



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®2006 = 17.9

PowerEdge M600 (Intel Xeon E5405, 2.00 GHz)

SPECfp\_base2006 = 15.2

CPU2006 license: 55

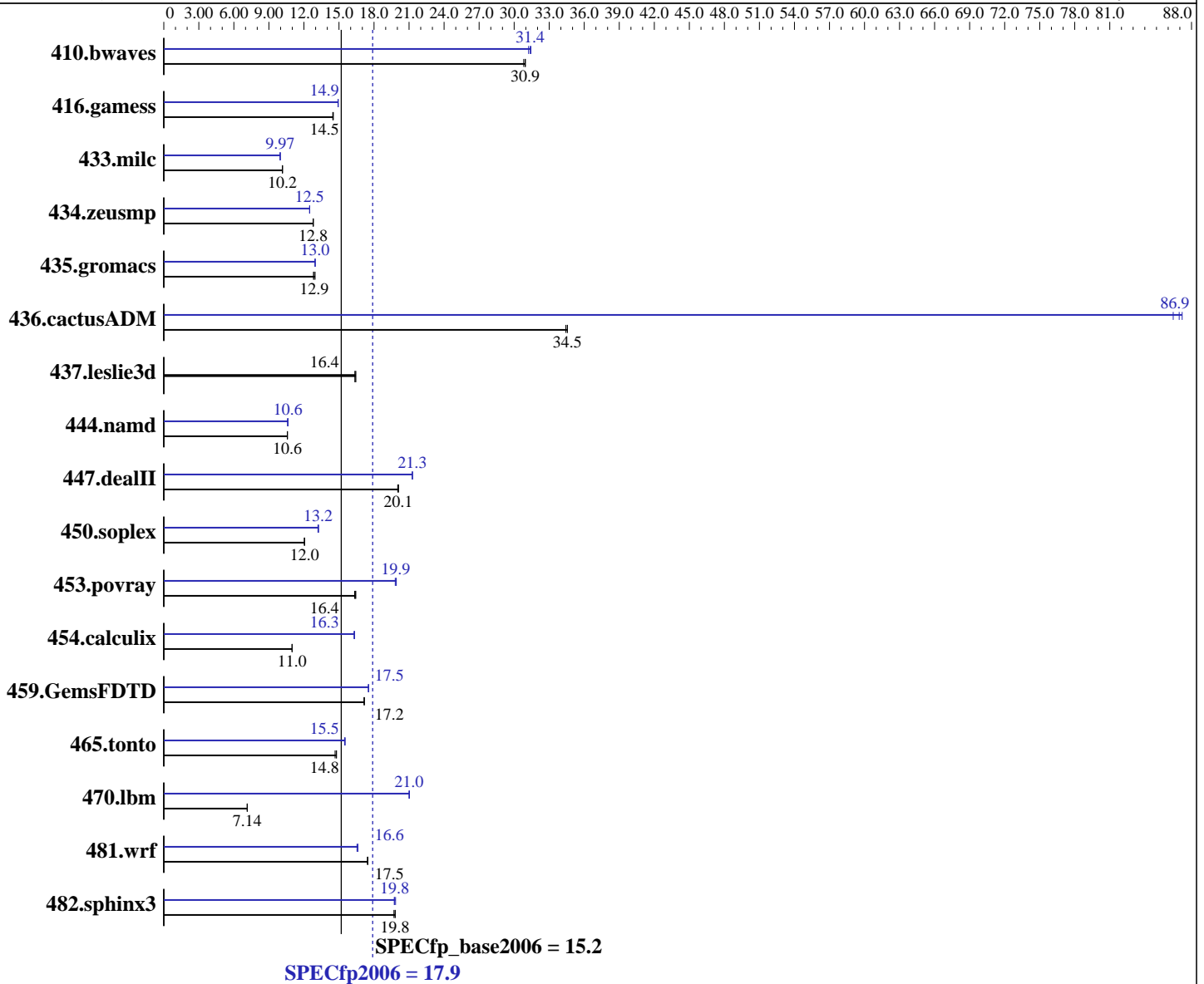
Test date: Aug-2008

Test sponsor: Dell Inc.

Hardware Availability: Jan-2008

Tested by: Dell Inc.

Software Availability: May-2008



## Hardware

CPU Name: Intel Xeon E5405  
 CPU Characteristics:  
 CPU MHz: 2000  
 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 (8 x 2 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	441	30.8	<b><u>439</u></b>	<b><u>30.9</u></b>	439	31.0	<b><u>433</u></b>	<b><u>31.4</u></b>	435	31.2	432	31.4
416.gamess	1353	14.5	1349	14.5	<b><u>1352</u></b>	<b><u>14.5</u></b>	<b><u>1312</u></b>	<b><u>14.9</u></b>	1311	14.9	1312	14.9
433.milc	903	10.2	<b><u>904</u></b>	<b><u>10.2</u></b>	904	10.2	922	9.95	920	9.98	<b><u>921</u></b>	<b><u>9.97</u></b>
434.zeusmp	712	12.8	711	12.8	<b><u>711</u></b>	<b><u>12.8</u></b>	<b><u>729</u></b>	<b><u>12.5</u></b>	728	12.5	729	12.5
435.gromacs	551	13.0	<b><u>555</u></b>	<b><u>12.9</u></b>	557	12.8	551	13.0	551	13.0	<b><u>551</u></b>	<b><u>13.0</u></b>
436.cactusADM	346	34.6	347	34.4	<b><u>346</u></b>	<b><u>34.5</u></b>	<b><u>137</u></b>	<b><u>86.9</u></b>	137	87.2	138	86.4
437.leslie3d	572	16.4	574	16.4	<b><u>574</u></b>	<b><u>16.4</u></b>	572	16.4	574	16.4	<b><u>574</u></b>	<b><u>16.4</u></b>
444.namd	758	10.6	<b><u>758</u></b>	<b><u>10.6</u></b>	758	10.6	753	10.6	757	10.6	<b><u>754</u></b>	<b><u>10.6</u></b>
447.dealII	569	20.1	571	20.0	<b><u>570</u></b>	<b><u>20.1</u></b>	537	21.3	538	21.3	<b><u>538</u></b>	<b><u>21.3</u></b>
450.soplex	692	12.0	<b><u>692</u></b>	<b><u>12.0</u></b>	692	12.0	629	13.3	<b><u>630</u></b>	<b><u>13.2</u></b>	632	13.2
453.povray	<b><u>324</u></b>	<b><u>16.4</u></b>	324	16.4	326	16.3	<b><u>268</u></b>	<b><u>19.9</u></b>	268	19.8	267	19.9
454.calculix	750	11.0	<b><u>751</u></b>	<b><u>11.0</u></b>	751	11.0	505	16.3	507	16.3	<b><u>505</u></b>	<b><u>16.3</u></b>
459.GemsFDTD	<b><u>618</u></b>	<b><u>17.2</u></b>	618	17.2	619	17.1	605	17.5	<b><u>605</u></b>	<b><u>17.5</u></b>	606	17.5
465.tonto	665	14.8	<b><u>667</u></b>	<b><u>14.8</u></b>	671	14.7	634	15.5	<b><u>635</u></b>	<b><u>15.5</u></b>	636	15.5
470.lbm	1922	7.15	1924	7.14	<b><u>1923</u></b>	<b><u>7.14</u></b>	653	21.0	<b><u>654</u></b>	<b><u>21.0</u></b>	654	21.0
481.wrf	639	17.5	<b><u>640</u></b>	<b><u>17.5</u></b>	641	17.4	672	16.6	<b><u>672</u></b>	<b><u>16.6</u></b>	675	16.5
482.sphinx3	989	19.7	983	19.8	<b><u>984</u></b>	<b><u>19.8</u></b>	982	19.8	<b><u>986</u></b>	<b><u>19.8</u></b>	988	19.7

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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Tested with SPEC CPU2006 v1.1.  
Report generated on Tue Jul 22 18:58:09 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 2 September 2008.