



# SPEC<sup>®</sup> CFP2006 Result

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Dell Inc.

SPECfp<sup>®</sup>2006 = 23.0

PowerEdge M600 (Intel Xeon E5430, 2.66 GHz)

SPECfp\_base2006 = 22.1

CPU2006 license: 55

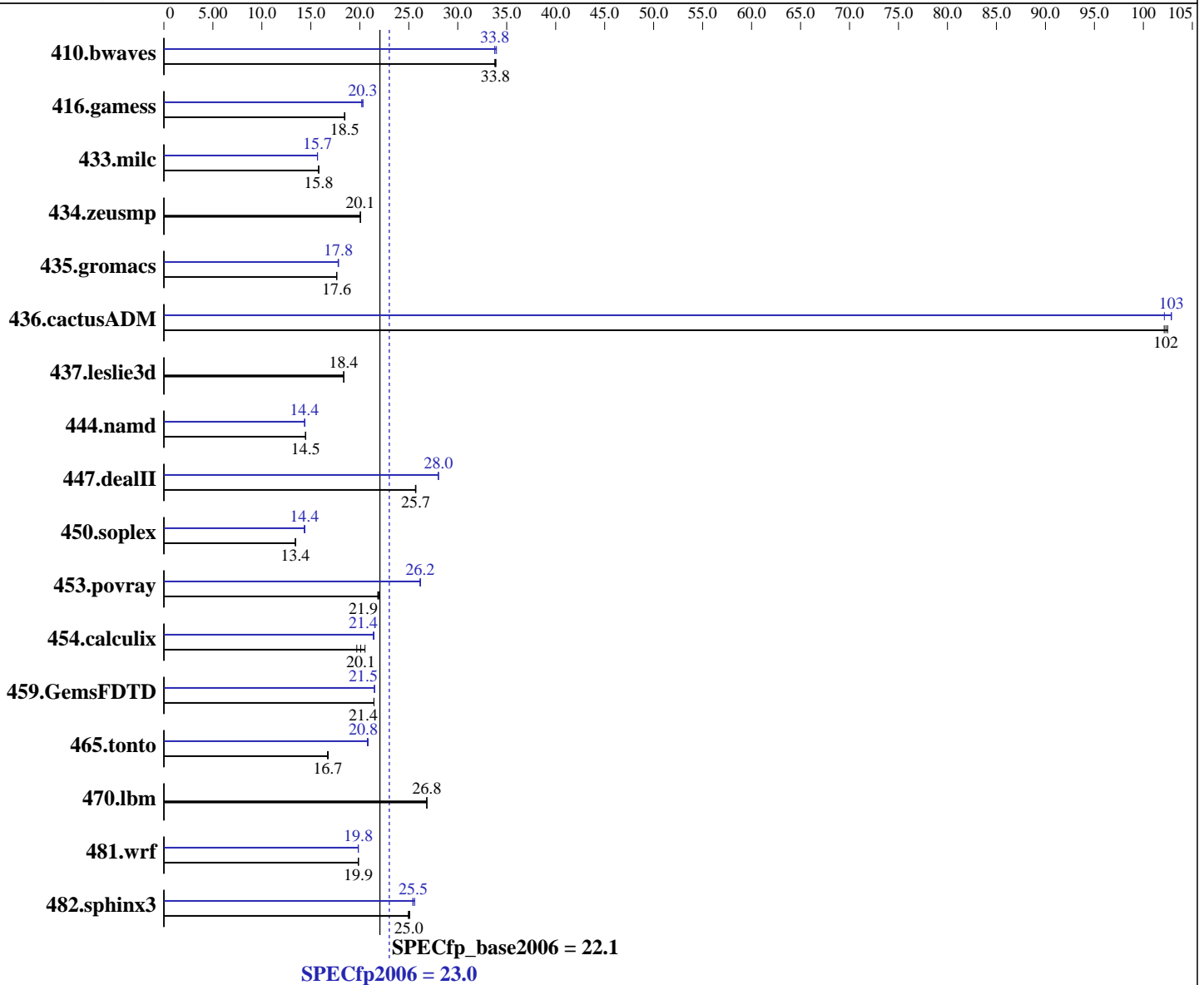
Test date: Sep-2008

Test sponsor: Dell Inc.

Hardware Availability: Sep-2008

Tested by: Dell Inc.

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon E5430  
 CPU Characteristics:  
 CPU MHz: 2666  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip  
 CPU(s) orderable: 1,2 chips  
 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\_cc\_b\_11.0.042, l\_fc\_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 (4 x 4 GB 667 MHz ECC CL5 FB-DIMM)  
Disk Subsystem: 1 x 80 GB 5400 RPM SATA  
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	402	33.8	401	33.9	<b>401</b>	<b>33.8</b>	<b>402</b>	<b>33.8</b>	402	33.8	400	34.0
416.gamess	1062	18.4	1059	18.5	<b>1061</b>	<b>18.5</b>	<b>965</b>	<b>20.3</b>	964	20.3	970	20.2
433.milc	582	15.8	<b>581</b>	<b>15.8</b>	580	15.8	585	15.7	<b>585</b>	<b>15.7</b>	586	15.7
434.zeusmp	454	20.1	<b>454</b>	<b>20.1</b>	454	20.1	454	20.1	<b>454</b>	<b>20.1</b>	454	20.1
435.gromacs	<b>405</b>	<b>17.6</b>	405	17.6	405	17.6	<b>401</b>	<b>17.8</b>	401	17.8	400	17.8
436.cactusADM	117	102	117	102	<b>117</b>	<b>102</b>	<b>116</b>	<b>103</b>	116	103	117	102
437.leslie3d	512	18.4	<b>512</b>	<b>18.4</b>	512	18.4	512	18.4	<b>512</b>	<b>18.4</b>	512	18.4
444.namd	554	14.5	555	14.5	<b>554</b>	<b>14.5</b>	<b>558</b>	<b>14.4</b>	557	14.4	558	14.4
447.dealII	445	25.7	<b>445</b>	<b>25.7</b>	446	25.7	408	28.0	<b>408</b>	<b>28.0</b>	408	28.0
450.soplex	<b>621</b>	<b>13.4</b>	621	13.4	621	13.4	579	14.4	582	14.3	<b>581</b>	<b>14.4</b>
453.povray	244	21.8	<b>243</b>	<b>21.9</b>	242	22.0	203	26.2	<b>203</b>	<b>26.2</b>	203	26.2
454.calculix	419	19.7	<b>411</b>	<b>20.1</b>	402	20.5	385	21.4	386	21.4	<b>385</b>	<b>21.4</b>
459.GemsFDTD	495	21.5	495	21.4	<b>495</b>	<b>21.4</b>	493	21.5	494	21.5	<b>494</b>	<b>21.5</b>
465.tonto	589	16.7	<b>588</b>	<b>16.7</b>	586	16.8	472	20.9	<b>474</b>	<b>20.8</b>	474	20.8
470.lbm	<b>512</b>	<b>26.8</b>	512	26.8	512	26.9	<b>512</b>	<b>26.8</b>	512	26.8	512	26.9
481.wrf	562	19.9	563	19.9	<b>563</b>	<b>19.9</b>	563	19.8	563	19.8	<b>563</b>	<b>19.8</b>
482.sphinx3	777	25.1	<b>779</b>	<b>25.0</b>	781	25.0	761	25.6	<b>766</b>	<b>25.5</b>	767	25.4

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

All benchmarks compiled in 64-bit mode except 450.soplex, and 482.sphinx3, at peak, are compiled in 32-bit mode  
OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 200M



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## 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



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## 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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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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