



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®2006 = 20.5

PowerEdge M600 (Intel Xeon E5420, 2.50 GHz)

SPECfp\_base2006 = 17.4

CPU2006 license: 55

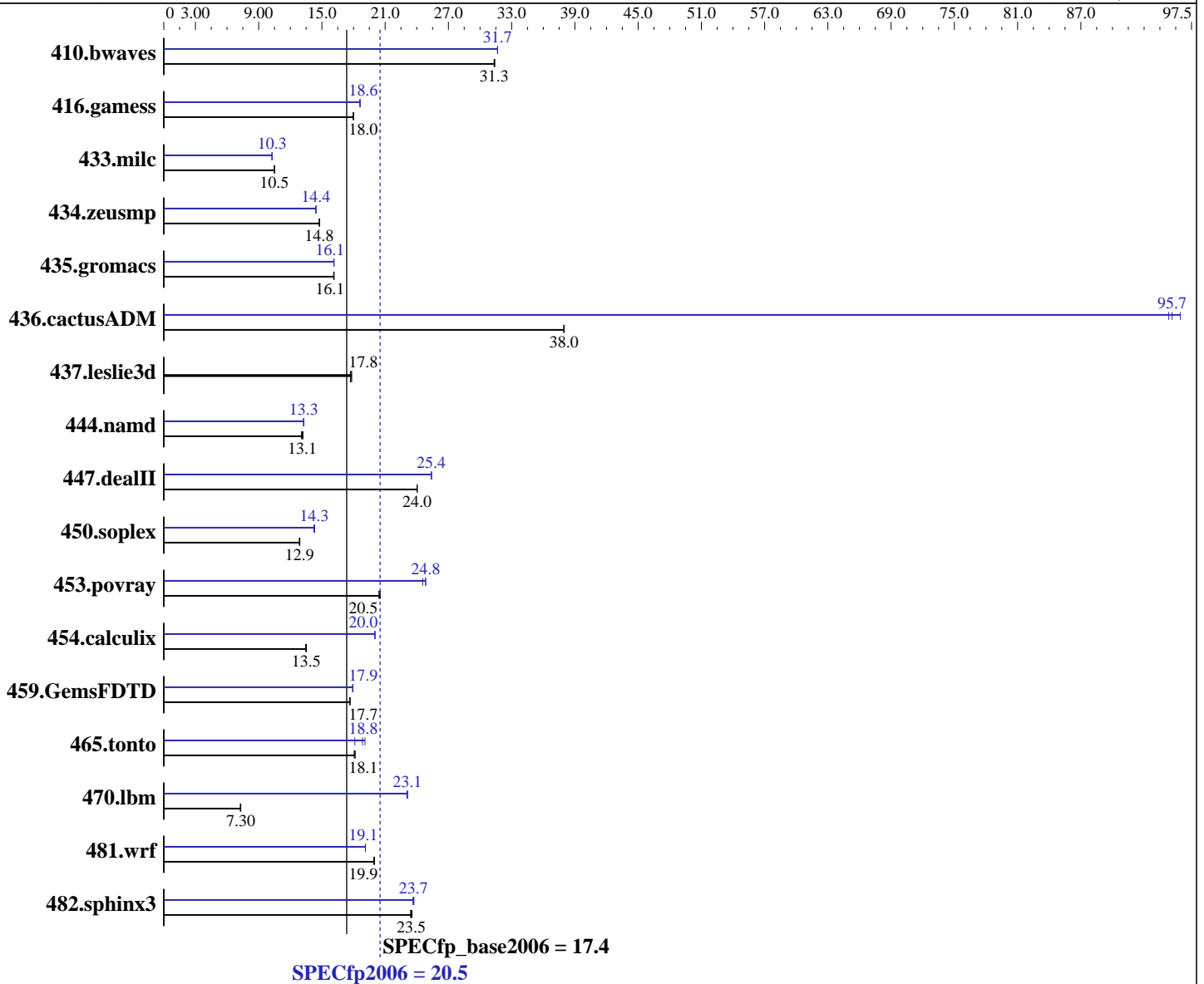
Test date: Jun-2008

Test sponsor: Dell Inc.

Hardware Availability: Jan-2008

Tested by: Dell Inc.

Software Availability: May-2008



## Hardware

CPU Name: Intel Xeon E5420  
 CPU Characteristics:  
 CPU MHz: 2500  
 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 10.1 for Linux Build 20080312 Package ID: l\_cc\_p\_10.1.015, l\_fc\_p\_10.1.015  
 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 (4x4 GB, DDR2-667 MHz, CL5, Reg, Dual Rank)  
Disk Subsystem: 1 x 80 GB SATA 5400 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	<b>434</b>	<b>31.3</b>	433	31.4	434	31.3	429	31.7	429	31.7	<b>429</b>	<b>31.7</b>
416.gamess	1089	18.0	1090	18.0	<b>1089</b>	<b>18.0</b>	1051	18.6	1052	18.6	<b>1052</b>	<b>18.6</b>
433.milc	874	10.5	<b>875</b>	<b>10.5</b>	875	10.5	894	10.3	<b>894</b>	<b>10.3</b>	894	10.3
434.zeusmp	<b>617</b>	<b>14.8</b>	617	14.8	617	14.8	631	14.4	631	14.4	<b>631</b>	<b>14.4</b>
435.gromacs	442	16.2	<b>443</b>	<b>16.1</b>	443	16.1	442	16.1	442	16.1	<b>442</b>	<b>16.1</b>
436.cactusADM	315	38.0	315	37.9	<b>315</b>	<b>38.0</b>	125	95.3	<b>125</b>	<b>95.7</b>	124	96.4
437.leslie3d	527	17.8	<b>529</b>	<b>17.8</b>	531	17.7	527	17.8	<b>529</b>	<b>17.8</b>	531	17.7
444.namd	<b>610</b>	<b>13.1</b>	614	13.1	607	13.2	604	13.3	<b>604</b>	<b>13.3</b>	605	13.3
447.dealII	476	24.0	476	24.0	<b>476</b>	<b>24.0</b>	<b>451</b>	<b>25.4</b>	450	25.4	451	25.4
450.soplex	646	12.9	648	12.9	<b>648</b>	<b>12.9</b>	586	14.2	583	14.3	<b>584</b>	<b>14.3</b>
453.povray	259	20.5	<b>259</b>	<b>20.5</b>	261	20.4	214	24.8	217	24.6	<b>214</b>	<b>24.8</b>
454.calculix	610	13.5	613	13.5	<b>611</b>	<b>13.5</b>	412	20.0	<b>412</b>	<b>20.0</b>	412	20.0
459.GemsFDTD	<b>601</b>	<b>17.7</b>	601	17.7	601	17.7	<b>592</b>	<b>17.9</b>	592	17.9	592	17.9
465.tonto	542	18.2	<b>543</b>	<b>18.1</b>	545	18.1	543	18.1	<b>522</b>	<b>18.8</b>	516	19.1
470.lbm	<b>1883</b>	<b>7.30</b>	1881	7.30	1894	7.25	594	23.1	596	23.1	<b>594</b>	<b>23.1</b>
481.wrf	561	19.9	559	20.0	<b>560</b>	<b>19.9</b>	584	19.1	584	19.1	<b>584</b>	<b>19.1</b>
482.sphinx3	828	23.5	832	23.4	<b>830</b>	<b>23.5</b>	821	23.7	<b>823</b>	<b>23.7</b>	825	23.6

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

All benchmarks compiled in 64-bit mode except 450.soplex, 470.lbm 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:  
-fast -parallel

C++ benchmarks:  
-fast -parallel

Fortran benchmarks:  
-fast -parallel

Benchmarks using both Fortran and C:  
-fast -parallel



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## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.015/bin/icc -L/opt/intel/cc/10.1.015/lib
-I/opt/intel/cc/10.1.015/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.015/bin/icpc -L/opt/intel/cc/10.1.015/lib
-I/opt/intel/cc/10.1.015/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
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) -fast -fno-alias
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: -fast -prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -parallel -prefetch -auto-ilp32

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revD.20090713.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.html>



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You can also download the XML flags sources by saving the following links:

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<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.07.xml>

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

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