



# SPEC® CFP2006 Result

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## Dell Inc.

SPECfp®\_rate2006 = 81.8

PowerEdge M600 (Intel Xeon X5470, 3.33 GHz)

SPECfp\_rate\_base2006 = 74.2

CPU2006 license: 55

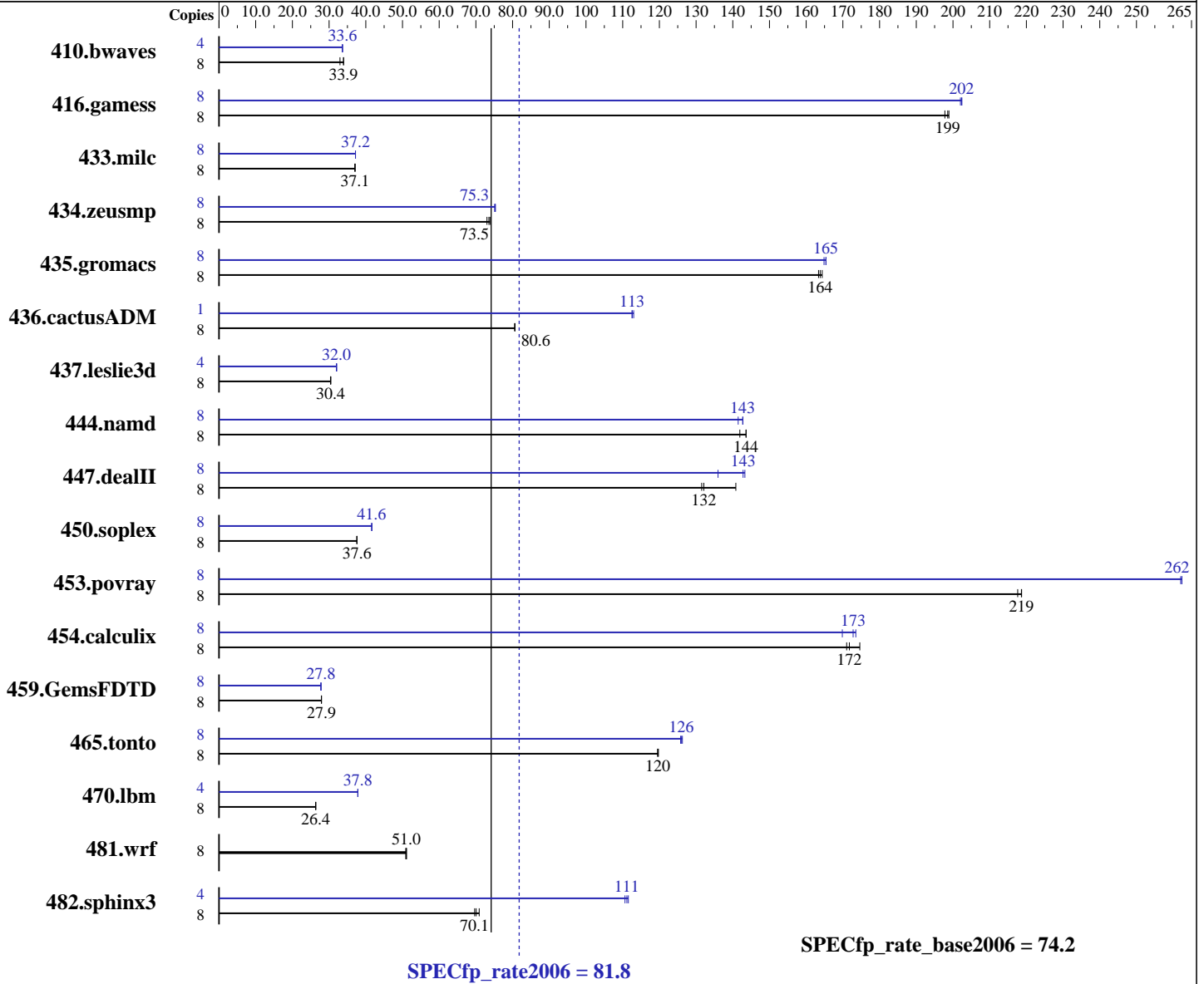
Test date: Sep-2008

Test sponsor: Dell Inc.

Hardware Availability: Sep-2008

Tested by: Dell Inc.

Software Availability: Nov-2008



### Hardware

CPU Name: Intel Xeon X5470  
 CPU Characteristics: 3333  
 CPU MHz: 3333  
 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 (4 x 4 GB 667 MHz ECC CL5 FB-DIMM)  
Disk Subsystem: 1 x 80 GB 5400 RPM SATA  
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	3298	33.0	<b><u>3205</u></b>	<b><u>33.9</u></b>	3203	33.9	4	1615	33.7	1617	33.6	<b><u>1616</u></b>	<b><u>33.6</u></b>		
416.gamess	8	792	198	<b><u>789</u></b>	<b><u>199</u></b>	788	199	8	775	202	774	202	<b><u>774</u></b>	<b><u>202</u></b>		
433.milc	8	1982	37.0	1981	37.1	<b><u>1982</u></b>	<b><u>37.1</u></b>	8	1975	37.2	<b><u>1975</u></b>	<b><u>37.2</u></b>	1975	37.2		
434.zeusmp	8	986	73.8	<b><u>990</u></b>	<b><u>73.5</u></b>	997	73.0	8	969	75.1	<b><u>967</u></b>	<b><u>75.3</u></b>	967	75.3		
435.gromacs	8	348	164	350	163	<b><u>349</u></b>	<b><u>164</u></b>	8	346	165	345	165	<b><u>345</u></b>	<b><u>165</u></b>		
436.cactusADM	8	1186	80.6	<b><u>1186</u></b>	<b><u>80.6</u></b>	1186	80.6	1	<b><u>106</u></b>	<b><u>113</u></b>	106	113	106	113		
437.leslie3d	8	2467	30.5	2475	30.4	<b><u>2472</u></b>	<b><u>30.4</u></b>	4	<b><u>1175</u></b>	<b><u>32.0</u></b>	1175	32.0	1172	32.1		
444.namd	8	447	144	452	142	<b><u>447</u></b>	<b><u>144</u></b>	8	449	143	<b><u>450</u></b>	<b><u>143</u></b>	454	141		
447.dealII	8	650	141	696	132	<b><u>693</u></b>	<b><u>132</u></b>	8	639	143	<b><u>641</u></b>	<b><u>143</u></b>	673	136		
450.soplex	8	1774	37.6	1776	37.6	<b><u>1776</u></b>	<b><u>37.6</u></b>	8	1602	41.6	1604	41.6	<b><u>1603</u></b>	<b><u>41.6</u></b>		
453.povray	8	195	219	<b><u>195</u></b>	<b><u>219</u></b>	196	218	8	<b><u>162</u></b>	<b><u>262</u></b>	162	262	162	262		
454.calculix	8	378	175	<b><u>384</u></b>	<b><u>172</u></b>	386	171	8	380	174	389	170	<b><u>382</u></b>	<b><u>173</u></b>		
459.GemsFDTD	8	3040	27.9	<b><u>3041</u></b>	<b><u>27.9</u></b>	3042	27.9	8	3055	27.8	3054	27.8	<b><u>3055</u></b>	<b><u>27.8</u></b>		
465.tonto	8	<b><u>658</u></b>	<b><u>120</u></b>	657	120	659	120	8	626	126	<b><u>625</u></b>	<b><u>126</u></b>	623	126		
470.lbm	8	4174	26.3	<b><u>4171</u></b>	<b><u>26.4</u></b>	4169	26.4	4	1452	37.9	1453	37.8	<b><u>1453</u></b>	<b><u>37.8</u></b>		
481.wrf	8	1756	50.9	1749	51.1	<b><u>1751</u></b>	<b><u>51.0</u></b>	8	1756	50.9	1749	51.1	<b><u>1751</u></b>	<b><u>51.0</u></b>		
482.sphinx3	8	2199	70.9	<b><u>2225</u></b>	<b><u>70.1</u></b>	2238	69.7	4	<b><u>701</u></b>	<b><u>111</u></b>	705	111	699	112		

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

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex and 482.sphinx3, at peak, are compiled in 32-bit mode  
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.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 -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.20090713.06.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.20090713.06.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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