



# SPEC<sup>®</sup> CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp<sup>®</sup>2006 = 22.0

PowerEdge R510 (Intel Xeon E5502, 1.86 GHz)

SPECfp\_base2006 = 20.9

CPU2006 license: 55

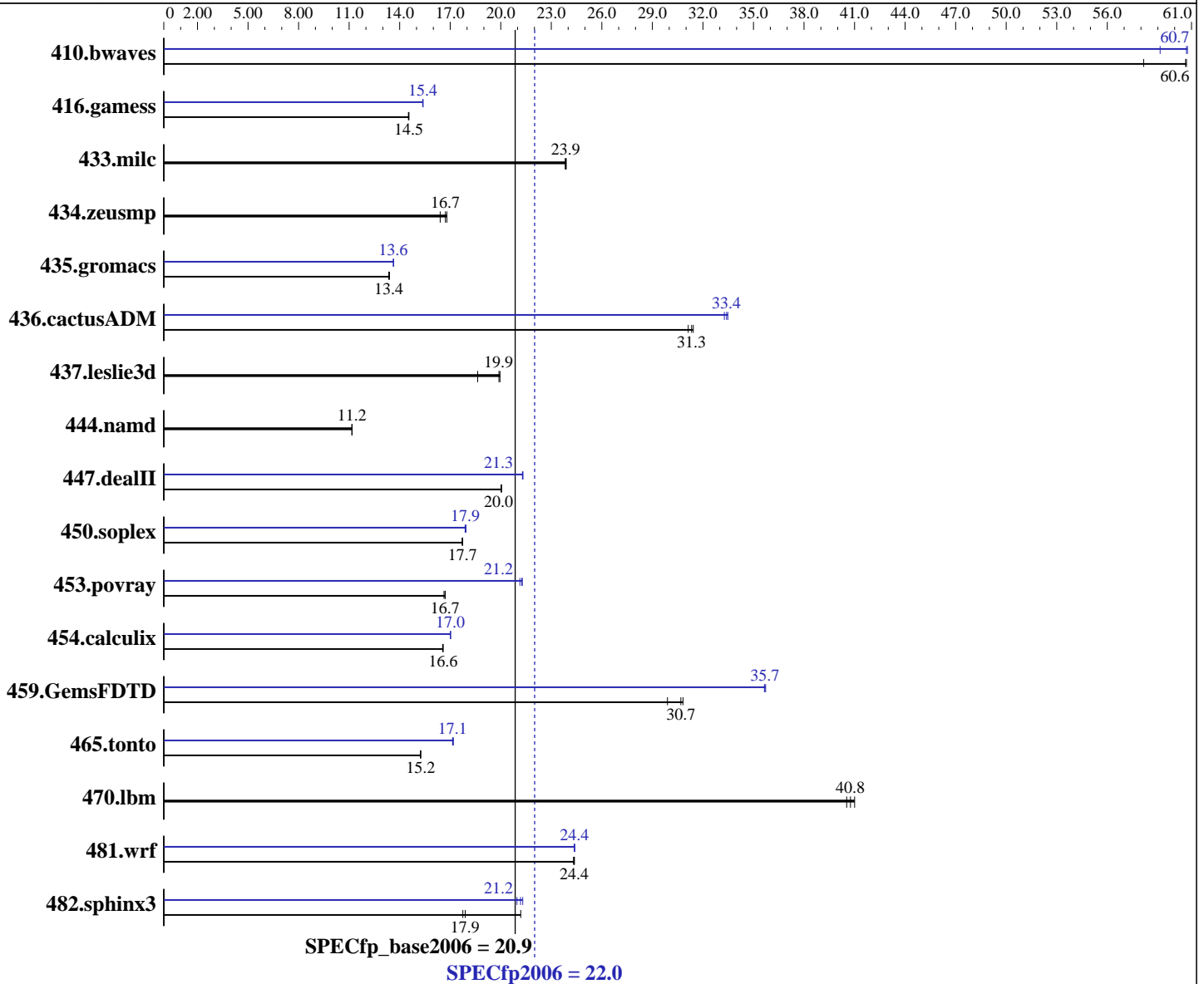
Test date: Sep-2009

Test sponsor: Dell Inc.

Hardware Availability: Oct-2009

Tested by: Dell Inc.

Software Availability: Feb-2009



### Hardware

CPU Name: Intel Xeon E5502  
 CPU Characteristics:  
 CPU MHz: 1867  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 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

Continued on next page

### 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 Professional 11.0 for Linux  
 Build 20090131 Package ID: l\_cproc\_p\_11.0.080, l\_cprof\_p\_11.0.080  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 22.0

PowerEdge R510 (Intel Xeon E5502, 1.86 GHz)

SPECfp\_base2006 = 20.9

CPU2006 license: 55

Test date: Sep-2009

Test sponsor: Dell Inc.

Hardware Availability: Oct-2009

Tested by: Dell Inc.

Software Availability: Feb-2009

L3 Cache: 4 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6 x 4 GB DDR3-1333 DR RDIMM downclocked to 800 MHz)  
Disk Subsystem: 1 x 500 GB 7200 RPM SATA  
Other Hardware: None

Base Pointers: 64-bit  
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	234	58.2	224	60.7	<b>224</b>	<b>60.6</b>	230	59.1	224	60.8	<b>224</b>	<b>60.7</b>
416.gamess	1346	14.5	<b>1346</b>	<b>14.5</b>	1349	14.5	<b>1273</b>	<b>15.4</b>	1273	15.4	1274	15.4
433.milc	385	23.8	384	23.9	<b>385</b>	<b>23.9</b>	385	23.8	384	23.9	<b>385</b>	<b>23.9</b>
434.zeusmp	<b>545</b>	<b>16.7</b>	542	16.8	555	16.4	<b>545</b>	<b>16.7</b>	542	16.8	555	16.4
435.gromacs	534	13.4	533	13.4	<b>534</b>	<b>13.4</b>	524	13.6	524	13.6	<b>524</b>	<b>13.6</b>
436.cactusADM	384	31.1	<b>381</b>	<b>31.3</b>	380	31.4	359	33.3	357	33.5	<b>358</b>	<b>33.4</b>
437.leslie3d	505	18.6	471	20.0	<b>473</b>	<b>19.9</b>	505	18.6	471	20.0	<b>473</b>	<b>19.9</b>
444.namd	718	11.2	718	11.2	<b>718</b>	<b>11.2</b>	718	11.2	718	11.2	<b>718</b>	<b>11.2</b>
447.dealII	<b>571</b>	<b>20.0</b>	571	20.0	571	20.0	537	21.3	<b>537</b>	<b>21.3</b>	537	21.3
450.soplex	471	17.7	470	17.7	<b>470</b>	<b>17.7</b>	465	17.9	<b>466</b>	<b>17.9</b>	466	17.9
453.povray	<b>319</b>	<b>16.7</b>	318	16.7	320	16.6	<b>250</b>	<b>21.2</b>	250	21.3	252	21.1
454.calculix	499	16.5	498	16.6	<b>498</b>	<b>16.6</b>	<b>485</b>	<b>17.0</b>	485	17.0	485	17.0
459.GemsFDTD	355	29.9	344	30.8	<b>346</b>	<b>30.7</b>	<b>297</b>	<b>35.7</b>	298	35.6	297	35.7
465.tonto	646	15.2	<b>646</b>	<b>15.2</b>	645	15.2	<b>574</b>	<b>17.1</b>	572	17.2	574	17.1
470.lbm	<b>337</b>	<b>40.8</b>	339	40.5	335	41.0	<b>337</b>	<b>40.8</b>	339	40.5	335	41.0
481.wrf	458	24.4	459	24.3	<b>459</b>	<b>24.4</b>	458	24.4	<b>458</b>	<b>24.4</b>	459	24.4
482.sphinx3	920	21.2	<b>1089</b>	<b>17.9</b>	1098	17.7	915	21.3	<b>921</b>	<b>21.2</b>	930	21.0

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

## General Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to granularity=fine,scatter  
KMP\_STACKSIZE set to 200M



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 22.0

PowerEdge R510 (Intel Xeon E5502, 1.86 GHz)

SPECfp\_base2006 = 20.9

CPU2006 license: 55

Test date: Sep-2009

Test sponsor: Dell Inc.

Hardware Availability: Oct-2009

Tested by: Dell Inc.

Software Availability: Feb-2009

## 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:

-xSSE4.2 -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

Benchmarks using both Fortran and C:

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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 22.0

PowerEdge R510 (Intel Xeon E5502, 1.86 GHz)

SPECfp\_base2006 = 20.9

CPU2006 license: 55

Test date: Sep-2009

Test sponsor: Dell Inc.

Hardware Availability: Oct-2009

Tested by: Dell Inc.

Software Availability: Feb-2009

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

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: basepeak = yes

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 22.0

PowerEdge R510 (Intel Xeon E5502, 1.86 GHz)

SPECfp\_base2006 = 20.9

CPU2006 license: 55

Test date: Sep-2009

Test sponsor: Dell Inc.

Hardware Availability: Oct-2009

Tested by: Dell Inc.

Software Availability: Feb-2009

## Peak Optimization Flags (Continued)

444.namd: basepeak = yes

447.dealII: -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- -opt-prefetch

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

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)  
-unroll4 -auto

### 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: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel -auto-ilp32



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp2006 = 22.0

PowerEdge R510 (Intel Xeon E5502, 1.86 GHz)

SPECfp\_base2006 = 20.9

CPU2006 license: 55

Test date: Sep-2009

Test sponsor: Dell Inc.

Hardware Availability: Oct-2009

Tested by: Dell Inc.

Software Availability: Feb-2009

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090805.01.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090805.01.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 04:15:38 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 28 October 2009.