



# SPEC® CFP2006 Result

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## Dell Inc.

### SPECfp®\_rate2006 = 65.7

### PowerEdge 2900 III (Intel Xeon E5405, 2.00 GHz)

### SPECfp\_rate\_base2006 = 61.7

CPU2006 license: 55

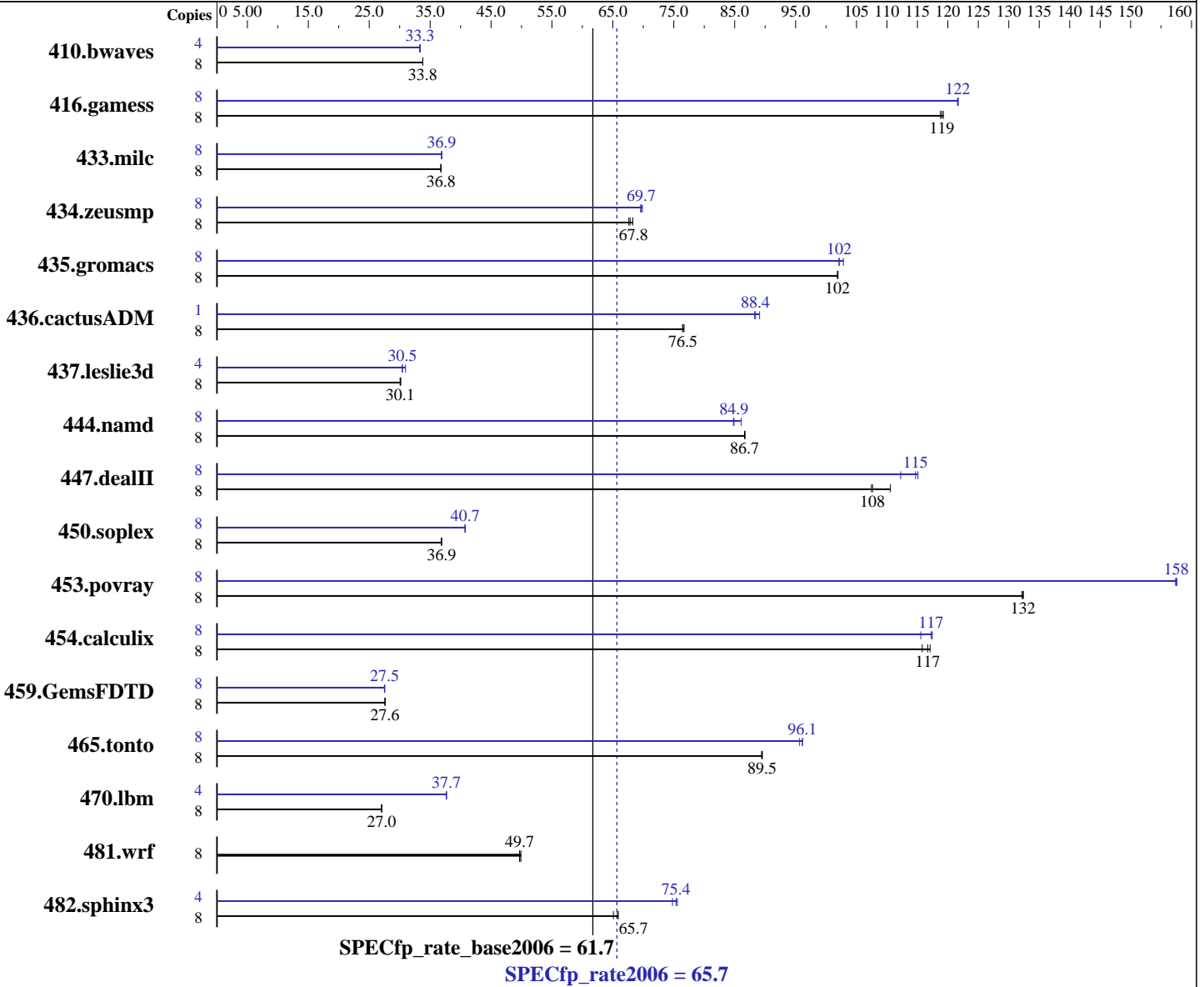
Test date: Dec-2008

Test sponsor: Dell Inc.

Hardware Availability: Sep-2008

Tested by: Dell Inc.

Software Availability: Nov-2008



#### Hardware

CPU Name: Intel Xeon E5405  
 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: 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-smpp  
 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 DDR2-667 FBDIMM)  
Disk Subsystem: 2 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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	<u>3217</u>	<u>33.8</u>	3216	33.8	3217	33.8	4	1633	33.3	<u>1631</u>	<u>33.3</u>	1629	33.4
416.gamess	8	<u>1316</u>	<u>119</u>	1313	119	1319	119	8	1287	122	<u>1288</u>	<u>122</u>	1288	122
433.milc	8	1997	36.8	1997	36.8	<u>1997</u>	<u>36.8</u>	8	1991	36.9	<u>1991</u>	<u>36.9</u>	1991	36.9
434.zeusmp	8	<u>1073</u>	<u>67.8</u>	1066	68.3	1077	67.6	8	1042	69.9	1047	69.6	<u>1045</u>	<u>69.7</u>
435.gromacs	8	<u>561</u>	<u>102</u>	561	102	560	102	8	559	102	<u>559</u>	<u>102</u>	555	103
436.cactusADM	8	<u>1249</u>	<u>76.5</u>	1251	76.4	1247	76.7	1	135	88.3	<u>135</u>	<u>88.4</u>	134	89.1
437.leslie3d	8	2491	30.2	2500	30.1	<u>2499</u>	<u>30.1</u>	4	1214	31.0	1236	30.4	<u>1235</u>	<u>30.5</u>
444.namd	8	<u>740</u>	<u>86.7</u>	741	86.6	740	86.7	8	<u>756</u>	<u>84.9</u>	757	84.8	745	86.1
447.dealII	8	<u>850</u>	<u>108</u>	852	107	828	111	8	795	115	815	112	<u>798</u>	<u>115</u>
450.soplex	8	1809	36.9	<u>1810</u>	<u>36.9</u>	1811	36.8	8	<u>1638</u>	<u>40.7</u>	1638	40.7	1637	40.8
453.povray	8	322	132	<u>322</u>	<u>132</u>	322	132	8	<u>270</u>	<u>158</u>	270	158	270	157
454.calculix	8	570	116	<u>566</u>	<u>117</u>	564	117	8	<u>563</u>	<u>117</u>	571	116	562	117
459.GemsFDTD	8	3077	27.6	3073	27.6	<u>3076</u>	<u>27.6</u>	8	3081	27.5	3087	27.5	<u>3082</u>	<u>27.5</u>
465.tonto	8	879	89.5	880	89.4	<u>879</u>	<u>89.5</u>	8	819	96.1	<u>819</u>	<u>96.1</u>	823	95.7
470.lbm	8	4067	27.0	4064	27.0	<u>4065</u>	<u>27.0</u>	4	1458	37.7	1460	37.6	<u>1459</u>	<u>37.7</u>
481.wrf	8	1791	49.9	1798	49.7	<u>1798</u>	<u>49.7</u>	8	1791	49.9	1798	49.7	<u>1798</u>	<u>49.7</u>
482.sphinx3	8	<u>2372</u>	<u>65.7</u>	2366	65.9	2395	65.1	4	1031	75.6	<u>1034</u>	<u>75.4</u>	1043	74.8

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.

## Operating System Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## Platform Notes

BIOS Settings:  
Hardware Prefetcher = Disabled (Default = Enabled)  
Adjacent Cache Line Prefetch = Disabled (Default = Enabled)



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## General Notes

taskset was used to bind processes to cores except for 436.cactusADM peak  
OMP\_NUM\_THREADS set to number of processors  
KMP\_AFFINITY set to "physical,0"  
KMP\_STACKSIZE set to 64M

## 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.deallI: -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 -opt-prefetch

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## Base Optimization Flags (Continued)

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## 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 (except as noted below):

ifort

437.leslie3d: /opt/intel/Compiler/11.0/042/bin/ia32/ifort  
-L/opt/intel/Compiler/11.0/042/ipp/ia32/lib  
-I/opt/intel/Compiler/11.0/042/ipp/ia32/include

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  
444.namd: -DSPEC\_CPU\_LP64  
447.dealII: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

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  
 470.lbm: -xSSE4.1 -ipo -O3 -no-prec-div -static -opt-prefetch  
 -auto-ilp32  
 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-  
 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  
 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: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
 -no-prec-div -static  
 437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -xSSE4.1 -ipo -O3  
 -no-prec-div -static -opt-malloc-options=3 -opt-prefetch

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## Peak Optimization Flags (Continued)

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

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

481.wrf: basepeak = yes

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.20090713.00.html>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.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.20090713.00.xml>

<http://www.spec.org/cpu2006/flags/Intel-Linux64-Platform.20090713.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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