



# SPEC<sup>®</sup> CFP2006 Result

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## Dell Inc.

### SPECfp<sup>®</sup>\_rate2006 = 51.4

### PowerEdge T110 (Intel Core i3-540, 3.06 GHz)

### SPECfp\_rate\_base2006 = 50.3

CPU2006 license: 55

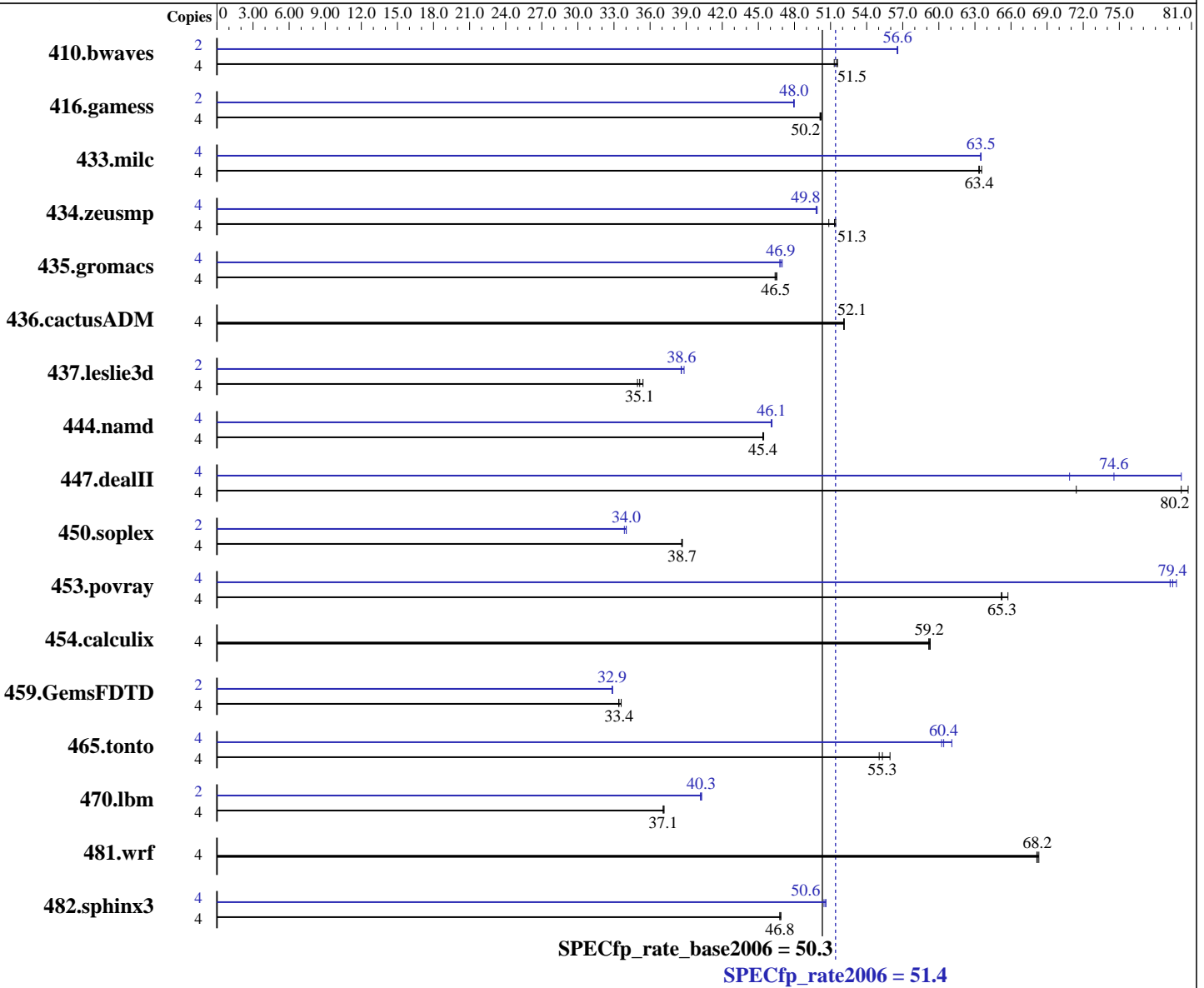
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Dec-2009

Hardware Availability: Jan-2010

Software Availability: Dec-2009



#### Hardware

CPU Name: Intel Core i3-540  
 CPU Characteristics: 3067  
 CPU MHz: 3067  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 chip  
 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: Red Hat Enterprise Linux Server release 5.3, Kernel 2.6.18-128.el5  
 Compiler: Intel Fortran Compiler and Intel C++ Compiler Professional Edition 11.1 For Linux Build 20091012 Package ID: l\_cproc\_p\_11.1.059, l\_cprof\_p\_11.1.059  
 Auto Parallel: No  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)

Continued on next page



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L3 Cache: 4 MB I+D on chip per chip  
Other Cache: None  
Memory: 8 GB (4 x 2 GB DDR3-1333 DR UDIMM)  
Disk Subsystem: 1 x 160 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	1060	51.3	1054	51.6	<b>1056</b>	<b>51.5</b>	2	481	56.5	480	56.6	<b>481</b>	<b>56.6</b>
416.gamess	4	1559	50.2	<b>1562</b>	<b>50.2</b>	1563	50.1	2	<b>817</b>	<b>48.0</b>	817	47.9	816	48.0
433.milc	4	580	63.3	<b>579</b>	<b>63.4</b>	578	63.6	4	<b>578</b>	<b>63.5</b>	578	63.5	579	63.5
434.zeusmp	4	708	51.4	716	50.9	<b>709</b>	<b>51.3</b>	4	731	49.8	<b>731</b>	<b>49.8</b>	730	49.9
435.gromacs	4	614	46.5	616	46.4	<b>615</b>	<b>46.5</b>	4	<b>610</b>	<b>46.9</b>	608	47.0	611	46.8
436.cactusADM	4	<b>917</b>	<b>52.1</b>	918	52.1	917	52.1	4	<b>917</b>	<b>52.1</b>	918	52.1	917	52.1
437.leslie3d	4	<b>1070</b>	<b>35.1</b>	1062	35.4	1076	35.0	2	487	38.6	<b>487</b>	<b>38.6</b>	484	38.8
444.namd	4	<b>707</b>	<b>45.4</b>	707	45.4	706	45.4	4	<b>696</b>	<b>46.1</b>	696	46.1	695	46.1
447.dealII	4	<b>571</b>	<b>80.2</b>	641	71.4	567	80.7	4	571	80.2	<b>614</b>	<b>74.6</b>	646	70.9
450.soplex	4	864	38.6	862	38.7	<b>863</b>	<b>38.7</b>	2	<b>490</b>	<b>34.0</b>	490	34.0	493	33.9
453.povray	4	326	65.2	<b>326</b>	<b>65.3</b>	324	65.7	4	267	79.8	<b>268</b>	<b>79.4</b>	269	79.2
454.calculix	4	557	59.3	558	59.2	<b>557</b>	<b>59.2</b>	4	557	59.3	558	59.2	<b>557</b>	<b>59.2</b>
459.GemsFDTD	4	<b>1270</b>	<b>33.4</b>	1271	33.4	1263	33.6	2	646	32.9	<b>646</b>	<b>32.9</b>	645	32.9
465.tonto	4	<b>712</b>	<b>55.3</b>	704	55.9	715	55.0	4	<b>652</b>	<b>60.4</b>	653	60.2	644	61.1
470.lbm	4	1479	37.2	<b>1481</b>	<b>37.1</b>	1482	37.1	2	682	40.3	<b>683</b>	<b>40.3</b>	684	40.2
481.wrf	4	656	68.1	654	68.3	<b>655</b>	<b>68.2</b>	4	656	68.1	654	68.3	<b>655</b>	<b>68.2</b>
482.sphinx3	4	1663	46.9	<b>1666</b>	<b>46.8</b>	1666	46.8	4	1540	50.6	<b>1541</b>	<b>50.6</b>	1545	50.5

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

## 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)



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## General Notes

The Dell PowerEdge T110 and the Bull NovaScale T810 F2 models are electronically equivalent. This result was measured on a Dell PowerEdge T110.

## 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

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

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## Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## 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



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## 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)  
-fno-alias -opt-prefetch

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)  
-opt-malloc-options=3 -ansi-alias -auto-ilp32

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

C++ benchmarks:

444.namd: -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)  
-fno-alias -auto-ilp32

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-

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

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: -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)

437.leslie3d: -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 -opt-prefetch

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

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## Peak Optimization Flags (Continued)

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 -inline-calloc -opt-malloc-options=3

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: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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

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

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

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

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

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