



# SPEC<sup>®</sup> CFP2006 Result

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## Dell Inc.

### SPECfp<sup>®</sup>\_rate2006 = 65.6

### PowerEdge 1950 III (Intel Xeon E5405, 2.00 GHz)

### SPECfp\_rate\_base2006 = 61.8

CPU2006 license: 55

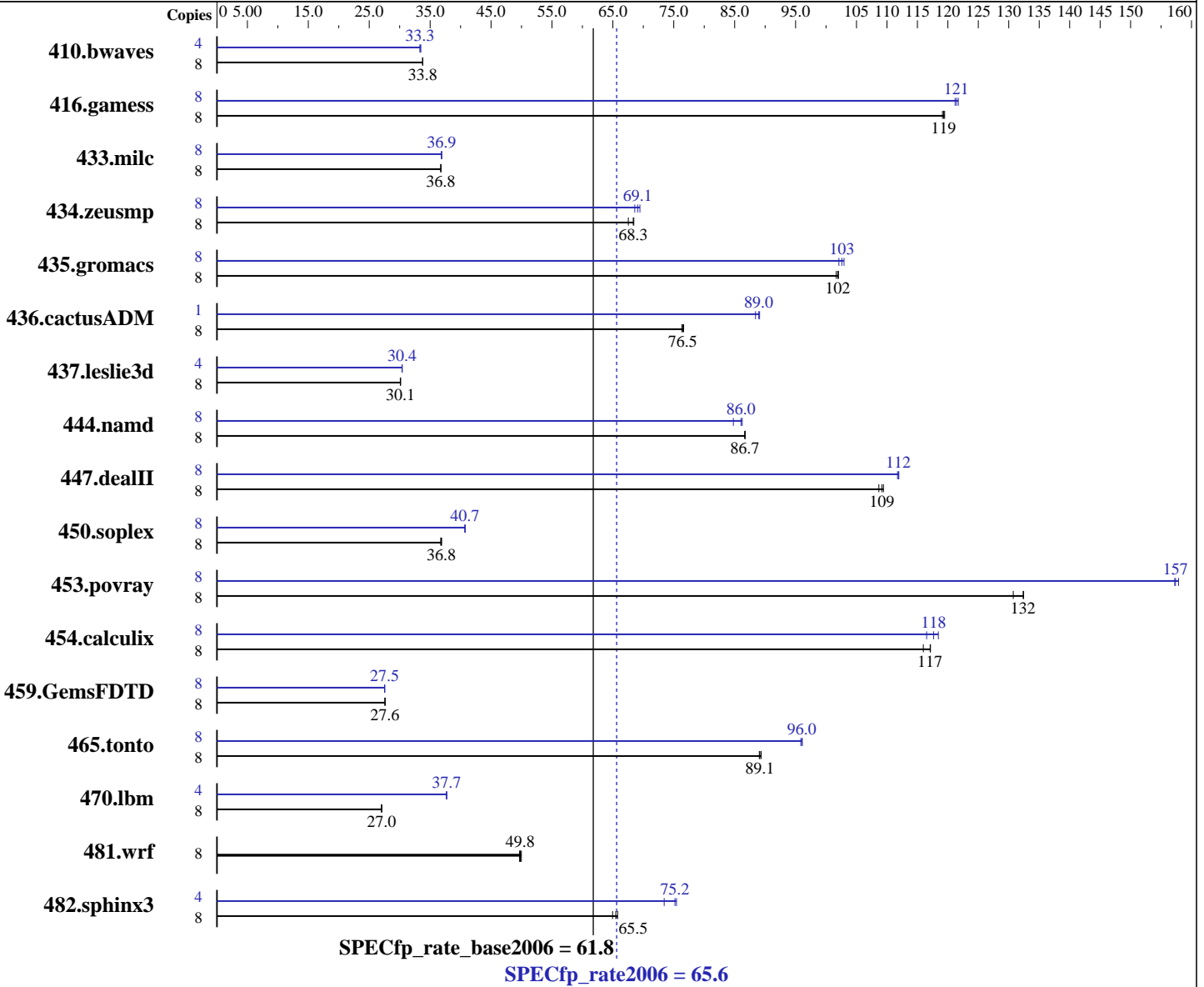
Test sponsor: Dell Inc.

Tested by: Dell Inc.

Test date: Oct-2008

Hardware Availability: Sep-2008

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-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 DDR2-667 FB-DIMM)  
Disk Subsystem: 1 x 73 GB 10000 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>3218</u>	<u>33.8</u>	3218	33.8	3219	33.8	4	1630	33.3	<u>1630</u>	<u>33.3</u>	1624	33.5
416.gamess	8	1311	119	1315	119	<u>1313</u>	<u>119</u>	8	1287	122	<u>1290</u>	<u>121</u>	1293	121
433.milc	8	<u>1998</u>	<u>36.8</u>	1998	36.8	1998	36.8	8	<u>1991</u>	<u>36.9</u>	1992	36.9	1991	36.9
434.zeusmp	8	1064	68.4	1078	67.5	<u>1065</u>	<u>68.3</u>	8	1061	68.6	<u>1054</u>	<u>69.1</u>	1048	69.4
435.gromacs	8	562	102	560	102	<u>560</u>	<u>102</u>	8	559	102	<u>557</u>	<u>103</u>	555	103
436.cactusADM	8	<u>1250</u>	<u>76.5</u>	1253	76.3	1248	76.6	1	134	89.1	135	88.4	<u>134</u>	<u>89.0</u>
437.leslie3d	8	<u>2495</u>	<u>30.1</u>	2498	30.1	2494	30.2	4	1238	30.4	1236	30.4	<u>1237</u>	<u>30.4</u>
444.namd	8	740	86.6	<u>740</u>	<u>86.7</u>	740	86.7	8	757	84.8	<u>746</u>	<u>86.0</u>	744	86.2
447.dealII	8	842	109	836	109	<u>838</u>	<u>109</u>	8	819	112	817	112	<u>818</u>	<u>112</u>
450.soplex	8	1809	36.9	<u>1812</u>	<u>36.8</u>	1816	36.7	8	1637	40.8	<u>1639</u>	<u>40.7</u>	1639	40.7
453.povray	8	326	131	<u>322</u>	<u>132</u>	321	132	8	271	157	270	158	<u>270</u>	<u>157</u>
454.calculix	8	569	116	<u>564</u>	<u>117</u>	563	117	8	566	117	557	118	<u>561</u>	<u>118</u>
459.GemsFDTD	8	3077	27.6	<u>3076</u>	<u>27.6</u>	3075	27.6	8	3082	27.5	<u>3083</u>	<u>27.5</u>	3083	27.5
465.tonto	8	<u>883</u>	<u>89.1</u>	881	89.4	884	89.0	8	<u>820</u>	<u>96.0</u>	821	95.8	819	96.1
470.lbm	8	4068	27.0	<u>4066</u>	<u>27.0</u>	4064	27.0	4	1458	37.7	1457	37.7	<u>1458</u>	<u>37.7</u>
481.wrf	8	1788	50.0	<u>1794</u>	<u>49.8</u>	1799	49.7	8	1788	50.0	<u>1794</u>	<u>49.8</u>	1799	49.7
482.sphinx3	8	<u>2381</u>	<u>65.5</u>	2400	65.0	2370	65.8	4	1033	75.4	1062	73.4	<u>1037</u>	<u>75.2</u>

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.deallI: -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.20090713.05.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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