



# SPEC<sup>®</sup> CFP2006 Result

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Dell Inc.

SPECfp<sup>®</sup>2006 = 25.5

PowerEdge 1950 III (Intel Xeon X5460, 3.16 GHz)

SPECfp\_base2006 = 24.4

CPU2006 license: 55

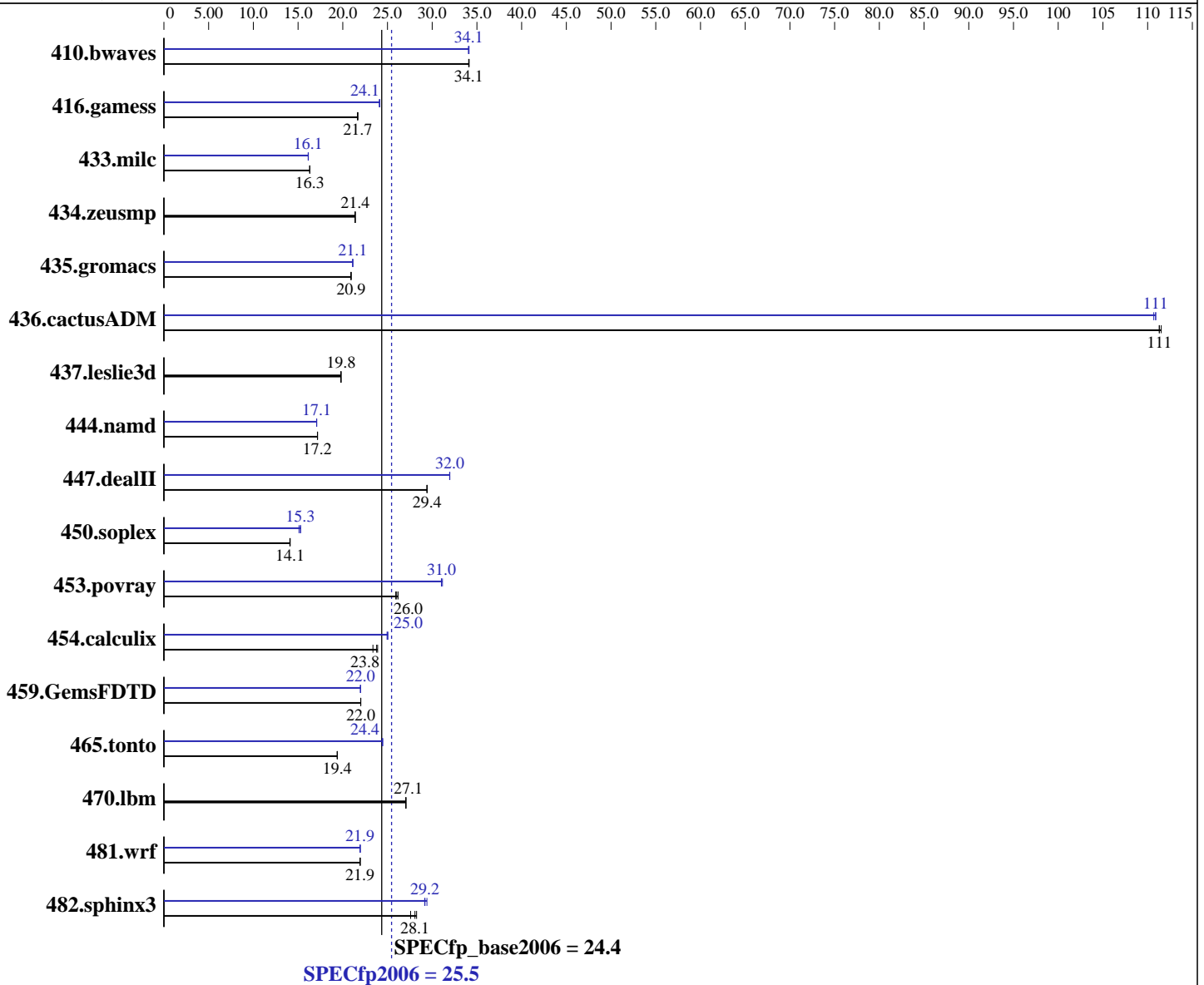
Test date: Sep-2008

Test sponsor: Dell Inc.

Hardware Availability: Sep-2008

Tested by: Dell Inc.

Software Availability: Nov-2008



## Hardware

CPU Name: Intel Xeon X5460  
 CPU Characteristics: 3166  
 CPU MHz: Integrated  
 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: 12 MB I+D on chip per chip, 6 MB shared / 2 cores

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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 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

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L3 Cache: None  
Other Cache: None  
Memory: 16 GB (8 x 2 GB 667 MHz ECC CL5 FB-DIMM)  
Disk Subsystem: 1 x 73 GB 15000 RPM SAS  
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	399	34.1	<b>399</b>	<b>34.1</b>	398	34.1	398	34.1	399	34.1	<b>399</b>	<b>34.1</b>
416.gamess	903	21.7	<b>903</b>	<b>21.7</b>	905	21.6	<b>812</b>	<b>24.1</b>	811	24.1	813	24.1
433.milc	563	16.3	<b>563</b>	<b>16.3</b>	563	16.3	<b>569</b>	<b>16.1</b>	568	16.2	569	16.1
434.zeusmp	426	21.4	425	21.4	<b>426</b>	<b>21.4</b>	426	21.4	425	21.4	<b>426</b>	<b>21.4</b>
435.gromacs	<b>341</b>	<b>20.9</b>	341	20.9	342	20.9	<b>338</b>	<b>21.1</b>	338	21.1	338	21.1
436.cactusADM	107	111	<b>107</b>	<b>111</b>	107	112	108	111	108	111	<b>108</b>	<b>111</b>
437.leslie3d	<b>475</b>	<b>19.8</b>	475	19.8	475	19.8	<b>475</b>	<b>19.8</b>	475	19.8	475	19.8
444.namd	467	17.2	467	17.2	<b>467</b>	<b>17.2</b>	<b>470</b>	<b>17.1</b>	469	17.1	470	17.1
447.dealII	<b>389</b>	<b>29.4</b>	389	29.4	389	29.4	358	32.0	358	31.9	<b>358</b>	<b>32.0</b>
450.soplex	591	14.1	592	14.1	<b>591</b>	<b>14.1</b>	545	15.3	552	15.1	<b>547</b>	<b>15.3</b>
453.povray	203	26.2	<b>204</b>	<b>26.0</b>	205	25.9	171	31.0	171	31.1	<b>171</b>	<b>31.0</b>
454.calculix	<b>347</b>	<b>23.8</b>	345	23.9	353	23.4	<b>330</b>	<b>25.0</b>	331	24.9	329	25.0
459.GemsFDTD	482	22.0	<b>482</b>	<b>22.0</b>	482	22.0	<b>483</b>	<b>22.0</b>	483	22.0	483	22.0
465.tonto	507	19.4	<b>508</b>	<b>19.4</b>	508	19.4	402	24.5	<b>403</b>	<b>24.4</b>	403	24.4
470.lbm	508	27.0	<b>508</b>	<b>27.1</b>	508	27.1	508	27.0	<b>508</b>	<b>27.1</b>	508	27.1
481.wrf	509	21.9	<b>509</b>	<b>21.9</b>	509	21.9	<b>509</b>	<b>21.9</b>	509	21.9	509	22.0
482.sphinx3	<b>694</b>	<b>28.1</b>	690	28.3	707	27.6	663	29.4	669	29.2	<b>668</b>	<b>29.2</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 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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -fno-alias

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## Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

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

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
-no-prec-div -static -fno-alias -auto-ilp32

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

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

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## Peak Optimization Flags (Continued)

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

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.20090713.02.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.20090713.02.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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