# SPEC® CFP2006 Result

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## Dell Inc.

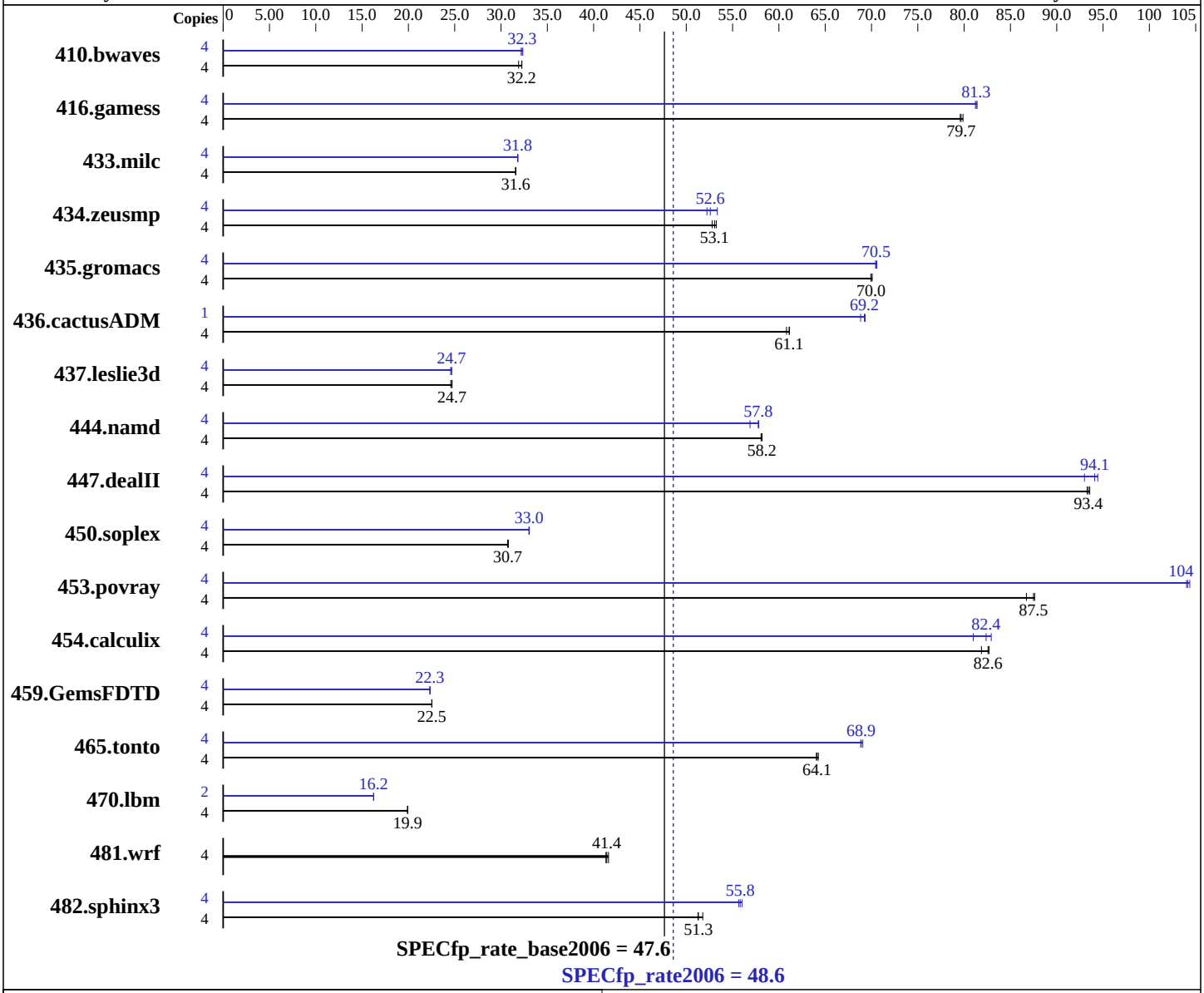
PowerEdge T100 (Intel Xeon X3350, 2.66 GHz)

SPECfp®_rate2006 = 48.6

SPECfp_rate_base2006 = 47.6

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

**Test date:** Oct-2008
**Hardware Availability:** Sep-2008
**Software Availability:** Oct-2008




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X3350 |
| CPU Characteristics: | |
| CPU MHz: | 2666 |
| 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: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |

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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: 8 GB (4 x 2 GB DDR2-800)
Disk Subsystem: 1 x 160 GB SATA, 7200 RPM
Other Hardware: None

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 | 4 | 1704 | 31.9 | 1685 | 32.3 | **1686** | **32.2** | 4 | 1690 | 32.2 | 1680 | 32.4 | **1684** | **32.3** |
| 416.gamess | 4 | 980 | 79.9 | 984 | 79.6 | **983** | **79.7** | 4 | 962 | 81.4 | **963** | **81.3** | 964 | 81.2 |
| 433.milc | 4 | 1163 | 31.6 | **1163** | **31.6** | 1162 | 31.6 | 4 | **1154** | **31.8** | 1154 | 31.8 | 1154 | 31.8 |
| 434.zeusmp | 4 | 690 | 52.8 | **686** | **53.1** | 684 | 53.2 | 4 | 697 | 52.2 | **692** | **52.6** | 682 | 53.4 |
| 435.gromacs | 4 | **408** | **70.0** | 408 | 70.1 | 408 | 69.9 | 4 | 405 | 70.4 | **405** | **70.5** | 405 | 70.6 |
| 436.cactusADM | 4 | 786 | 60.8 | **782** | **61.1** | 782 | 61.1 | 1 | 174 | 68.8 | 172 | 69.3 | **173** | **69.2** |
| 437.leslie3d | 4 | 1521 | 24.7 | **1522** | **24.7** | 1530 | 24.6 | 4 | 1524 | 24.7 | **1525** | **24.7** | 1530 | 24.6 |
| 444.namd | 4 | **552** | **58.2** | 552 | 58.1 | 551 | 58.2 | 4 | 555 | 57.8 | 564 | 56.9 | **555** | **57.8** |
| 447.dealII | 4 | **490** | **93.4** | 491 | 93.3 | 489 | 93.6 | 4 | 492 | 93.0 | **486** | **94.1** | 485 | 94.4 |
| 450.soplex | 4 | **1085** | **30.7** | 1086 | 30.7 | 1084 | 30.8 | 4 | 1009 | 33.1 | 1010 | 33.0 | **1010** | **33.0** |
| 453.povray | 4 | 243 | 87.6 | **243** | **87.5** | 245 | 86.7 | 4 | 205 | 104 | 204 | 104 | **204** | **104** |
| 454.calculix | 4 | 399 | 82.7 | **400** | **82.6** | 403 | 81.9 | 4 | 407 | 81.0 | **401** | **82.4** | 398 | 82.9 |
| 459.GemsFDTD | 4 | 1883 | 22.5 | 1884 | 22.5 | **1883** | **22.5** | 4 | 1899 | 22.3 | 1901 | 22.3 | **1901** | **22.3** |
| 465.tonto | 4 | 613 | 64.3 | 615 | 64.0 | **614** | **64.1** | 4 | 572 | 68.8 | **571** | **68.9** | 570 | 69.1 |
| 470.lbm | 4 | **2759** | **19.9** | 2759 | 19.9 | 2759 | 19.9 | 2 | 1692 | 16.2 | 1691 | 16.3 | **1691** | **16.2** |
| 481.wrf | 4 | 1074 | 41.6 | 1081 | 41.3 | **1079** | **41.4** | 4 | 1074 | 41.6 | 1081 | 41.3 | **1079** | **41.4** |
| 482.sphinx3 | 4 | 1505 | 51.8 | 1521 | 51.3 | **1519** | **51.3** | 4 | 1392 | 56.0 | 1401 | 55.7 | **1397** | **55.8** |

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.
```

## Operating System Notes

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

## Platform Notes

```
BIOS Settings:
Hardware Prefetcher = Disabled (Default = Enabled)
Adjacent Cache Line Prefetch = Disabled (Default = Enabled)
```

## General Notes

```
taskset was used to bind processes to cores except
for 436.cactusADM peak
OMP_NUM_THREADS set to number of processors
KMP_AFFINITY set to "physical,0"
KMP_STACKSIZE set to 64M
```

## 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 -opt-prefetch

Continued on next page

## Base Optimization Flags (Continued)

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

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

Benchmarks using both Fortran and C:
`-xSSE4.1 -ipo -O3 -no-prec-div -static -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 (except as noted below):
`ifort`

437.leslie3d: `/opt/intel/Compiler/11.0/042/bin/ia32/ifort -L/opt/intel/Compiler/11.0/042/ipp/ia32/lib -I/opt/intel/Compiler/11.0/042/ipp/ia32/include`

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`
444.namd: `-DSPEC_CPU_LP64`
447.dealII: `-DSPEC_CPU_LP64`

Continued on next page

## Peak Portability Flags (Continued)

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

470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch
-auto-ilp32

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-

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

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

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3
-no-prec-div -static -opt-malloc-options=3 -opt-prefetch

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## Peak Optimization Flags (Continued)

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

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`

481.wrf: `basepeak = yes`

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.20090713.11.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.20090713.11.xml


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