



# SPEC<sup>®</sup> CFP2006 Result

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## Dell Inc.

SPECfp<sup>®</sup>2006 = 20.8

Dell Precision R5400 (Intel Xeon X5260, 3.33 GHz)

SPECfp\_base2006 = 18.9

CPU2006 license: 55

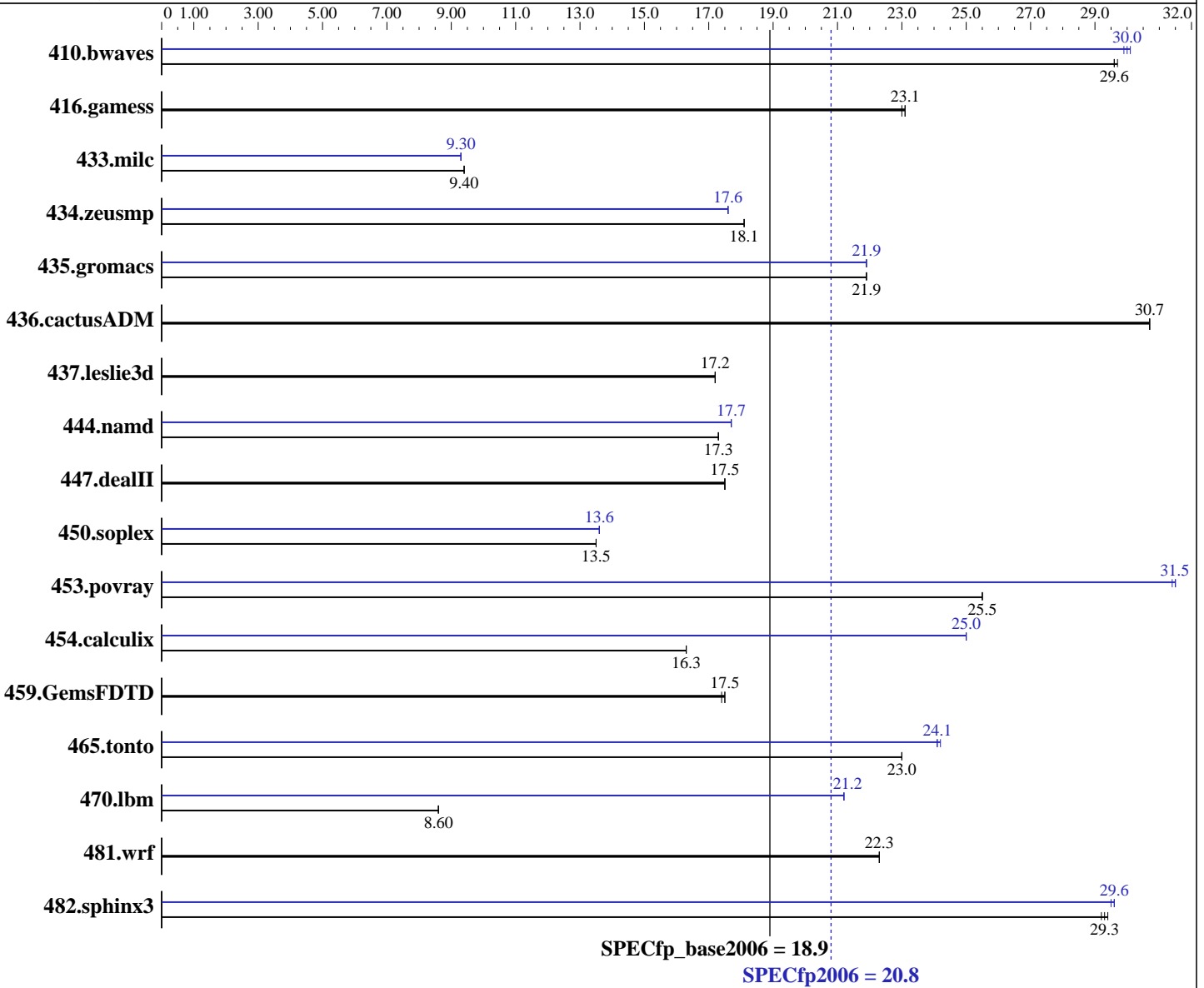
Test date: Jun-2008

Test sponsor: Dell Inc.

Hardware Availability: Jul-2008

Tested by: Dell Inc.

Software Availability: Mar-2008



| Hardware             |                                    |
|----------------------|------------------------------------|
| CPU Name:            | Intel Xeon X5260                   |
| CPU Characteristics: | 1333 MHz Bus Speed                 |
| CPU MHz:             | 3333                               |
| 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 Ultimate 64-bit  |
| Compiler:         | Intel C++ Compiler for Intel 64, Version 10.1<br>Build 20080312 Package ID: w_cc_p_10.1.021<br>Intel Visual Fortran Compiler for Intel 64,<br>Version 10.0<br>Build 20080312 Package ID: w_fc_p_10.1.021<br>Microsoft Visual Studio 2005 SP1 |
| Auto Parallel:    | Yes  |
| File System:      | NTFS   |

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L3 Cache: None  
 Other Cache: None  
 Memory: 16 GB (4x4 GB 667 MHz CL5 FB-DIMM)  
 Disk Subsystem: 2 x 320 GB SATA 7200 RPM, RAID0  
 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       |             |            |             |            |             |
|---------------|------------|-------------|------------|-------------|-------------|-------------|------------|-------------|------------|-------------|------------|-------------|
|               | Seconds    | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       | Seconds    | Ratio       |
| 410.bwaves    | 457        | 29.7        | <b>459</b> | <b>29.6</b> | 459         | 29.6        | <b>453</b> | <b>30.0</b> | 455        | 29.9        | 452        | 30.1        |
| 416.gamess    | <b>849</b> | <b>23.1</b> | 850        | 23.0        | 849         | 23.1        | <b>849</b> | <b>23.1</b> | 850        | 23.0        | 849        | 23.1        |
| 433.milc      | <b>979</b> | <b>9.40</b> | 978        | 9.40        | 979         | 9.40        | 988        | 9.30        | <b>988</b> | <b>9.30</b> | 988        | 9.30        |
| 434.zeusmp    | <b>502</b> | <b>18.1</b> | 502        | 18.1        | 502         | 18.1        | 516        | 17.6        | <b>516</b> | <b>17.6</b> | 517        | 17.6        |
| 435.gromacs   | 327        | 21.9        | <b>327</b> | <b>21.9</b> | 327         | 21.9        | 326        | 21.9        | <b>326</b> | <b>21.9</b> | 326        | 21.9        |
| 436.cactusADM | 390        | 30.7        | 389        | 30.7        | <b>389</b>  | <b>30.7</b> | 390        | 30.7        | 389        | 30.7        | <b>389</b> | <b>30.7</b> |
| 437.leslie3d  | 547        | 17.2        | <b>547</b> | <b>17.2</b> | 547         | 17.2        | 547        | 17.2        | <b>547</b> | <b>17.2</b> | 547        | 17.2        |
| 444.namd      | 462        | 17.3        | <b>462</b> | <b>17.3</b> | 462         | 17.3        | <b>453</b> | <b>17.7</b> | 453        | 17.7        | 453        | 17.7        |
| 447.dealII    | 652        | 17.5        | <b>652</b> | <b>17.5</b> | 652         | 17.5        | 652        | 17.5        | <b>652</b> | <b>17.5</b> | 652        | 17.5        |
| 450.soplex    | 619        | 13.5        | 619        | 13.5        | <b>619</b>  | <b>13.5</b> | 611        | 13.6        | <b>612</b> | <b>13.6</b> | 612        | 13.6        |
| 453.povray    | 209        | 25.5        | 209        | 25.5        | <b>209</b>  | <b>25.5</b> | 169        | 31.4        | 169        | 31.5        | <b>169</b> | <b>31.5</b> |
| 454.calculix  | 507        | 16.3        | 507        | 16.3        | <b>507</b>  | <b>16.3</b> | 330        | 25.0        | <b>330</b> | <b>25.0</b> | 330        | 25.0        |
| 459.GemsFDTD  | <b>606</b> | <b>17.5</b> | 606        | 17.5        | 609         | 17.4        | <b>606</b> | <b>17.5</b> | 606        | 17.5        | 609        | 17.4        |
| 465.tonto     | 427        | 23.0        | 428        | 23.0        | <b>427</b>  | <b>23.0</b> | 408        | 24.1        | 407        | 24.2        | <b>408</b> | <b>24.1</b> |
| 470.lbm       | 1595       | 8.60        | 1595       | 8.60        | <b>1595</b> | <b>8.60</b> | 649        | 21.2        | <b>649</b> | <b>21.2</b> | 649        | 21.2        |
| 481.wrf       | 502        | 22.3        | <b>501</b> | <b>22.3</b> | 501         | 22.3        | 502        | 22.3        | <b>501</b> | <b>22.3</b> | 501        | 22.3        |
| 482.sphinx3   | 663        | 29.4        | <b>666</b> | <b>29.3</b> | 667         | 29.2        | 660        | 29.5        | <b>660</b> | <b>29.6</b> | 659        | 29.6        |

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 -Qstd=c99

C++ benchmarks:  
 icl

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## Base Compiler Invocation (Continued)

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icl -Qstd=c99 ifort

## Base Portability Flags

```

410.bwaves: -DSPEC_CPU_P64
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:
-fast -Qauto-ilp32 -Qparallel /F512000000 libguide40.lib
-link /FORCE:MULTIPLE

C++ benchmarks:
-fast -Qauto-ilp32 -Qparallel -Qcxx_features /F512000000 shlw64m.lib
libguide40.lib -link /FORCE:MULTIPLE

Fortran benchmarks:
-fast -Qparallel /F1000000000 libguide40.lib
-link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:
-fast -Qauto-ilp32 -Qparallel /F1000000000 libguide40.lib
-link /FORCE:MULTIPLE

```



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## Peak Compiler Invocation

C benchmarks:  
icl -Qstd=c99

C++ benchmarks:  
icl

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icl -Qstd=c99 ifort

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
433.milc: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32
          -Qunroll2 -Oa /F512000000 libguide40.lib
          -link /FORCE:MULTIPLE
```

```
470.lbm: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32
          -Qunroll2 -Qscalar-rep- -Qprefetch /F512000000
          libguide40.lib -link /FORCE:MULTIPLE
```

```
482.sphinx3: -fast -Qauto-ilp32 -Qunroll2 /F512000000 libguide40.lib
             -link /FORCE:MULTIPLE
```

C++ benchmarks:

```
444.namd: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32
          -Oa -Qcxx_features /F512000000 shlw64m.lib libguide40.lib
          -link /FORCE:MULTIPLE
```

```
447.dealII: basepeak = yes
```

```
450.soplex: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32
            -Qparallel -Qcxx_features /F512000000 shlw64m.lib
            libguide40.lib -link /FORCE:MULTIPLE
```

```
453.povray: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32
            -Qunroll4 -Qansi-alias -Qcxx_features /F512000000
            shlw64m.lib libguide40.lib -link /FORCE:MULTIPLE
```

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## Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: -fast -Qauto-ilp32 -Qparallel -Qprefetch /F1000000000  
libguide40.lib -link /FORCE:MULTIPLE

416.gamess: basepeak = yes

434.zeusmp: -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -QxT -O2 -Qprec-div-  
-Qunroll10 -Qscalar-rep- /F1000000000 libguide40.lib  
-link /FORCE:MULTIPLE

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -fast -Qauto-ilp32  
-Qunroll14 -Qauto /F1000000000 libguide40.lib  
-link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:

435.gromacs: -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -fast -Qauto-ilp32  
-Oa -Qprefetch /F1000000000 libguide40.lib  
-link /FORCE:MULTIPLE

436.cactusADM: basepeak = yes

454.calculix: -fast -Qauto-ilp32 -Qunroll-aggressive /F1000000000  
libguide40.lib -link /FORCE:MULTIPLE

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.ic10.1.windows.flags.20090713.00.html>

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

<http://www.spec.org/cpu2006/flags/dell.ic10.1.windows.flags.20090713.00.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).

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