



# SPEC<sup>®</sup> CFP2006 Result

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Dell Inc.

SPECfp<sup>®</sup>\_rate2006 = 33.4

PowerEdge 860 (Intel Xeon X3220, 2.40 GHz)

SPECfp\_rate\_base2006 = 32.6

CPU2006 license: 55

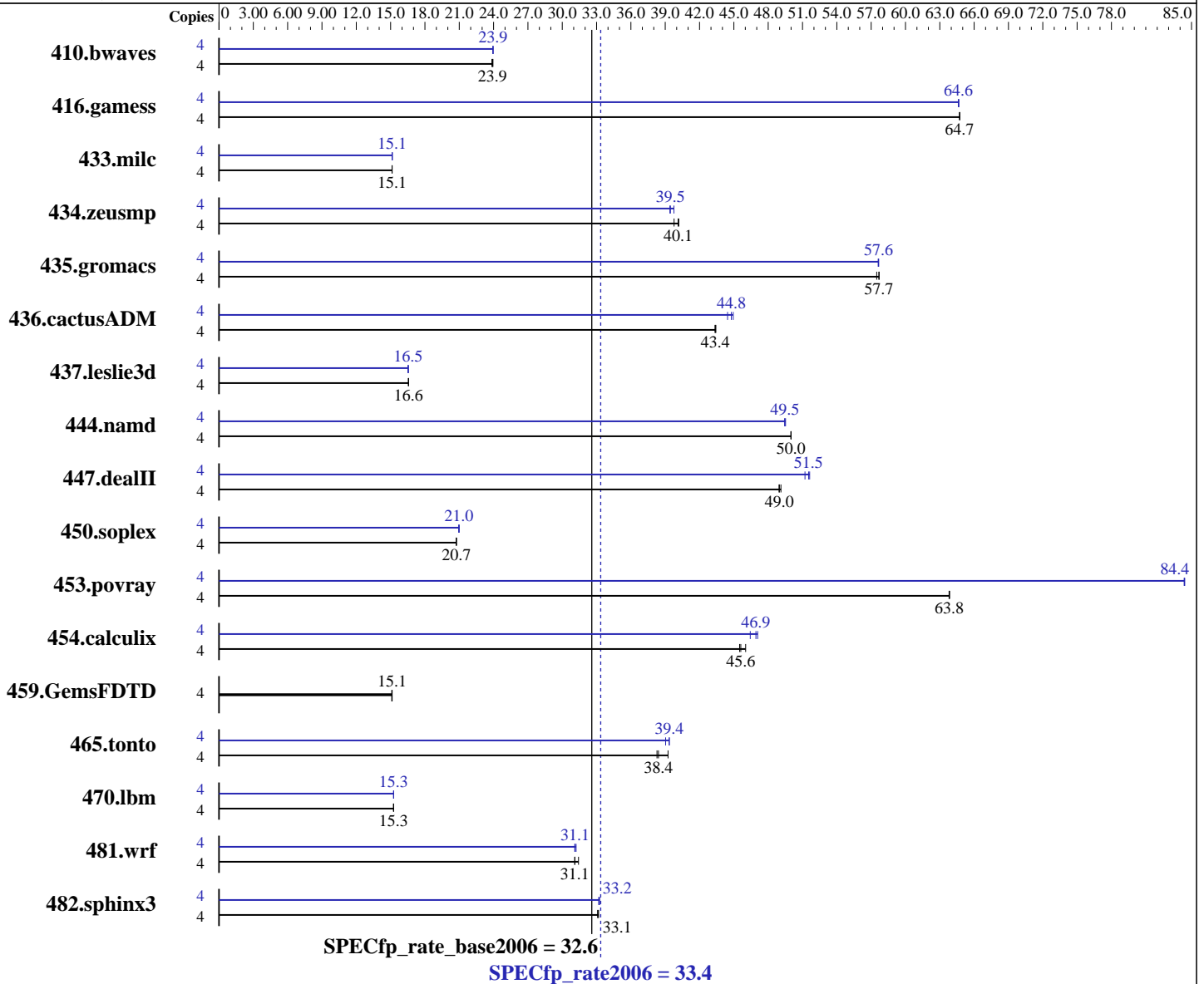
Test date: Jan-2007

Test sponsor: Dell Inc.

Hardware Availability: Jan-2007

Tested by: Dell Inc.

Software Availability: Oct-2006



### Hardware

CPU Name: Intel Xeon X3220  
 CPU Characteristics: 1066MHz system bus  
 CPU MHz: 2400  
 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: 8 MB I+D on chip per chip, 4 MB shared / 2 cores

Continued on next page

### Software

Operating System: Windows Server 2003 Enterprise x64 Edition  
 Compiler: Intel C++ Compiler 9.1 for EM64T (20060925Z)  
 Intel FORTRAN Compiler 9.1 for EM64T (20060925Z)  
 Microsoft Visual Studio 2005 (8.0.50727.42)  
 MicroQuill SmartHeap Library 8.0 for x64  
 Auto Parallel: No  
 File System: NTFS  
 System State: Default  
 Base Pointers: 64-bit

Continued on next page



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L3 Cache: None  
Other Cache: None  
Memory: 8 GB (4x2 GB 533MHz ECC DDR2 SDRAM)  
Disk Subsystem: 1 x 73GB SAS 10000 RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2279	23.9	<u>2273</u>	<u>23.9</u>	2270	23.9	4	2269	24.0	2271	23.9	<u>2270</u>	<u>23.9</u>
416.gamess	4	<u>1210</u>	<u>64.7</u>	1210	64.7	1210	64.8	4	<u>1212</u>	<u>64.6</u>	1211	64.7	1212	64.6
433.milc	4	2426	15.1	<u>2427</u>	<u>15.1</u>	2428	15.1	4	2427	15.1	2424	15.1	<u>2426</u>	<u>15.1</u>
434.zeusmp	4	915	39.8	906	40.2	<u>907</u>	<u>40.1</u>	4	924	39.4	915	39.8	<u>923</u>	<u>39.5</u>
435.gromacs	4	495	57.7	497	57.5	<u>495</u>	<u>57.7</u>	4	496	57.6	<u>495</u>	<u>57.6</u>	495	57.7
436.cactusADM	4	1102	43.4	1101	43.4	<u>1102</u>	<u>43.4</u>	4	1064	44.9	1075	44.4	<u>1067</u>	<u>44.8</u>
437.leslie3d	4	2271	16.6	2268	16.6	<u>2271</u>	<u>16.6</u>	4	2277	16.5	<u>2272</u>	<u>16.5</u>	2272	16.6
444.namd	4	<u>642</u>	<u>50.0</u>	642	50.0	642	50.0	4	<u>649</u>	<u>49.5</u>	648	49.5	649	49.4
447.dealII	4	<u>934</u>	<u>49.0</u>	932	49.1	935	48.9	4	886	51.6	<u>888</u>	<u>51.5</u>	893	51.2
450.soplex	4	<u>1608</u>	<u>20.7</u>	1609	20.7	1608	20.7	4	1592	21.0	1589	21.0	<u>1591</u>	<u>21.0</u>
453.povray	4	334	63.8	333	63.9	<u>333</u>	<u>63.8</u>	4	252	84.4	252	84.4	<u>252</u>	<u>84.4</u>
454.calculix	4	717	46.0	<u>724</u>	<u>45.6</u>	725	45.5	4	<u>703</u>	<u>46.9</u>	701	47.1	711	46.4
459.GemsFDTD	4	2811	15.1	<u>2805</u>	<u>15.1</u>	2805	15.1	4	2811	15.1	<u>2805</u>	<u>15.1</u>	2805	15.1
465.tonto	4	1003	39.2	1028	38.3	<u>1025</u>	<u>38.4</u>	4	1008	39.0	<u>1000</u>	<u>39.4</u>	1000	39.4
470.lbm	4	<u>3601</u>	<u>15.3</u>	3601	15.3	3603	15.3	4	3602	15.3	<u>3601</u>	<u>15.3</u>	3600	15.3
481.wrf	4	<u>1436</u>	<u>31.1</u>	1422	31.4	1437	31.1	4	1431	31.2	1437	31.1	<u>1436</u>	<u>31.1</u>
482.sphinx3	4	2356	33.1	2350	33.2	<u>2354</u>	<u>33.1</u>	4	2349	33.2	2344	33.3	<u>2345</u>	<u>33.2</u>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

Adjacent Sector Prefetch disabled in BIOS, default enabled  
Binaries were built on Windows XP Professional x64 Edition

## Base Compiler Invocation

C benchmarks:  
icl -Qc99

C++ benchmarks:  
icl

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## Base Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icl -Qc99 ifort

## Base Portability Flags

410.bwaves: -DSPEC\_CPU\_P64  
 416.gamess: -DSPEC\_CPU\_P64  
 433.milc: -D\_Complex= -DSPEC\_CPU\_P64  
 434.zeusmp: -DSPEC\_CPU\_P64  
 435.gromacs: -D\_Complex= -DSPEC\_CPU\_P64  
 436.cactusADM: -D\_Complex= -DSPEC\_CPU\_P64 -Qlowercase /assume:underscore  
 437.leslie3d: -DSPEC\_CPU\_P64  
 444.namd: -DSPEC\_CPU\_P64 /TP  
 447.dealII: -D\_Complex= -DSPEC\_CPU\_P64 -DBOOST\_NO\_INTRINSIC\_WCHAR\_T  
 -DDEAL\_II\_MEMBER\_VAR\_SPECIALIZATION\_BUG  
 450.soplex: -DSPEC\_CPU\_P64  
 453.povray: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_WINDOWS\_ICL  
 454.calculix: -D\_Complex= -DSPEC\_CPU\_P64 -DSPEC\_CPU\_NOZMODIFIER  
 -Qlowercase  
 459.GemsFDTD: -DSPEC\_CPU\_P64  
 465.tonto: -DSPEC\_CPU\_P64  
 470.lbm: -D\_Complex= -DSPEC\_CPU\_P64  
 481.wrf: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_WINDOWS\_ICL  
 482.sphinx3: -D\_Complex= -DSPEC\_CPU\_P64

## Base Optimization Flags

C benchmarks:

-fast /F950000000 shlw64M.lib -link /FORCE:MULTIPLE

C++ benchmarks:

-fast -Qcxx\_features /F950000000 shlw64M.lib  
-link /FORCE:MULTIPLE

Fortran benchmarks:

-fast /F950000000 -link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:

-fast /F950000000 -link /FORCE:MULTIPLE



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## Peak Compiler Invocation

C benchmarks:  
icl -Qc99

C++ benchmarks:  
icl

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
icl -Qc99 ifort

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:  
ONESTEP -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -fast -Qauto\_ilp32  
/F950000000 shlW64M.lib -link /FORCE:MULTIPLE

C++ benchmarks:  
ONESTEP -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -fast -Qauto\_ilp32  
-Qcxx\_features /F950000000 shlW64M.lib  
-link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: ONESTEP -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -fast  
-Qauto\_ilp32 /F950000000 -link /FORCE:MULTIPLE

416.gamess: ONESTEP -fast -Qauto\_ilp32 /F950000000  
-link /FORCE:MULTIPLE

434.zeusmp: Same as 410.bwaves

437.leslie3d: Same as 410.bwaves

459.GemsFDTD: basepeak = yes

465.tonto: Same as 410.bwaves

Benchmarks using both Fortran and C:

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## Peak Optimization Flags (Continued)

435.gromacs: -fast -Qauto\_ilp32 /F950000000  
-link /FORCE:MULTIPLE

436.cactusADM: -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -fast -Qauto\_ilp32  
/F950000000 -link /FORCE:MULTIPLE

454.calculix: Same as 436.cactusADM

481.wrf: Same as 435.gromacs

The flags file that was used to format this result can be browsed at  
<http://www.spec.org/cpu2006/flags/dell.cpu2006.ic91.x64.flags.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/dell.cpu2006.ic91.x64.flags.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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