



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®2006 = 46.4

PowerEdge M610 (Intel Xeon X5667, 3.06 GHz)

SPECfp\_base2006 = 43.0

CPU2006 license: 55

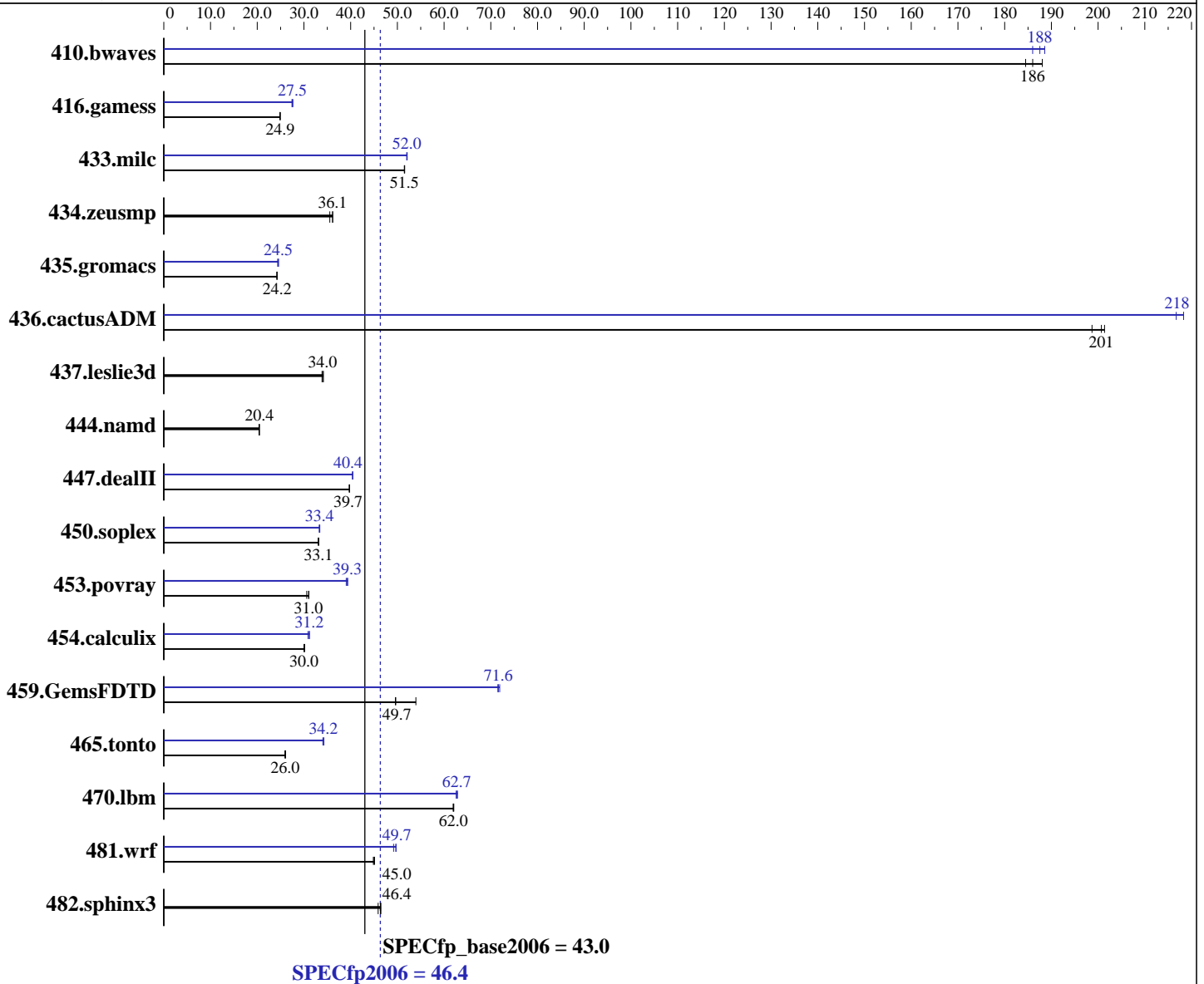
Test date: Jun-2010

Test sponsor: Dell Inc.

Hardware Availability: Mar-2010

Tested by: Dell Inc.

Software Availability: Dec-2009



## Hardware

CPU Name: Intel Xeon X5667  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3067  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core  
 CPU(s) orderable: 1,2 chips  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

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## Software

Operating System: SUSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-smp  
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l\_cproc\_p\_11.1.064, l\_cprof\_p\_11.1.064  
 Auto Parallel: Yes  
 File System: ext3  
 System State: Run level 3 (multi-user)

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L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 48 GB (12 x 4 GB DDR3-1333 DR RDIMM, CL9, ECC)  
Disk Subsystem: 1 x 146 GB 15000 RPM SAS  
Other Hardware: None

Base Pointers: 64-bit  
Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

| Benchmark     | Base        |             |            |             |             |             | Peak       |             |             |             |             |             |
|---------------|-------------|-------------|------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|
|               | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       |
| 410.bwaves    | 73.7        | 184         | 72.3       | 188         | <u>73.1</u> | <u>186</u>  | 72.1       | 189         | 73.1        | 186         | <u>72.5</u> | <u>188</u>  |
| 416.gamess    | <u>786</u>  | <u>24.9</u> | 786        | 24.9        | 788         | 24.9        | 708        | 27.6        | <u>711</u>  | <u>27.5</u> | 714         | 27.4        |
| 433.milc      | 178         | 51.5        | <u>178</u> | <u>51.5</u> | 178         | 51.6        | 176        | 52.1        | <u>176</u>  | <u>52.0</u> | 176         | 52.0        |
| 434.zeusmp    | 252         | 36.2        | <u>252</u> | <u>36.1</u> | 256         | 35.5        | 252        | 36.2        | <u>252</u>  | <u>36.1</u> | 256         | 35.5        |
| 435.gromacs   | 294         | 24.3        | 295        | 24.2        | <u>295</u>  | <u>24.2</u> | 293        | 24.4        | <u>291</u>  | <u>24.5</u> | 291         | 24.6        |
| 436.cactusADM | <u>59.5</u> | <u>201</u>  | 59.3       | 201         | 60.1        | 199         | 55.1       | 217         | <u>54.7</u> | <u>218</u>  | 54.7        | 218         |
| 437.leslie3d  | <u>276</u>  | <u>34.0</u> | 278        | 33.9        | 275         | 34.2        | <u>276</u> | <u>34.0</u> | 278         | 33.9        | 275         | 34.2        |
| 444.namd      | 393         | 20.4        | 392        | 20.5        | <u>392</u>  | <u>20.4</u> | 393        | 20.4        | 392         | 20.5        | <u>392</u>  | <u>20.4</u> |
| 447.dealII    | 288         | 39.7        | 288        | 39.7        | <u>288</u>  | <u>39.7</u> | <u>283</u> | <u>40.4</u> | 283         | 40.4        | 283         | 40.5        |
| 450.soplex    | 251         | 33.2        | 252        | 33.1        | <u>252</u>  | <u>33.1</u> | <u>250</u> | <u>33.4</u> | 251         | 33.3        | 250         | 33.4        |
| 453.povray    | <u>172</u>  | <u>31.0</u> | 171        | 31.1        | 174         | 30.6        | 135        | 39.4        | <u>135</u>  | <u>39.3</u> | 136         | 39.0        |
| 454.calculix  | 274         | 30.2        | 275        | 30.0        | <u>275</u>  | <u>30.0</u> | 267        | 30.9        | 265         | 31.2        | <u>265</u>  | <u>31.2</u> |
| 459.GemsFDTD  | 197         | 54.0        | 214        | 49.6        | <u>214</u>  | <u>49.7</u> | <u>148</u> | <u>71.6</u> | 148         | 71.5        | 148         | 71.9        |
| 465.tonto     | 379         | 26.0        | 377        | 26.1        | <u>379</u>  | <u>26.0</u> | <u>288</u> | <u>34.2</u> | 289         | 34.0        | 287         | 34.3        |
| 470.lbm       | <u>222</u>  | <u>62.0</u> | 221        | 62.1        | 222         | 61.9        | 219        | 62.9        | 220         | 62.6        | <u>219</u>  | <u>62.7</u> |
| 481.wrf       | 248         | 45.1        | 249        | 44.9        | <u>248</u>  | <u>45.0</u> | 227        | 49.2        | 225         | 49.7        | <u>225</u>  | <u>49.7</u> |
| 482.sphinx3   | <u>420</u>  | <u>46.4</u> | 419        | 46.5        | 425         | 45.9        | <u>420</u> | <u>46.4</u> | 419         | 46.5        | 425         | 45.9        |

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 stacksize to unlimited prior to run

## Platform Notes

BIOS Settings:  
Power Management = Maximum Performance (Default = Active Power Controller)  
Data Reuse = Disabled (Default = Enabled)

## General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter

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## General Notes (Continued)

KMP\_STACKSIZE set to 200M

## Base Compiler Invocation

C benchmarks:  
icc -m64

C++ benchmarks:  
icpc -m64

Fortran benchmarks:  
ifort -m64

Benchmarks using both Fortran and C:  
icc -m64 ifort -m64

## 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:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:  
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch`

## Peak Compiler Invocation

C benchmarks:

`icc -m64`

C++ benchmarks:

`icpc -m64`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-ansi-alias`

470.lbm: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-parallel -ansi-alias -auto-ilp32`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealIII: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-unroll2 -ansi-alias -scalar-rep- -auto-ilp32`

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## Peak Optimization Flags (Continued)

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-opt-malloc-options=3 -auto-ilp32

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

### Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)  
-inline-calloc -opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

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

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

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100330.xml>



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