# SPEC® CFP2006 Result

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## Dell Inc.

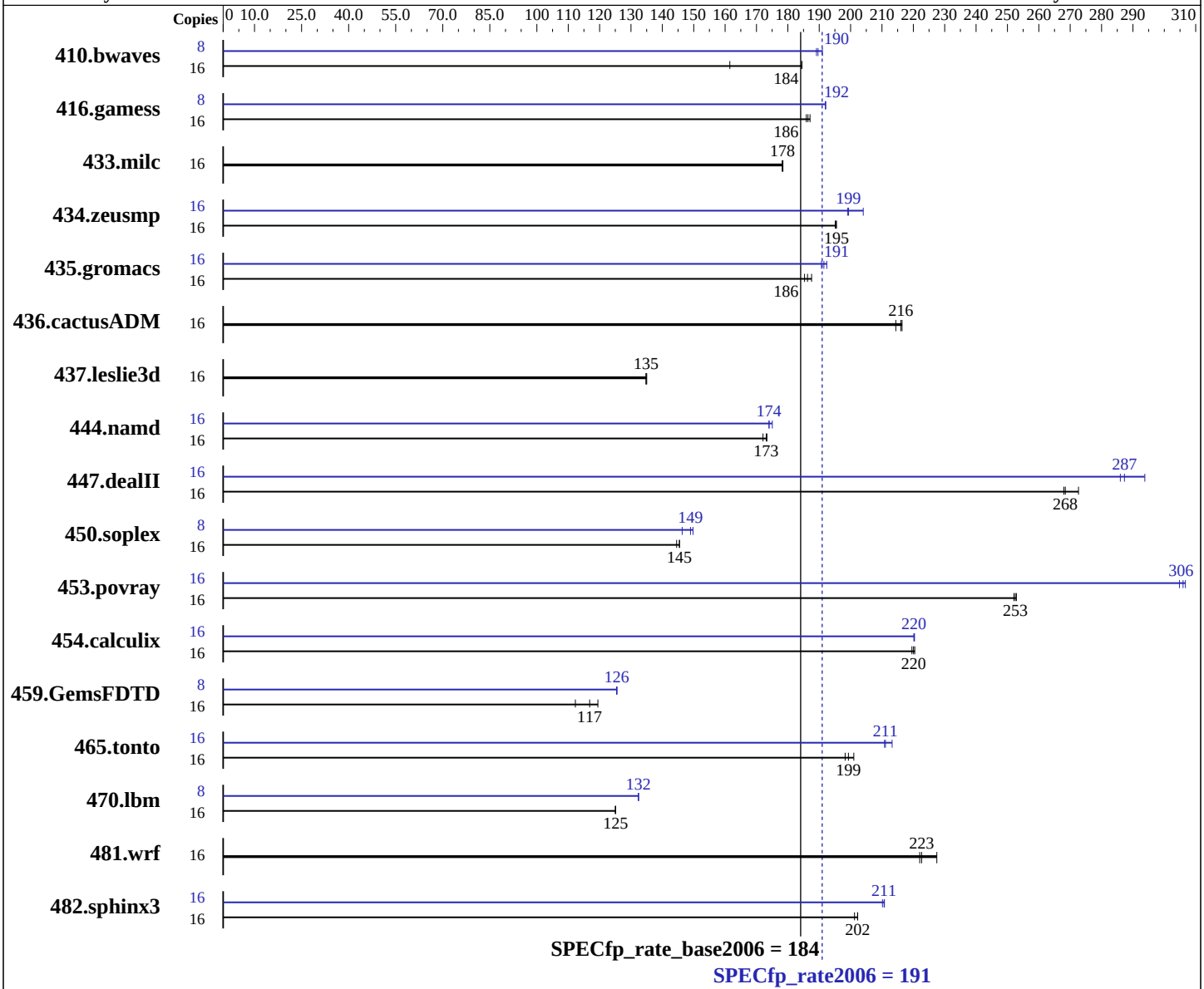
PowerEdge T710 (Intel Xeon X5550, 2.66 GHz)

SPECfp®_rate2006 = 191

SPECfp_rate_base2006 = 184

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

**Test date:** Apr-2009
**Hardware Availability:** Jun-2009
**Software Availability:** Feb-2009




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5550 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.06 GHz |
| CPU MHz: | 2667 |
| FPU: | Integrated |
| CPU(s) enabled: | 8 cores, 2 chips, 4 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: | SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16.60-0.21-smp |
| Compiler: | Intel C++ and Fortran Compiler Professional 11.0 for Linux<br>Build 20090131 Package ID: l_cproc_p_11.0.080, l_cprof_p_11.0.080 |
| Auto Parallel: | No |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB DDR3-1333 DR RDIMM)
Disk Subsystem: 1 x 73 GB 15000 RPM SAS
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 16 | 1346 | 162 | 1179 | 184 | **1179** | **184** | 8 | 575 | 189 | 569 | 191 | **573** | **190** |
| 416.gamess | 16 | **1681** | **186** | 1675 | 187 | 1685 | 186 | 8 | 816 | 192 | 815 | 192 | **816** | **192** |
| 433.milc | 16 | **824** | **178** | 823 | 178 | 824 | 178 | 16 | **824** | **178** | 823 | 178 | 824 | 178 |
| 434.zeusmp | 16 | 745 | 196 | **745** | **195** | 746 | 195 | 16 | 714 | 204 | **730** | **199** | 732 | 199 |
| 435.gromacs | 16 | 616 | 185 | 609 | 188 | **613** | **186** | 16 | 594 | 192 | 599 | 191 | **597** | **191** |
| 436.cactusADM | 16 | 884 | 216 | 892 | 214 | **885** | **216** | 16 | 884 | 216 | 892 | 214 | **885** | **216** |
| 437.leslie3d | 16 | 1114 | 135 | 1116 | 135 | **1115** | **135** | 16 | 1114 | 135 | 1116 | 135 | **1115** | **135** |
| 444.namd | 16 | 740 | 173 | **741** | **173** | 746 | 172 | 16 | 733 | 175 | 737 | 174 | **737** | **174** |
| 447.dealII | 16 | 683 | 268 | 671 | 273 | **682** | **268** | 16 | 623 | 294 | 640 | 286 | **637** | **287** |
| 450.soplex | 16 | 917 | 145 | 923 | 145 | **918** | **145** | 8 | 456 | 146 | **448** | **149** | 445 | 150 |
| 453.povray | 16 | 337 | 253 | 338 | 252 | **337** | **253** | 16 | **278** | **306** | 279 | 305 | 278 | 307 |
| 454.calculix | 16 | **600** | **220** | 599 | 220 | 601 | 220 | 16 | **599** | **220** | 599 | 220 | 599 | 220 |
| 459.GemsFDTD | 16 | 1512 | 112 | **1453** | **117** | 1421 | 119 | 8 | **676** | **126** | 677 | 125 | 676 | 126 |
| 465.tonto | 16 | **790** | **199** | 794 | 198 | 783 | 201 | 16 | 738 | 213 | 747 | 211 | **746** | **211** |
| 470.lbm | 16 | 1759 | 125 | 1757 | 125 | **1757** | **125** | 8 | 830 | 132 | 830 | 132 | **830** | **132** |
| 481.wrf | 16 | 786 | 227 | 805 | 222 | **803** | **223** | 16 | 786 | 227 | 805 | 222 | **803** | **223** |
| 482.sphinx3 | 16 | 1542 | 202 | 1550 | 201 | **1542** | **202** | 16 | 1484 | 210 | 1479 | 211 | **1480** | **211** |

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.
 numactl was used to bind copies to the cores
```

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
```

## Base Compiler Invocation

C benchmarks:

```
icc
```

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## Base Compiler Invocation (Continued)

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

## 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

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):
icpc

450.soplex: icpc -m32

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icc ifort

## Peak 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
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

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

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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) -static(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -ansi-alias -scalar-rep-

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)

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) -static(pass 2) -prof-use(pass 2) -unroll2 -Ob0 -opt-prefetch

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2) -opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

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

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## Peak Optimization Flags (Continued)

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090805.01.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090805.01.xml`


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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 02:45:07 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 15 September 2009.