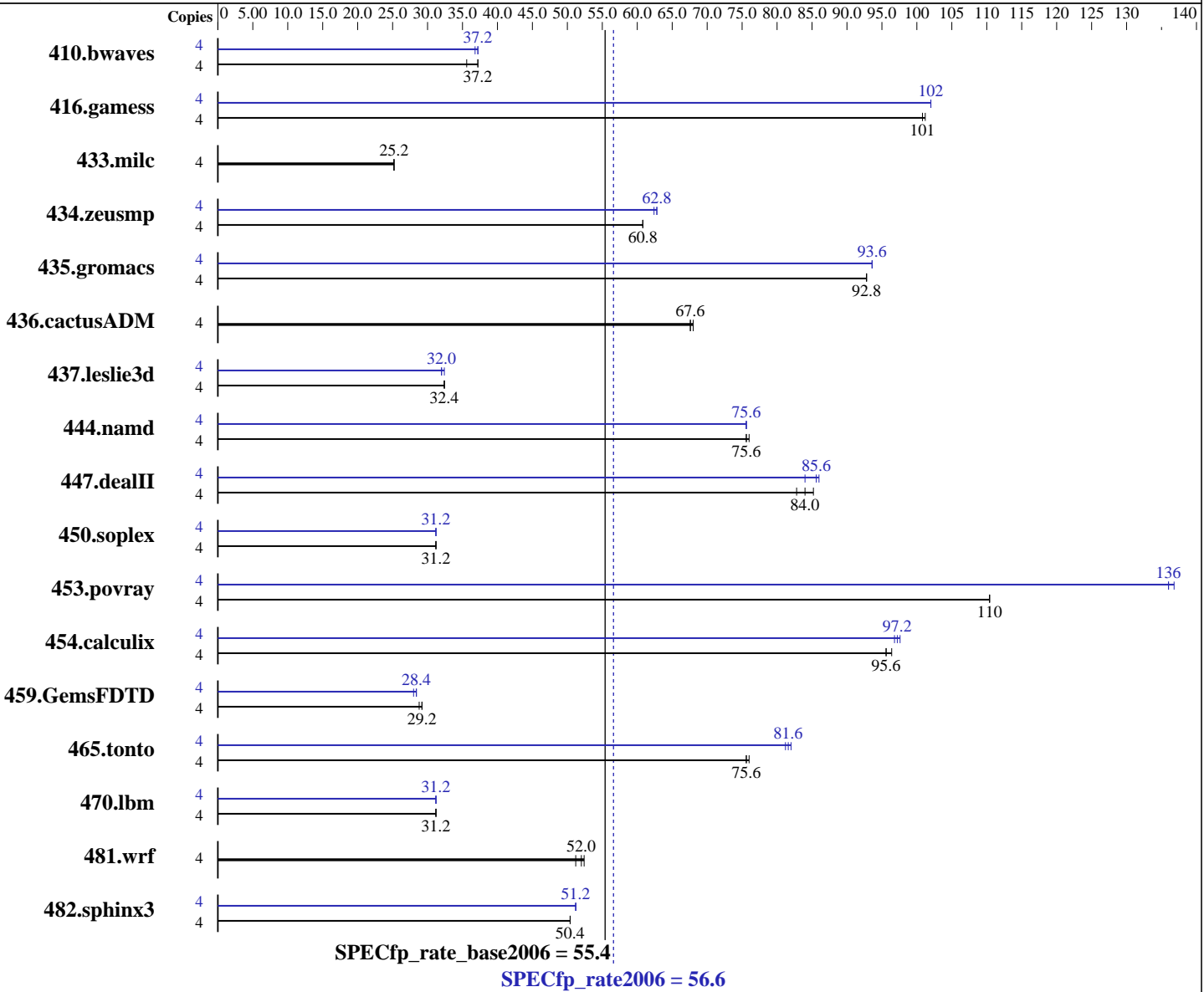
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Dec-2008

Hardware Availability: Oct-2008

Software Availability: Nov-2008



#### Hardware

CPU Name: Intel Xeon X5270  
 CPU Characteristics: 1333 MHz Bus Speed  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 6 MB I+D on chip per chip

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#### Software

Operating System: Windows Vista Business SP1 (64-bit)  
 Compiler: Intel C++ Compiler for Intel 64, Version 11.0  
 Build 20080930 Package ID: w\_cproc\_p\_11.0.061  
 Intel Visual Fortran Compiler for Intel 64,  
 Version 11.0  
 Build 20080930 Package ID: w\_cprof\_p\_11.0.061  
 Microsoft Visual Studio 2008 SP1  
 Auto Parallel: No  
 File System: NTFS

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (4x4 GB DDR2-667 FB-DIMM, CL5)  
Disk Subsystem: 1 x 320 GB SATA 7200 RPM  
Other Hardware: None

System State: Default  
Base Pointers: 32/64-bit  
Peak Pointers: 32/64-bit  
Other Software: MicroQuill SmartHeap Library 8.1 for x64

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	1528	35.6	<b><u>1468</u></b>	<b><u>37.2</u></b>	1461	37.2	4	<b><u>1468</u></b>	<b><u>37.2</u></b>	1463	37.2	1474	36.8
416.gamess	4	777	101	<b><u>776</u></b>	<b><u>101</u></b>	775	101	4	766	102	<b><u>767</u></b>	<b><u>102</u></b>	767	102
433.milc	4	<b><u>1457</u></b>	<b><u>25.2</u></b>	1464	25.2	1456	25.2	4	<b><u>1457</u></b>	<b><u>25.2</u></b>	1464	25.2	1456	25.2
434.zeusmp	4	<b><u>599</u></b>	<b><u>60.8</u></b>	599	60.8	599	60.8	4	<b><u>581</u></b>	<b><u>62.8</u></b>	582	62.4	580	62.8
435.gromacs	4	<b><u>308</u></b>	<b><u>92.8</u></b>	308	92.8	308	92.8	4	306	93.6	<b><u>306</u></b>	<b><u>93.6</u></b>	305	93.6
436.cactusADM	4	705	68.0	<b><u>705</u></b>	<b><u>67.6</u></b>	709	67.6	4	705	68.0	<b><u>705</u></b>	<b><u>67.6</u></b>	709	67.6
437.leslie3d	4	1153	32.4	1156	32.4	<b><u>1155</u></b>	<b><u>32.4</u></b>	4	1169	32.0	<b><u>1169</u></b>	<b><u>32.0</u></b>	1166	32.4
444.namd	4	<b><u>424</u></b>	<b><u>75.6</u></b>	424	75.6	423	76.0	4	425	75.6	424	75.6	<b><u>424</u></b>	<b><u>75.6</u></b>
447.dealII	4	<b><u>544</u></b>	<b><u>84.0</u></b>	552	82.8	537	85.2	4	<b><u>534</u></b>	<b><u>85.6</u></b>	532	86.0	546	84.0
450.soplex	4	<b><u>1074</u></b>	<b><u>31.2</u></b>	1074	31.2	1067	31.2	4	1065	31.2	<b><u>1067</u></b>	<b><u>31.2</u></b>	1069	31.2
453.povray	4	<b><u>193</u></b>	<b><u>110</u></b>	193	110	193	110	4	156	137	<b><u>157</u></b>	<b><u>136</u></b>	157	136
454.calculix	4	<b><u>345</u></b>	<b><u>95.6</u></b>	342	96.4	345	95.6	4	341	96.8	<b><u>339</u></b>	<b><u>97.2</u></b>	339	97.6
459.GemsFDTD	4	1464	28.8	1459	29.2	<b><u>1461</u></b>	<b><u>29.2</u></b>	4	1517	28.0	<b><u>1498</u></b>	<b><u>28.4</u></b>	1495	28.4
465.tonto	4	521	75.6	518	76.0	<b><u>519</u></b>	<b><u>75.6</u></b>	4	<b><u>482</u></b>	<b><u>81.6</u></b>	481	82.0	484	81.2
470.lbm	4	<b><u>1772</u></b>	<b><u>31.2</u></b>	1772	31.2	1768	31.2	4	<b><u>1769</u></b>	<b><u>31.2</u></b>	1772	31.2	1768	31.2
481.wrf	4	<b><u>858</u></b>	<b><u>52.0</u></b>	855	52.4	874	51.2	4	<b><u>858</u></b>	<b><u>52.0</u></b>	855	52.4	874	51.2
482.sphinx3	4	<b><u>1543</u></b>	<b><u>50.4</u></b>	1542	50.4	1545	50.4	4	1527	51.2	<b><u>1527</u></b>	<b><u>51.2</u></b>	1528	51.2

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

## General Notes

Binaries were built on Windows Vista Ultimate (64-bit)

BIOS Settings

Adjacent Cache Line Prefetch set to ON

## Base Compiler Invocation

C benchmarks:

icl -Qvc9 -Qstd=c99

C++ benchmarks:

icl -Qvc9

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CPU2006 license: 55

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## Base Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icl -Qvc9 -Qstd=c99 ifort

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_P64 /assume:underscore  
 416.gamess: -DSPEC\_CPU\_P64  
 433.milc: -DSPEC\_CPU\_P64  
 434.zeusmp: -DSPEC\_CPU\_P64  
 435.gromacs: -DSPEC\_CPU\_P64  
 436.cactusADM: -DSPEC\_CPU\_P64 -Qlowercase /assume:underscore  
 437.leslie3d: -DSPEC\_CPU\_P64  
 444.namd: -DSPEC\_CPU\_P64 /TP  
 447.dealII: -DSPEC\_CPU\_P64 -DDEAL\_II\_MEMBER\_VAR\_SPECIALIZATION\_BUG  
 450.soplex: -DSPEC\_CPU\_P64  
 453.povray: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_WINDOWS\_ICL  
 454.calculix: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_NOZMODIFIER -Qlowercase  
 459.GemsFDTD: -DSPEC\_CPU\_P64  
 465.tonto: -DSPEC\_CPU\_P64  
 470.lbm: -DSPEC\_CPU\_P64  
 481.wrf: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_WINDOWS\_ICL  
 482.sphinx3: -DSPEC\_CPU\_P64

## Base Optimization Flags

C benchmarks:

-QxSSE4.1 -Qauto-ilp32 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F512000000

C++ benchmarks:

-QxSSE4.1 -Qauto-ilp32 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx\_features /F512000000 shlw64m.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

-QxSSE4.1 -Qauto-ilp32 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F1000000000

Benchmarks using both Fortran and C:

-QxSSE4.1 -Qauto-ilp32 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F1000000000



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## Peak Compiler Invocation

C benchmarks:

```
icl -Qvc9 -Qstd=c99
```

C++ benchmarks:

```
icl -Qvc9
```

Fortran benchmarks:

```
ifort
```

Benchmarks using both Fortran and C:

```
icl -Qvc9 -Qstd=c99 ifort
```

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
433.milc: basepeak = yes
```

```
470.lbm: -QxSSE4.1 -Qipo -O3 -Qprec-div- -Qopt-prefetch  
/F512000000
```

```
482.sphinx3: -QxSSE4.1 -Qauto-ilp32 -Qipo -O3 -Qprec-div- -Qunroll2  
/F512000000
```

C++ benchmarks:

```
444.namd: -Qprof_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Oa /F512000000  
shlw64m.lib -link /FORCE:MULTIPLE
```

```
447.deallI: -Qprof_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2  
-Qansi-alias -Qscalar-rep- /F512000000 shlw64m.lib  
-link /FORCE:MULTIPLE
```

```
450.soplex: -Qprof_gen(pass 1) -QxSSE4.1 -Qauto-ilp32  
-Qprof_use(pass 2) -Qipo -O3 -Qprec-div- /F512000000  
shlw64m.lib -link /FORCE:MULTIPLE
```

```
453.povray: -Qprof_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4  
-Qansi-alias /F512000000 shlw64m.lib  
-link /FORCE:MULTIPLE
```

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## Peak Optimization Flags (Continued)

### Fortran benchmarks:

410.bwaves: -QxSSE4.1 -Qauto-ilp32 -Qipo -O3 -Qprec-div-  
-Qopt-prefetch /F1000000000

416.gamess: -Qprof\_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Ob0  
-Qansi-alias -Qscalar-rep- /F1000000000

434.zeusmp: -Qprof\_gen(pass 1) -QxSSE4.1 -Qauto-ilp32  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- /F1000000000

437.leslie3d: -Qprof\_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch  
/F1000000000

459.GemsFDTD: -Qprof\_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Ob0  
-Qopt-prefetch /F1000000000

465.tonto: -Qprof\_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto  
/F1000000000

### Benchmarks using both Fortran and C:

435.gromacs: -Qprof\_gen(pass 1) -QxSSE4.1(pass 2) -Qauto-ilp32(pass 2)  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch  
/F1000000000

436.cactusADM: basepeak = yes

454.calculix: -QxSSE4.1 -Qauto-ilp32 -Qipo -O3 -Qprec-div- /F1000000000

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/dell.ic11.0.windows.flags.html>

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

<http://www.spec.org/cpu2006/flags/dell.ic11.0.windows.flags.xml>



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

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