# SPEC® CFP2006 Result

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## Dell Inc.

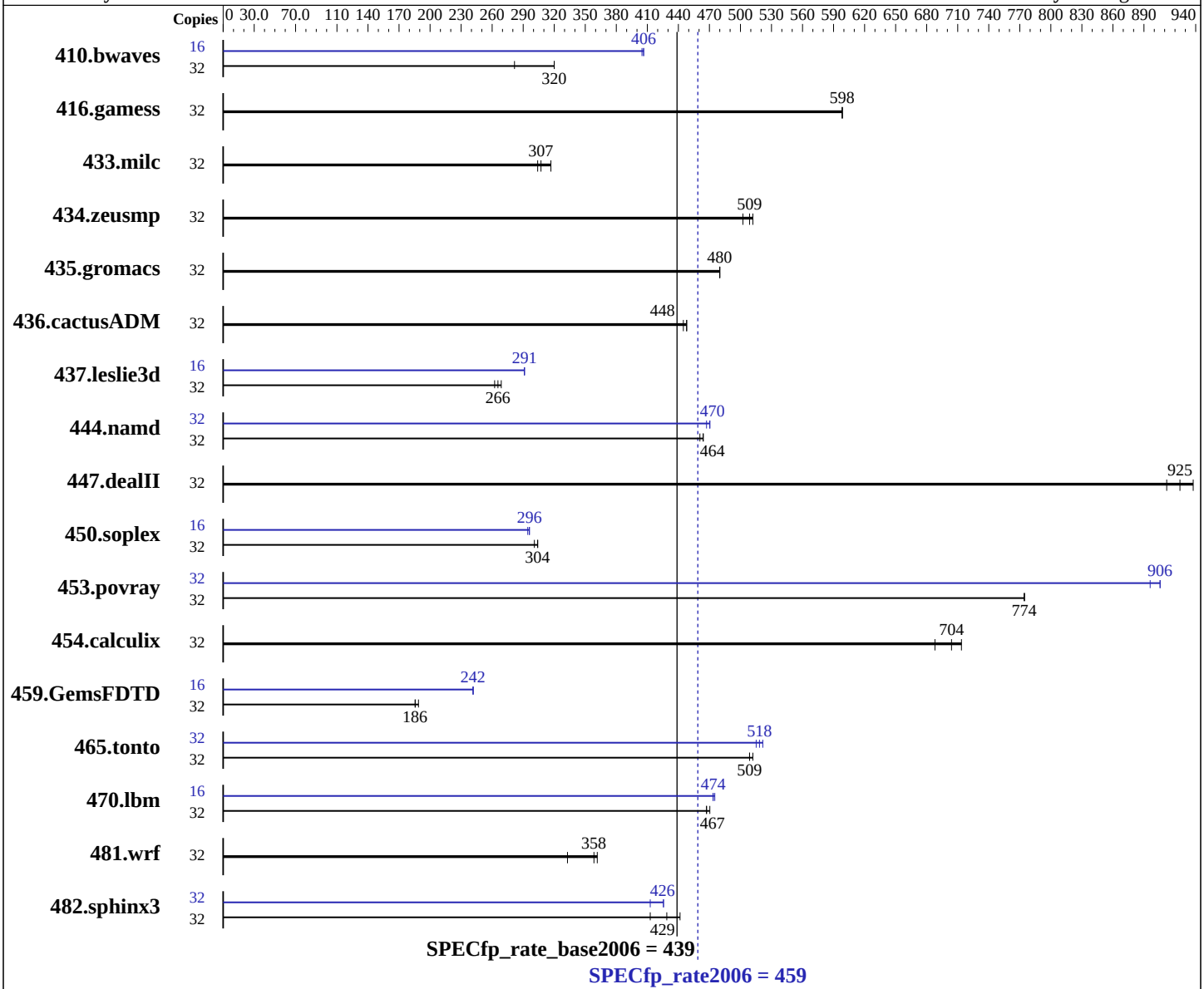
DELL Precision T7600 (Intel Xeon E5-2687W, 3.10GHz)

SPECfp®_rate2006 = 459

SPECfp_rate_base2006 = 439

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

**Test date:** Jan-2013
**Hardware Availability:** Aug-2012
**Software Availability:** Aug-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2687W |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.80 GHz |
| CPU MHz: | 3100 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 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: | Windows 7 Professional (64-bit) |
| Compiler: | C/C++: Version 12.1.0.233 of Intel C++ Studio XE for Windows<br>Fortran: Version 12.1.0.233 of Intel Visual Fortran Compiler for Intel64<br>C/C++: Version 2010 of Microsoft Visual Studio |
| Auto Parallel: | No |
| File System: | NTFS |
| System State: | Default |

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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (8 x 8 GB 2Rx4 PC3-12800R-9, ECC)
Disk Subsystem: 1 x 250 GB SATAIII 7200 RPM
Other Hardware: None

Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: MicroQuill SmartHeap Library 10.0

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 32 | 1546 | 282 | **1357** | **320** | 1356 | 320 | 16 | **535** | **406** | 535 | 406 | 537 | 405 |
| 416.gamess | 32 | **1047** | **598** | 1046 | 598 | 1047 | 598 | 32 | **1047** | **598** | 1046 | 598 | 1047 | 598 |
| 433.milc | 32 | 964 | 304 | 931 | 317 | **956** | **307** | 32 | 964 | 304 | 931 | 317 | **956** | **307** |
| 434.zeusmp | 32 | 569 | 512 | **573** | **509** | 581 | 502 | 32 | 569 | 512 | **573** | **509** | 581 | 502 |
| 435.gromacs | 32 | **478** | **480** | 477 | 480 | 478 | 480 | 32 | **478** | **480** | 477 | 480 | 478 | 480 |
| 436.cactusADM | 32 | 858 | 445 | 852 | 448 | **856** | **448** | 32 | 858 | 445 | 852 | 448 | **856** | **448** |
| 437.leslie3d | 32 | 1122 | 269 | **1136** | **266** | 1140 | 262 | 16 | 518 | 291 | **518** | **291** | 518 | 291 |
| 444.namd | 32 | **555** | **464** | 558 | 461 | 552 | 464 | 32 | 544 | 470 | **546** | **470** | 550 | 467 |
| 447.dealII | 32 | 401 | 912 | **396** | **925** | 390 | 938 | 32 | 401 | 912 | **396** | **925** | 390 | 938 |
| 450.soplex | 32 | 883 | 301 | **882** | **304** | 881 | 304 | 16 | **452** | **296** | 452 | 296 | 452 | 294 |
| 453.povray | 32 | 220 | 774 | **220** | **774** | 220 | 774 | 32 | 188 | 906 | **188** | **906** | 190 | 896 |
| 454.calculix | 32 | **375** | **704** | 383 | 688 | 370 | 714 | 32 | **375** | **704** | 383 | 688 | 370 | 714 |
| 459.GemsFDTD | 32 | **1820** | **186** | 1838 | 186 | 1803 | 189 | 16 | **701** | **242** | 701 | 242 | 701 | 242 |
| 465.tonto | 32 | 615 | 512 | 620 | 509 | **619** | **509** | 32 | 612 | 515 | **608** | **518** | 604 | 522 |
| 470.lbm | 32 | 939 | 467 | **938** | **467** | 937 | 470 | 16 | 465 | 474 | 463 | 475 | **464** | **474** |
| 481.wrf | 32 | **1000** | **358** | 1074 | 333 | 989 | 362 | 32 | **1000** | **358** | 1074 | 333 | 989 | 362 |
| 482.sphinx3 | 32 | 1410 | 442 | **1455** | **429** | 1509 | 413 | 32 | 1506 | 413 | 1461 | 426 | **1467** | **426** |

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

## Submit Notes

```
The config file option 'submit' was used.
```

## Platform Notes

```
Sysinfo program C:\cpu2006.v1.2/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Spec-PC Sat Jan 19 17:29:19 2013

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

Trying 'systeminfo'
OS Name       : Microsoft Windows 7 Professional
```

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## Platform Notes (Continued)

```
OS Version    : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: Dell Inc.
System Model  : Precision T7600
Processor(s)  : 2 Processor(s) Installed.
     [01]: Intel64 Family 6 Model 45 Stepping 6 GenuineIntel ~3069 Mhz
     [02]: Intel64 Family 6 Model 45 Stepping 6 GenuineIntel ~2294 Mhz
BIOS Version  : Dell Inc. A05, 11/8/2012
Total Physical Memory: 65,462 MB

Trying 'wmic cpu get /value'
DeviceID      : CPU0
L2CacheSize   : 2048
L3CacheSize   : 4096
MaxClockSpeed : 3101
Name          : Intel(R) Xeon(R) CPU E5-2687W 0 @ 3.10GHz
NumberOfCores : 8
NumberOfLogicalProcessors: 16
DeviceID      : CPU1
L2CacheSize   : 2048
L3CacheSize   : 4096
MaxClockSpeed : 3101
Name          : Intel(R) Xeon(R) CPU E5-2687W 0 @ 3.10GHz
NumberOfCores : 8
NumberOfLogicalProcessors: 16

(End of data from sysinfo program)
```

## General Notes

```
Binaries were built on Windows 7 Professional (64-bit)

Submitted_by: <Alex_Shows@DELL.com>
Submitted: Mon Feb 11 17:38:59 EST 2013
Submission: cpu2006-20130211-25515.sub
```

## Base Compiler Invocation

C benchmarks:

```
icl -Qvc10 -Qstd=c99
```

C++ benchmarks:

```
icl -Qvc10
```

Fortran benchmarks:

```
ifort
```

Benchmarks using both Fortran and C:

```
icl -Qvc10 -Qstd=c99 ifort
```

## Base Portability Flags

410.bwaves: -DSPEC_CPU_P64 -names:lowercase
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 -names:lowercase /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_NEED_INVHYP -DNEED_INVHYP
454.calculix: -DSPEC_CPU_P64 -DSPEC_CPU_NOZMODIFIER -names:lowercase
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:
-QxAVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qauto-ilp32 /F512000000

C++ benchmarks:
-QxAVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qcxx-features
-Qauto-ilp32 /F512000000 shlw64m.lib -link /FORCE:MULTIPLE

Fortran benchmarks:
-QxAVX -Qipo -O3 -Qprec-div- -Qansi-alias /F1000000000

Benchmarks using both Fortran and C:
-QxAVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qauto-ilp32 /F1000000000

## Peak Compiler Invocation

C benchmarks:
icl -Qvc10 -Qstd=c99

C++ benchmarks:
icl -Qvc10

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc10 -Qstd=c99 ifort

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -QxAVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qauto-ilp32 /F512000000

482.sphinx3: -QxAVX -Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias -Qauto-ilp32 /F512000000

C++ benchmarks:

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

447.dealII: basepeak = yes

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

453.povray: -Qprof_gen(pass 1) -QxAVX(pass 2) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32 /F512000000 shlw64m.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: -QxAVX -Qipo -O3 -Qprec-div- -Qansi-alias /F1000000000

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: Same as 410.bwaves

459.GemsFDTD: Same as 410.bwaves

465.tonto: -Qprof_gen(pass 1) -QxAVX(pass 2) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000

Benchmarks using both Fortran and C:

Continued on next page

## Peak Optimization Flags (Continued)

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Dell-ic12.1-Windows.html
http://www.spec.org/cpu2006/flags/Dell-platform-Precision.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Dell-ic12.1-Windows.xml
http://www.spec.org/cpu2006/flags/Dell-platform-Precision.xml


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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 15:20:11 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 26 February 2013.