# SPEC® CFP2006 Result

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## Dell Inc.

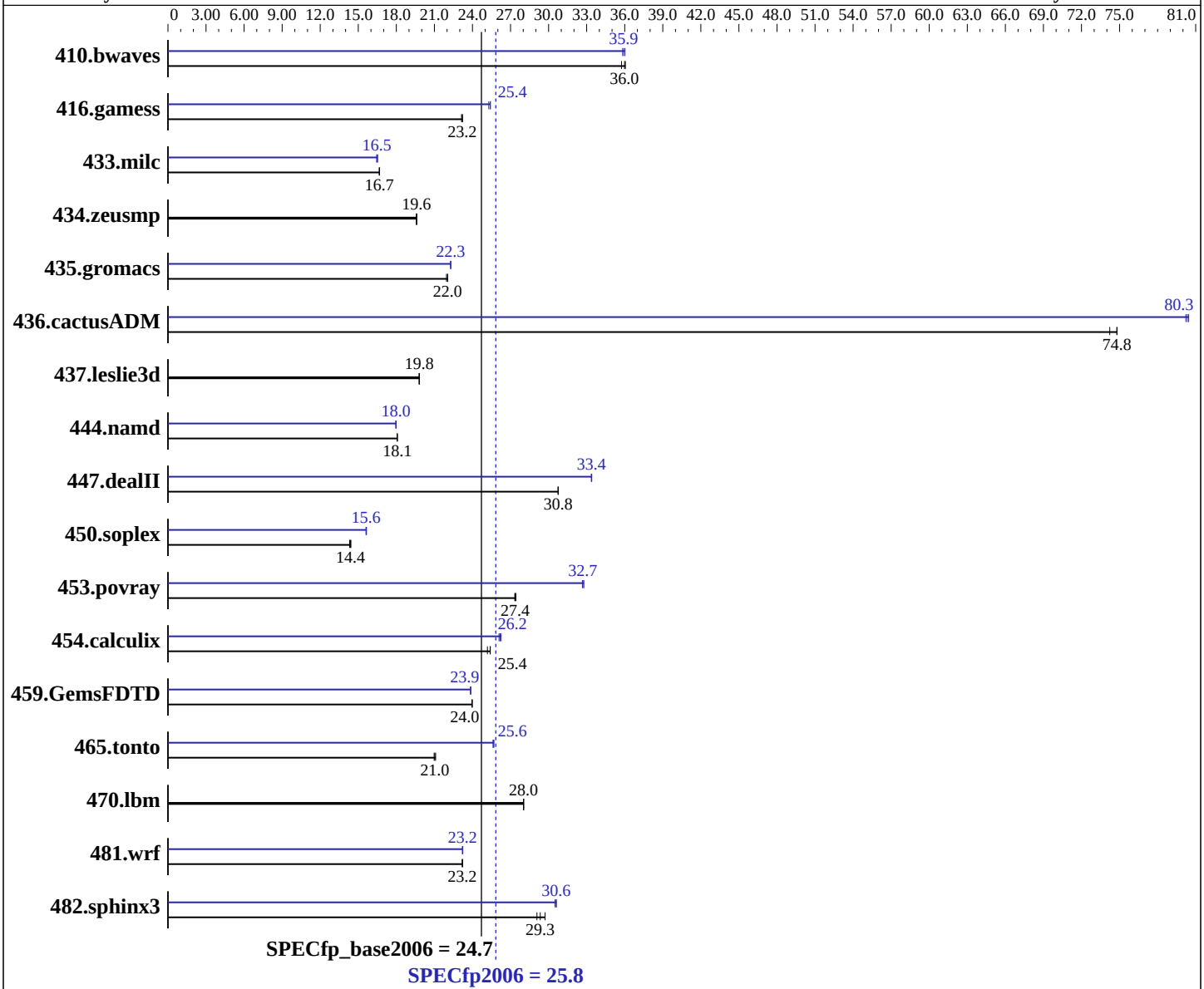
PowerEdge 2900 III (Intel Xeon X5260, 3.33 GHz)

SPECfp®2006 = 25.8

SPECfp_base2006 = 24.7

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

**Test date:** Sep-2008
**Hardware Availability:** Jan-2008
**Software Availability:** Nov-2008




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X5260 |
| CPU Characteristics: | |
| 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: | SUSE Linux Enterprise Server 10 (x86_64) SP2, Kernel 2.6.16-60.0.21-smp |
| Compiler: | Intel C++ and Fortran Compiler 11.0 for Linux Build 20080730 Package ID: l_cproc_b_11.0.042, l_fproc_b_11.0.042 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

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L3 Cache: None
Other Cache: None
Memory: 16 GB (8 x 2 GB 667 MHz CL5 DDR2 Dual Rank)
Disk Subsystem: 2 x 73 GB SAS 15000 RPM
Other Hardware: None

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

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 380 | 35.7 | 377 | 36.1 | **378** | **36.0** | 379 | 35.8 | 377 | 36.0 | **378** | **35.9** |
| 416.gamess | **844** | **23.2** | 846 | 23.1 | 844 | 23.2 | 774 | 25.3 | **771** | **25.4** | 771 | 25.4 |
| 433.milc | 551 | 16.7 | 551 | 16.7 | **551** | **16.7** | 555 | 16.5 | **558** | **16.5** | 558 | 16.5 |
| 434.zeusmp | 464 | 19.6 | 465 | 19.6 | **464** | **19.6** | 464 | 19.6 | 465 | 19.6 | **464** | **19.6** |
| 435.gromacs | **324** | **22.0** | 325 | 22.0 | 324 | 22.0 | **321** | **22.3** | 321 | 22.3 | 320 | 22.3 |
| 436.cactusADM | **160** | **74.8** | 160 | 74.8 | 161 | 74.2 | 149 | 80.2 | 149 | 80.5 | **149** | **80.3** |
| 437.leslie3d | **475** | **19.8** | 474 | 19.8 | 475 | 19.8 | **475** | **19.8** | 474 | 19.8 | 475 | 19.8 |
| 444.namd | 444 | 18.1 | **444** | **18.1** | 443 | 18.1 | 446 | 18.0 | **446** | **18.0** | 446 | 18.0 |
| 447.dealII | 372 | 30.8 | 372 | 30.7 | **372** | **30.8** | 342 | 33.4 | **343** | **33.4** | 343 | 33.4 |
| 450.soplex | 579 | 14.4 | 582 | 14.3 | **579** | **14.4** | **534** | **15.6** | 534 | 15.6 | 533 | 15.6 |
| 453.povray | 194 | 27.4 | **194** | **27.4** | 195 | 27.3 | 162 | 32.8 | 163 | 32.7 | **163** | **32.7** |
| 454.calculix | **325** | **25.4** | 328 | 25.2 | 325 | 25.4 | 314 | 26.3 | 316 | 26.1 | **315** | **26.2** |
| 459.GemsFDTD | **443** | **24.0** | 443 | 24.0 | 443 | 24.0 | 445 | 23.8 | **445** | **23.9** | 445 | 23.9 |
| 465.tonto | 466 | 21.1 | 469 | 21.0 | **468** | **21.0** | 383 | 25.7 | **384** | **25.6** | 384 | 25.6 |
| 470.lbm | 490 | 28.0 | **490** | **28.0** | 490 | 28.0 | 490 | 28.0 | **490** | **28.0** | 490 | 28.0 |
| 481.wrf | 481 | 23.2 | **481** | **23.2** | 481 | 23.2 | 481 | 23.2 | 481 | 23.2 | **481** | **23.2** |
| 482.sphinx3 | 656 | 29.7 | 670 | 29.1 | **664** | **29.3** | 639 | 30.5 | **637** | **30.6** | 637 | 30.6 |

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

## Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## General Notes

```
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 200M
```

## Base Compiler Invocation

C benchmarks:
icc

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:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc

482.sphinx3: /opt/intel/Compiler/11.0/042/bin/ia32/icc
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

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

450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

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

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## Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -fno-alias -auto-ilp32

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

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

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

Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch -parallel

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

Benchmarks using both Fortran and C:

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

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

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## Peak Optimization Flags (Continued)

481.wrf: `-xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.05.html`
`http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.02.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.05.xml`
`http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.02.xml`


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