



# SPEC<sup>®</sup> CFP2006 Result

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Dell Inc.

SPECfp<sup>®</sup>2006 = 24.9

PowerEdge R300 (Intel Xeon X5470, 3.33 GHz)

SPECfp\_base2006 = 23.9

CPU2006 license: 55

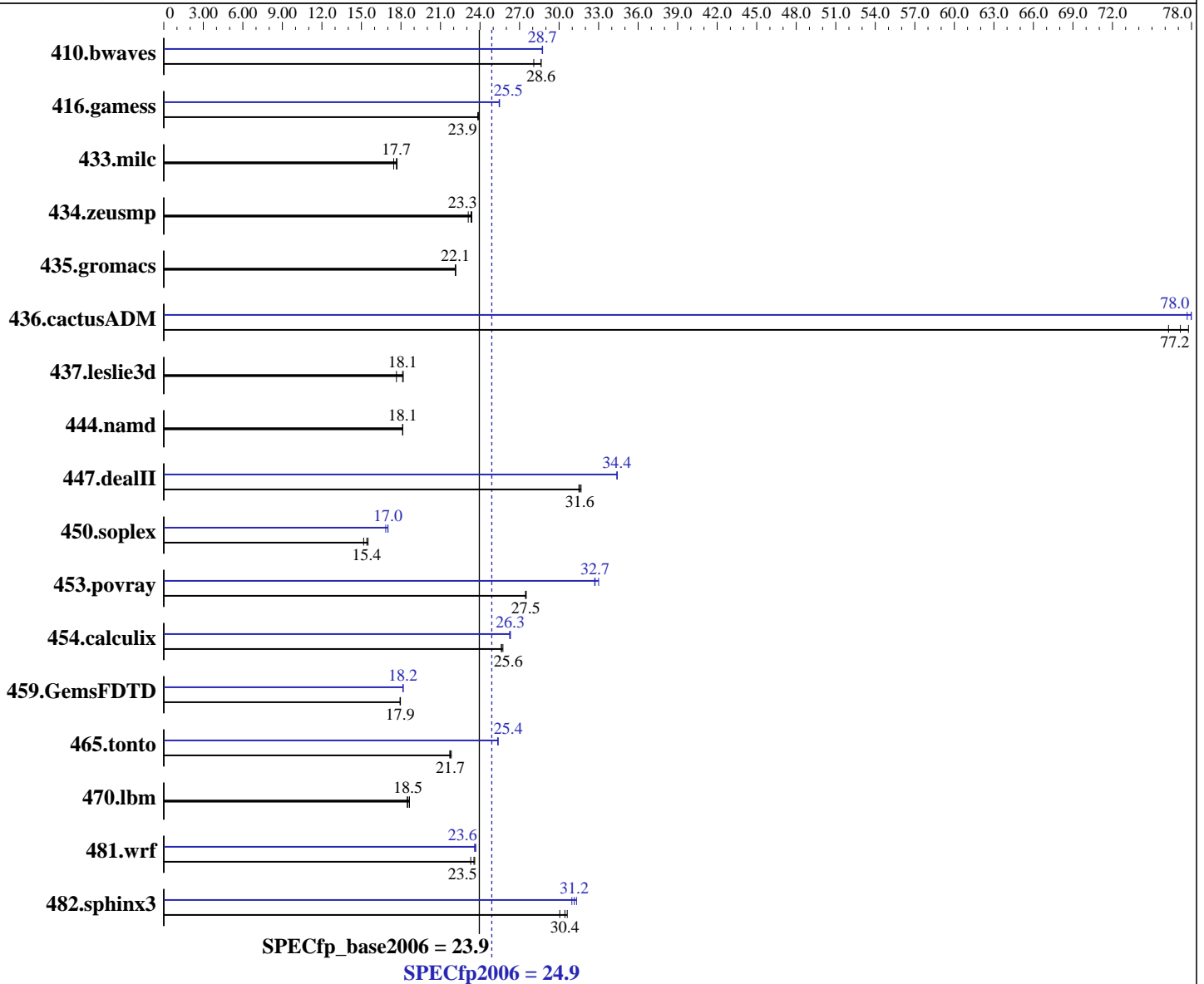
Test date: Sep-2008

Test sponsor: Dell Inc.

Hardware Availability: Sep-2008

Tested by: Dell Inc.

Software Availability: Oct-2008



### Hardware

CPU Name: Intel Xeon X5470  
 CPU Characteristics: 3333  
 CPU MHz: 3333  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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

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 11.0 for Linux Build 20080730 Package ID: l\_cproc\_b\_11.0.042, l\_fproc\_b\_11.0.042  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

Continued on next page



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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (4 x 4 GB DDR2-667)  
Disk Subsystem: 1 x 160 GB SATA, 7200 RPM  
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	484	28.1	<b>475</b>	<b>28.6</b>	475	28.6	473	28.8	473	28.7	<b>473</b>	<b>28.7</b>
416.gamess	822	23.8	<b>821</b>	<b>23.9</b>	820	23.9	769	25.5	<b>769</b>	<b>25.5</b>	769	25.5
433.milc	526	17.4	518	17.7	<b>520</b>	<b>17.7</b>	526	17.4	518	17.7	<b>520</b>	<b>17.7</b>
434.zeusmp	394	23.1	<b>390</b>	<b>23.3</b>	389	23.4	394	23.1	<b>390</b>	<b>23.3</b>	389	23.4
435.gromacs	322	22.2	<b>323</b>	<b>22.1</b>	323	22.1	322	22.2	<b>323</b>	<b>22.1</b>	323	22.1
436.cactusADM	157	76.3	154	77.8	<b>155</b>	<b>77.2</b>	<b>153</b>	<b>78.0</b>	153	78.0	154	77.7
437.leslie3d	532	17.7	517	18.2	<b>519</b>	<b>18.1</b>	532	17.7	517	18.2	<b>519</b>	<b>18.1</b>
444.namd	<b>442</b>	<b>18.1</b>	442	18.1	442	18.1	<b>442</b>	<b>18.1</b>	442	18.1	442	18.1
447.dealII	363	31.5	<b>362</b>	<b>31.6</b>	361	31.7	332	34.4	333	34.4	<b>333</b>	<b>34.4</b>
450.soplex	550	15.2	<b>541</b>	<b>15.4</b>	538	15.5	490	17.0	495	16.8	<b>490</b>	<b>17.0</b>
453.povray	193	27.5	194	27.5	<b>194</b>	<b>27.5</b>	161	33.0	163	32.7	<b>163</b>	<b>32.7</b>
454.calculix	321	25.7	322	25.6	<b>322</b>	<b>25.6</b>	314	26.3	<b>314</b>	<b>26.3</b>	314	26.2
459.GemsFDTD	592	17.9	591	18.0	<b>591</b>	<b>17.9</b>	585	18.2	584	18.2	<b>584</b>	<b>18.2</b>
465.tonto	451	21.8	<b>453</b>	<b>21.7</b>	453	21.7	388	25.4	<b>388</b>	<b>25.4</b>	388	25.3
470.lbm	737	18.6	744	18.5	<b>741</b>	<b>18.5</b>	737	18.6	744	18.5	<b>741</b>	<b>18.5</b>
481.wrf	479	23.3	473	23.6	<b>475</b>	<b>23.5</b>	474	23.6	<b>473</b>	<b>23.6</b>	472	23.7
482.sphinx3	637	30.6	649	30.1	<b>640</b>	<b>30.4</b>	<b>626</b>	<b>31.2</b>	622	31.3	629	31.0

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 stack size to unlimited prior to run

## General Notes

OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 200M

## Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

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:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:  
-xSSE4.1 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:  
-xSSE4.1 -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: /opt/intel/Compiler/11.0/042/bin/ia32/icc  
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

C++ benchmarks (except as noted below):

icpc

450.soplex: /opt/intel/Compiler/11.0/042/bin/ia32/icpc  
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/042/ipp/ia32/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  
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

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## Peak Optimization Flags (Continued)

482.sphinx3: -xSSE4.1 -ipo -O3 -no-prec-div -static -unroll2

### C++ benchmarks:

444.namd: basepeak = yes

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll2 -ansi-alias -scalar-rep-  
-opt-prefetch

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

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

### Fortran benchmarks:

410.bwaves: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

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

454.calculix: -xSSE4.1 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
-parallel -auto-ilp32



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.05.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.11.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090713.05.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.11.xml>

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