



# SPEC<sup>®</sup> CFP2006 Result

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Dell Inc.

SPECfp<sup>®</sup>\_rate2006 = 27.0

PowerEdge 860 (Intel Xeon 3070, 2.66 GHz)

SPECfp\_rate\_base2006 = 25.7

CPU2006 license: 55

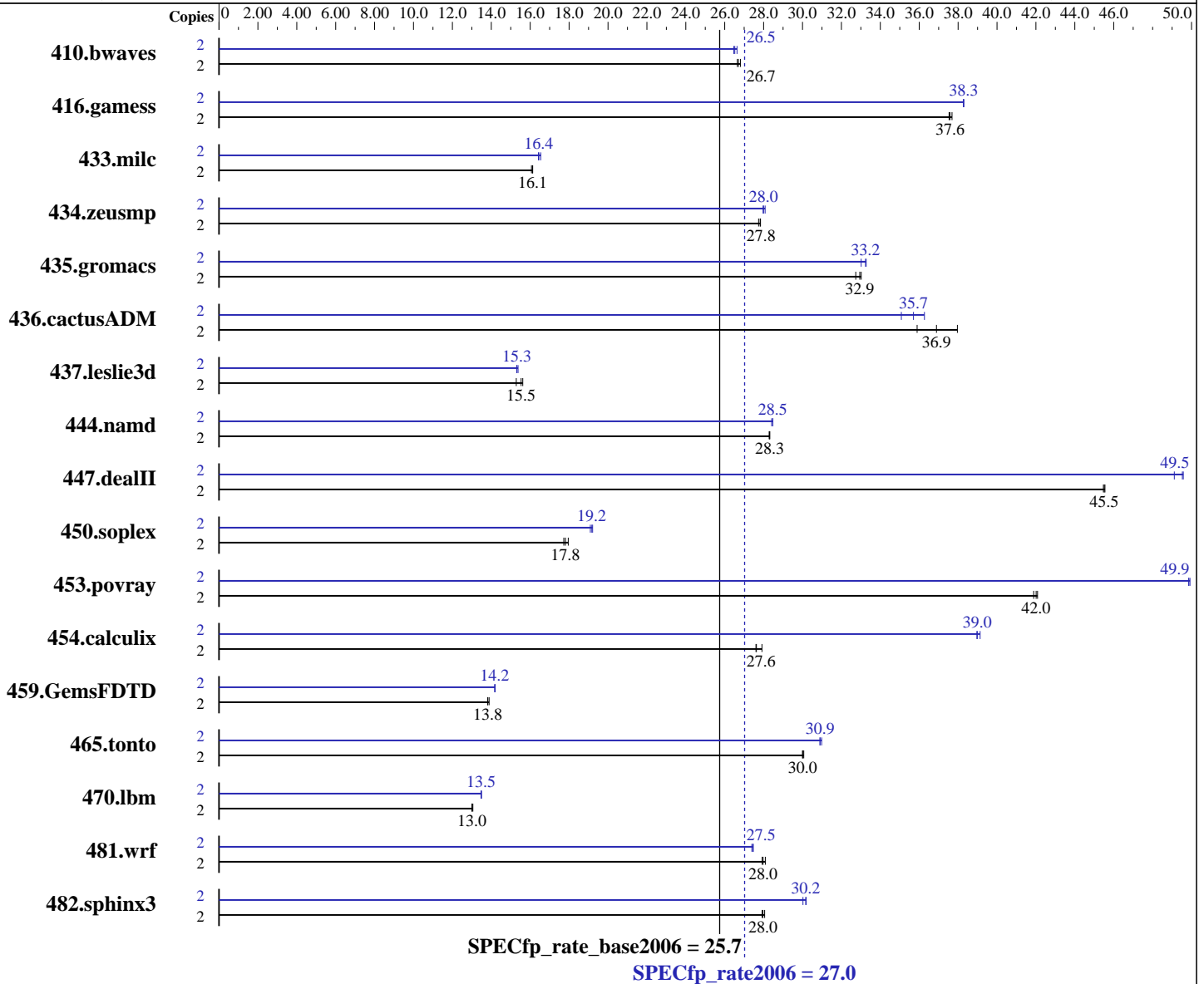
Test date: Sep-2007

Test sponsor: Dell Inc.

Hardware Availability: Sep-2006

Tested by: Dell Inc.

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon 3070  
 CPU Characteristics: 1066MHz system bus  
 CPU MHz: 2660  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 4 MB I+D on chip per chip

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### Software

Operating System: 64-Bit SUSE LINUX Enterprise Server 10  
 Compiler: Intel C++ and Fortran Compiler for Linux32 and Linux64 version 10.1 Build 20070725  
 Auto Parallel: No  
 File System: ReiserFS  
 System State: Multi-user, run level 3  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 8 GB (4x2 GB 667 Mhz DIMM)  
Disk Subsystem: 1 x 73 GB SAS 10k RPM  
Other Hardware: None

Other Software: SmartHeap library V8.1

## Results Table

Benchmark	Base								Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio		
410.bwaves	2	1020	26.7	1014	26.8	<b>1018</b>	<b>26.7</b>	2	1021	26.6	<b>1025</b>	<b>26.5</b>	1027	26.5		
416.gamess	2	1039	37.7	1043	37.5	<b>1042</b>	<b>37.6</b>	2	1023	38.3	<b>1023</b>	<b>38.3</b>	1023	38.3		
433.milc	2	1143	16.1	<b>1139</b>	<b>16.1</b>	1138	16.1	2	1110	16.5	1118	16.4	<b>1116</b>	<b>16.4</b>		
434.zeusmp	2	656	27.7	<b>654</b>	<b>27.8</b>	654	27.8	2	<b>650</b>	<b>28.0</b>	651	28.0	648	28.1		
435.gromacs	2	436	32.7	432	33.0	<b>433</b>	<b>32.9</b>	2	429	33.3	433	33.0	<b>430</b>	<b>33.2</b>		
436.cactusADM	2	666	35.9	<b>648</b>	<b>36.9</b>	630	38.0	2	681	35.1	<b>669</b>	<b>35.7</b>	659	36.3		
437.leslie3d	2	<b>1210</b>	<b>15.5</b>	1230	15.3	1204	15.6	2	1228	15.3	<b>1227</b>	<b>15.3</b>	1223	15.4		
444.namd	2	567	28.3	<b>567</b>	<b>28.3</b>	566	28.3	2	563	28.5	<b>563</b>	<b>28.5</b>	565	28.4		
447.dealII	2	502	45.5	503	45.5	<b>503</b>	<b>45.5</b>	2	<b>462</b>	<b>49.5</b>	461	49.6	466	49.1		
450.soplex	2	941	17.7	<b>936</b>	<b>17.8</b>	929	18.0	2	874	19.1	<b>870</b>	<b>19.2</b>	868	19.2		
453.povray	2	254	41.9	<b>253</b>	<b>42.0</b>	253	42.1	2	213	49.9	<b>213</b>	<b>49.9</b>	213	49.9		
454.calculix	2	591	27.9	598	27.6	<b>597</b>	<b>27.6</b>	2	422	39.1	<b>423</b>	<b>39.0</b>	423	39.0		
459.GemsFDTD	2	1536	13.8	<b>1536</b>	<b>13.8</b>	1528	13.9	2	1494	14.2	1497	14.2	<b>1497</b>	<b>14.2</b>		
465.tonto	2	655	30.1	656	30.0	<b>656</b>	<b>30.0</b>	2	635	31.0	637	30.9	<b>637</b>	<b>30.9</b>		
470.lbm	2	<b>2112</b>	<b>13.0</b>	2113	13.0	2105	13.1	2	2040	13.5	2036	13.5	<b>2038</b>	<b>13.5</b>		
481.wrf	2	<b>799</b>	<b>28.0</b>	800	27.9	795	28.1	2	<b>814</b>	<b>27.5</b>	813	27.5	816	27.4		
482.sphinx3	2	1396	27.9	<b>1394</b>	<b>28.0</b>	1389	28.1	2	1298	30.0	<b>1292</b>	<b>30.2</b>	1291	30.2		

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

## Compiler Invocation Notes

OMP\_NUM\_THREADS set to number of cores  
KMP\_STACK\_SIZE set to 64M  
KMP\_AFFINITY set to physical,0

## Operating System Notes

'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run  
'/usr/bin/taskset' used to bind processes to CPUs



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## Platform Notes

BIOS Settings:

Adjacent Cache Line Prefetch = Disabled (default Enabled)

Hardware Prefetcher = Disabled (default Enabled)

## 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:

-fast

C++ benchmarks:

-fast

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## Base Optimization Flags (Continued)

Fortran benchmarks:

-fast

Benchmarks using both Fortran and C:

-fast

## Peak Compiler Invocation

C benchmarks (except as noted below):

/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icc  
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib  
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include

433.milc: icc

C++ benchmarks (except as noted below):

icpc

450.soplex: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/icpc  
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib  
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/include

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: /home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/bin/ifort  
-L/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/lib  
-I/home/cmplr/usr3/alrahate/compilers/ic10.1mainline/20070725/Linux32/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  
453.povray: -DSPEC\_CPU\_LP64  
454.calculix: -DSPEC\_CPU\_LP64 -nofor\_main  
459.GemsFDTD: -DSPEC\_CPU\_LP64

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## Peak Portability Flags (Continued)

465.tonto: -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) -fast -fno-alias  
-auto-ilp32

470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-scalar-rep- -prefetch -opt-malloc-options=3

482.sphinx3: -fast -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

Benchmarks using both Fortran and C:

Continued on next page



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## Peak Optimization Flags (Continued)

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.13.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.13.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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