



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Dell Inc.

SPECfp®2006 = 24.1

PowerEdge M710 (Intel Xeon E5504, 2.00 GHz)

SPECfp\_base2006 = 22.5

CPU2006 license: 55

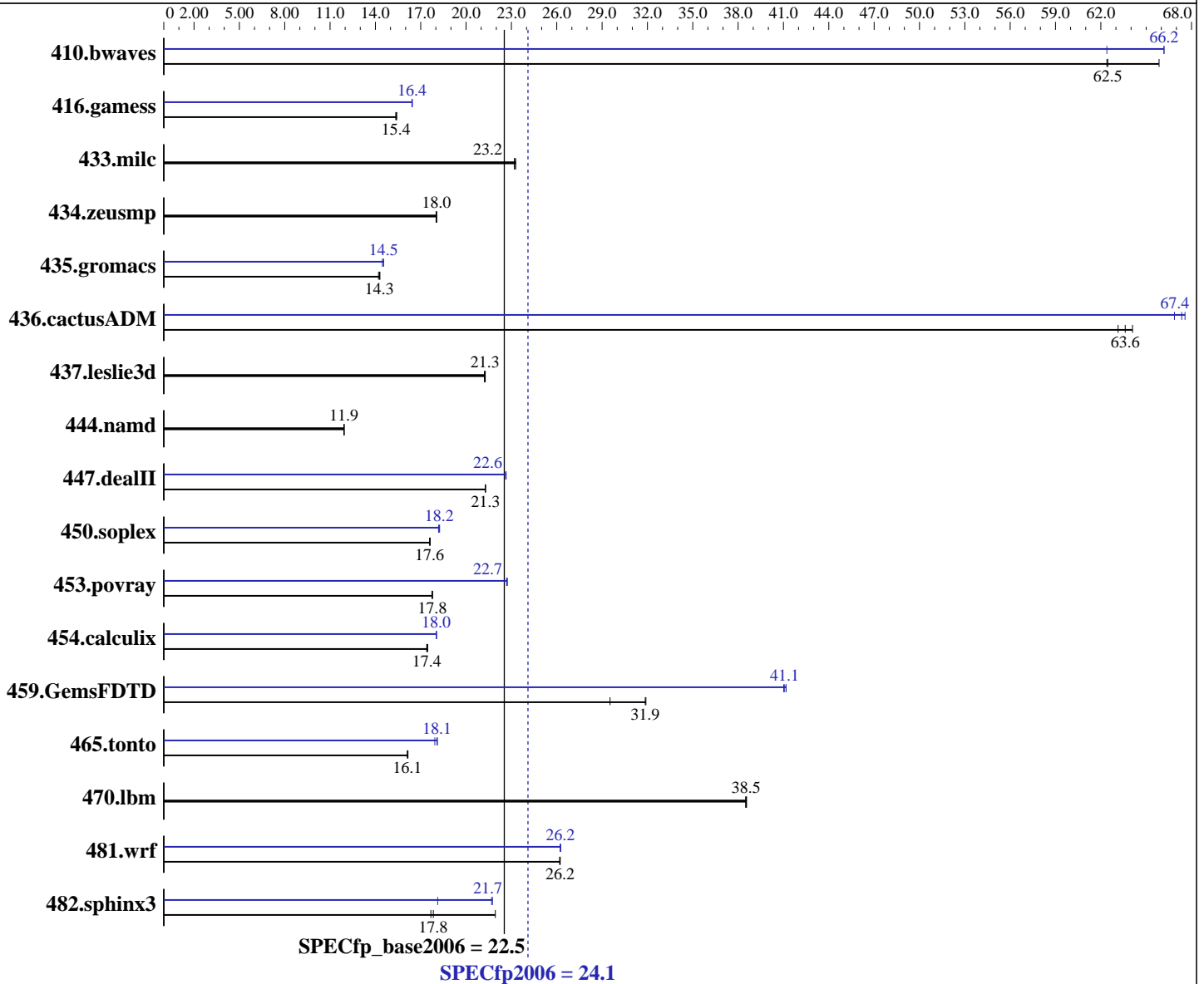
Test date: Apr-2009

Test sponsor: Dell Inc.

Hardware Availability: Mar-2009

Tested by: Dell Inc.

Software Availability: Feb-2009



## Hardware

CPU Name: Intel Xeon E5504  
 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: 256 KB I+D on chip per core

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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 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)

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L3 Cache: 4 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (6 x 4 GB DDR3-1066 DR RDIMM downclocked to 800 MHz)  
Disk Subsystem: 1 x 73 GB 10000 RPM SAS  
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	206	65.9	<b><u>218</u></b>	<b><u>62.5</u></b>	218	62.4	<b><u>205</u></b>	<b><u>66.2</u></b>	205	66.2	218	62.4
416.gamess	1275	15.4	1270	15.4	<b><u>1275</u></b>	<b><u>15.4</u></b>	1193	16.4	1191	16.4	<b><u>1191</u></b>	<b><u>16.4</u></b>
433.milc	394	23.3	<b><u>395</u></b>	<b><u>23.2</u></b>	396	23.2	394	23.3	<b><u>395</u></b>	<b><u>23.2</u></b>	396	23.2
434.zeusmp	505	18.0	<b><u>505</u></b>	<b><u>18.0</u></b>	504	18.1	505	18.0	<b><u>505</u></b>	<b><u>18.0</u></b>	504	18.1
435.gromacs	<b><u>500</u></b>	<b><u>14.3</u></b>	499	14.3	503	14.2	494	14.5	<b><u>491</u></b>	<b><u>14.5</u></b>	491	14.5
436.cactusADM	186	64.1	<b><u>188</u></b>	<b><u>63.6</u></b>	189	63.1	177	67.6	179	66.9	<b><u>177</u></b>	<b><u>67.4</u></b>
437.leslie3d	442	21.3	<b><u>442</u></b>	<b><u>21.3</u></b>	443	21.2	442	21.3	<b><u>442</u></b>	<b><u>21.3</u></b>	443	21.2
444.namd	<b><u>672</u></b>	<b><u>11.9</u></b>	672	11.9	673	11.9	<b><u>672</u></b>	<b><u>11.9</u></b>	672	11.9	673	11.9
447.dealII	538	21.3	538	21.3	<b><u>538</u></b>	<b><u>21.3</u></b>	506	22.6	<b><u>505</u></b>	<b><u>22.6</u></b>	505	22.7
450.soplex	473	17.6	474	17.6	<b><u>474</u></b>	<b><u>17.6</u></b>	457	18.3	459	18.2	<b><u>458</u></b>	<b><u>18.2</u></b>
453.povray	<b><u>299</u></b>	<b><u>17.8</u></b>	300	17.7	299	17.8	235	22.7	234	22.7	<b><u>234</u></b>	<b><u>22.7</u></b>
454.calculix	472	17.5	474	17.4	<b><u>474</u></b>	<b><u>17.4</u></b>	458	18.0	457	18.0	<b><u>458</u></b>	<b><u>18.0</u></b>
459.GemsFDTD	359	29.5	<b><u>333</u></b>	<b><u>31.9</u></b>	333	31.9	<b><u>258</u></b>	<b><u>41.1</u></b>	259	41.0	258	41.2
465.tonto	611	16.1	609	16.2	<b><u>610</u></b>	<b><u>16.1</u></b>	544	18.1	<b><u>544</u></b>	<b><u>18.1</u></b>	549	17.9
470.lbm	357	38.5	356	38.6	<b><u>357</u></b>	<b><u>38.5</u></b>	357	38.5	356	38.6	<b><u>357</u></b>	<b><u>38.5</u></b>
481.wrf	426	26.2	<b><u>426</u></b>	<b><u>26.2</u></b>	427	26.2	425	26.3	426	26.2	<b><u>426</u></b>	<b><u>26.2</u></b>
482.sphinx3	<b><u>1093</u></b>	<b><u>17.8</u></b>	1103	17.7	889	21.9	1075	18.1	896	21.7	<b><u>899</u></b>	<b><u>21.7</u></b>

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



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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:

-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



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## 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:

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## 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



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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.20090710.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.20090710.xml>

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