# SPEC® CFP2006 Result

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## Dell Inc.

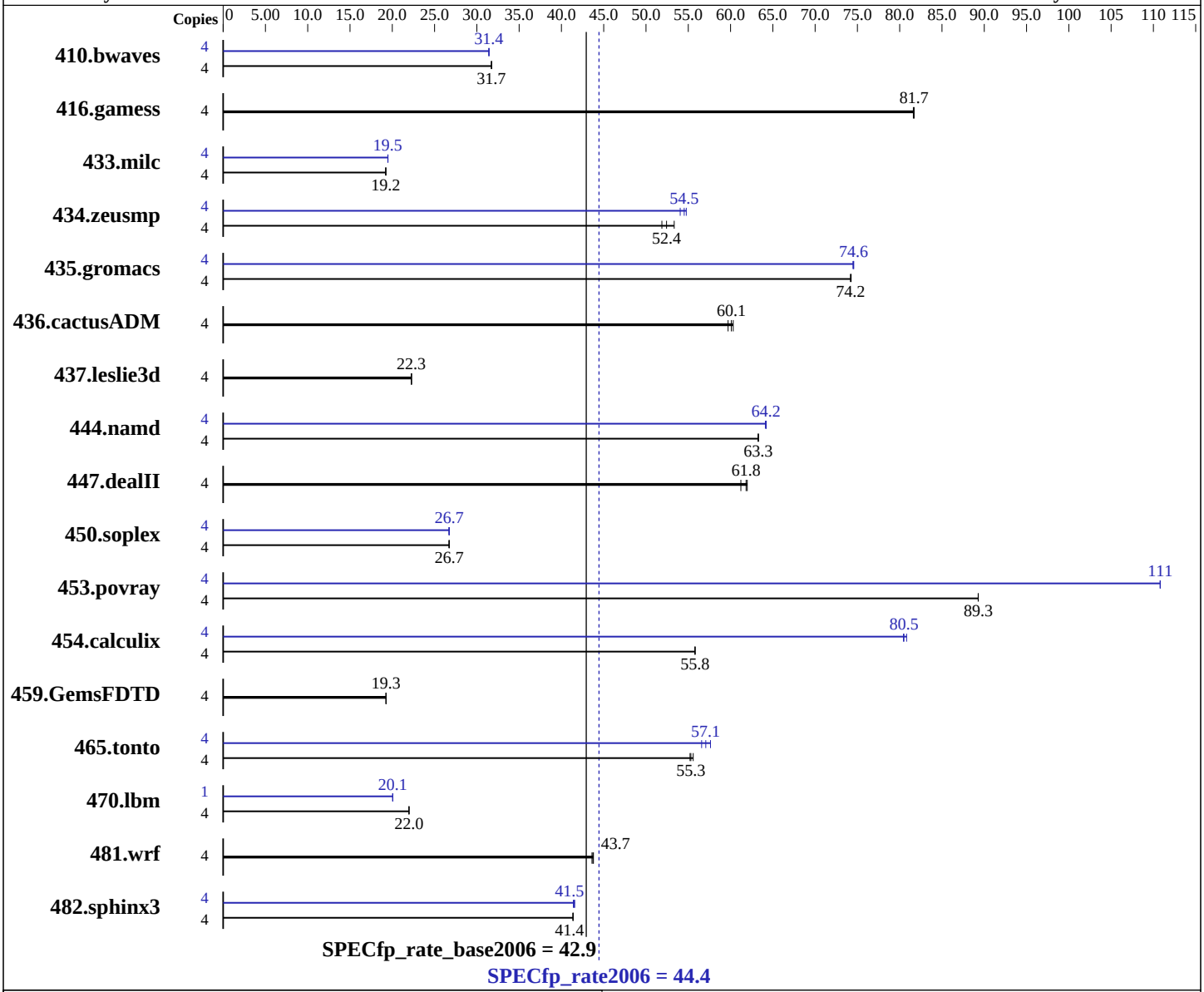
## Dell Precision T3400 (Intel QX6850, 3.00 GHz)

**SPECfp®_rate2006 = 44.4**

**SPECfp_rate_base2006 = 42.9**

**CPU2006 license:** 55
**Test sponsor:** Dell Inc.
**Tested by:** Dell Inc.

**Test date:** Dec-2007
**Hardware Availability:** Oct-2007
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Core 2 Extreme QX6850 |
| CPU Characteristics: | 1333 MHz Bus Speed |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 8 MB I+D on chip per chip, 4 MB shared / 2 cores |

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### Software

| | |
|---|---|
| Operating System: | Windows XP Professional x64 Edition SP2 |
| Compiler: | Intel C++ Compiler for Intel 64, Version 10.1 Build 20070809 Package ID: w_cc_p_10.1.011<br>Intel Visual Fortran Compiler for Intel 64, Version 10.0 Build 20070809 Package ID: w_fc_p_10.1.011<br>Microsoft Visual Studio 2005 SP1 |
| Auto Parallel: | No |
| File System: | NTFS |

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| | |
|---|---|
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 8 GB (4x2 GB 800 MHz ECC CL6 DDR2) |
| Disk Subsystem: | 1 x 80 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 8.0 for x64 |

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 1714 | 31.7 | **1713** | **31.7** | 1712 | 31.7 | 4 | 1728 | 31.5 | 1731 | 31.4 | **1730** | **31.4** |
| 416.gamess | 4 | 959 | 81.7 | 960 | 81.6 | **959** | **81.7** | 4 | 959 | 81.7 | 960 | 81.6 | **959** | **81.7** |
| 433.milc | 4 | **1909** | **19.2** | 1911 | 19.2 | 1909 | 19.2 | 4 | 1886 | 19.5 | 1884 | 19.5 | **1885** | **19.5** |
| 434.zeusmp | 4 | 682 | 53.3 | 702 | 51.9 | **694** | **52.4** | 4 | 674 | 54.0 | 665 | 54.8 | **668** | **54.5** |
| 435.gromacs | 4 | 385 | 74.2 | 385 | 74.3 | **385** | **74.2** | 4 | 384 | 74.5 | **383** | **74.6** | 383 | 74.6 |
| 436.cactusADM | 4 | 793 | 60.3 | 801 | 59.7 | **796** | **60.1** | 4 | 793 | 60.3 | 801 | 59.7 | **796** | **60.1** |
| 437.leslie3d | 4 | **1689** | **22.3** | 1689 | 22.3 | 1689 | 22.3 | 4 | **1689** | **22.3** | 1689 | 22.3 | 1689 | 22.3 |
| 444.namd | 4 | 507 | 63.3 | 507 | 63.3 | **507** | **63.3** | 4 | 500 | 64.1 | 500 | 64.2 | **500** | **64.2** |
| 447.dealII | 4 | 738 | 62.0 | 747 | 61.2 | **740** | **61.8** | 4 | 738 | 62.0 | 747 | 61.2 | **740** | **61.8** |
| 450.soplex | 4 | 1250 | 26.7 | 1247 | 26.7 | **1248** | **26.7** | 4 | 1250 | 26.7 | **1248** | **26.7** | 1247 | 26.8 |
| 453.povray | 4 | 238 | 89.3 | **238** | **89.3** | 238 | 89.3 | 4 | **192** | **111** | 192 | 111 | 192 | 111 |
| 454.calculix | 4 | **591** | **55.8** | 591 | 55.8 | 592 | 55.8 | 4 | **410** | **80.5** | 410 | 80.4 | 408 | 80.8 |
| 459.GemsFDTD | 4 | 2201 | 19.3 | **2204** | **19.3** | 2205 | 19.2 | 4 | 2201 | 19.3 | **2204** | **19.3** | 2205 | 19.2 |
| 465.tonto | 4 | 713 | 55.2 | 708 | 55.6 | **712** | **55.3** | 4 | 696 | 56.6 | **690** | **57.1** | 683 | 57.6 |
| 470.lbm | 4 | 2501 | 22.0 | 2501 | 22.0 | **2501** | **22.0** | 1 | 685 | 20.0 | 685 | 20.1 | **685** | **20.1** |
| 481.wrf | 4 | **1022** | **43.7** | 1024 | 43.6 | 1020 | 43.8 | 4 | **1022** | **43.7** | 1024 | 43.6 | 1020 | 43.8 |
| 482.sphinx3 | 4 | **1884** | **41.4** | 1883 | 41.4 | 1885 | 41.3 | 4 | 1883 | 41.4 | 1875 | 41.6 | **1878** | **41.5** |

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)
```

## Base Compiler Invocation

C benchmarks:

```
icl -Qstd=c99
```

C++ benchmarks:

```
icl
```

Fortran benchmarks:

```
ifort
```

Continued on next page

## Base Compiler Invocation (Continued)

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 /F1000000000 shlw64m.lib
-link /FORCE:MULTIPLE

C++ benchmarks:
-fast -Qauto-ilp32 -Qcxx_features /F1000000000 shlw64m.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-fast -Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

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

## Peak Compiler Invocation

C benchmarks:
icl -Qstd=c99

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## Peak Compiler Invocation (Continued)

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 /F1000000000 shlw64m.lib -link /FORCE:MULTIPLE

470.lbm: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32 -Qunroll2 -Qscalar-rep- -Qprefetch /F1000000000 shlw64m.lib -link /FORCE:MULTIPLE

482.sphinx3: -fast -Qauto-ilp32 -Qunroll2 /F1000000000 shlw64m.lib -link /FORCE:MULTIPLE

C++ benchmarks:

444.namd: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32 -Oa -Qcxx_features /F1000000000 shlw64m.lib -link /FORCE:MULTIPLE

447.dealII: basepeak = yes

450.soplex: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32 -Qcxx_features /F1000000000 shlw64m.lib -link /FORCE:MULTIPLE

453.povray: -Qprof_gen(pass 1) -Qprof_use(pass 2) -fast -Qauto-ilp32 -Qunroll4 -Qansi-alias -Qcxx_features /F1000000000 shlw64m.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

Continued on next page

# Peak Optimization Flags (Continued)

410.bwaves: `-fast -Qauto-ilp32 -Qprefetch /F1000000000 -link /FORCE:MULTIPLE`

416.gamess: `basepeak = yes`

434.zeusmp: `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-QxT -O2 -Qprec-div- -Qunroll0 -Qscalar-rep- /F1000000000 -link /FORCE:MULTIPLE`

437.leslie3d: `basepeak = yes`

459.GemsFDTD: `basepeak = yes`

465.tonto: `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-fast -Qauto-ilp32 -Qunroll4 -Qauto /F1000000000 -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 -link /FORCE:MULTIPLE`

436.cactusADM: `basepeak = yes`

454.calculix: `-fast -Qauto-ilp32 -Qunroll-aggressive /F1000000000 -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.20090714.01.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.20090714.01.xml`


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