



SPEC® CFP2006 Result

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Dell Inc.

SPECfp®_rate2006 = 36.9

PowerEdge 860 (Intel Xeon X3220, 2.40 GHz)

SPECfp_rate_base2006 = 35.0

CPU2006 license: 55

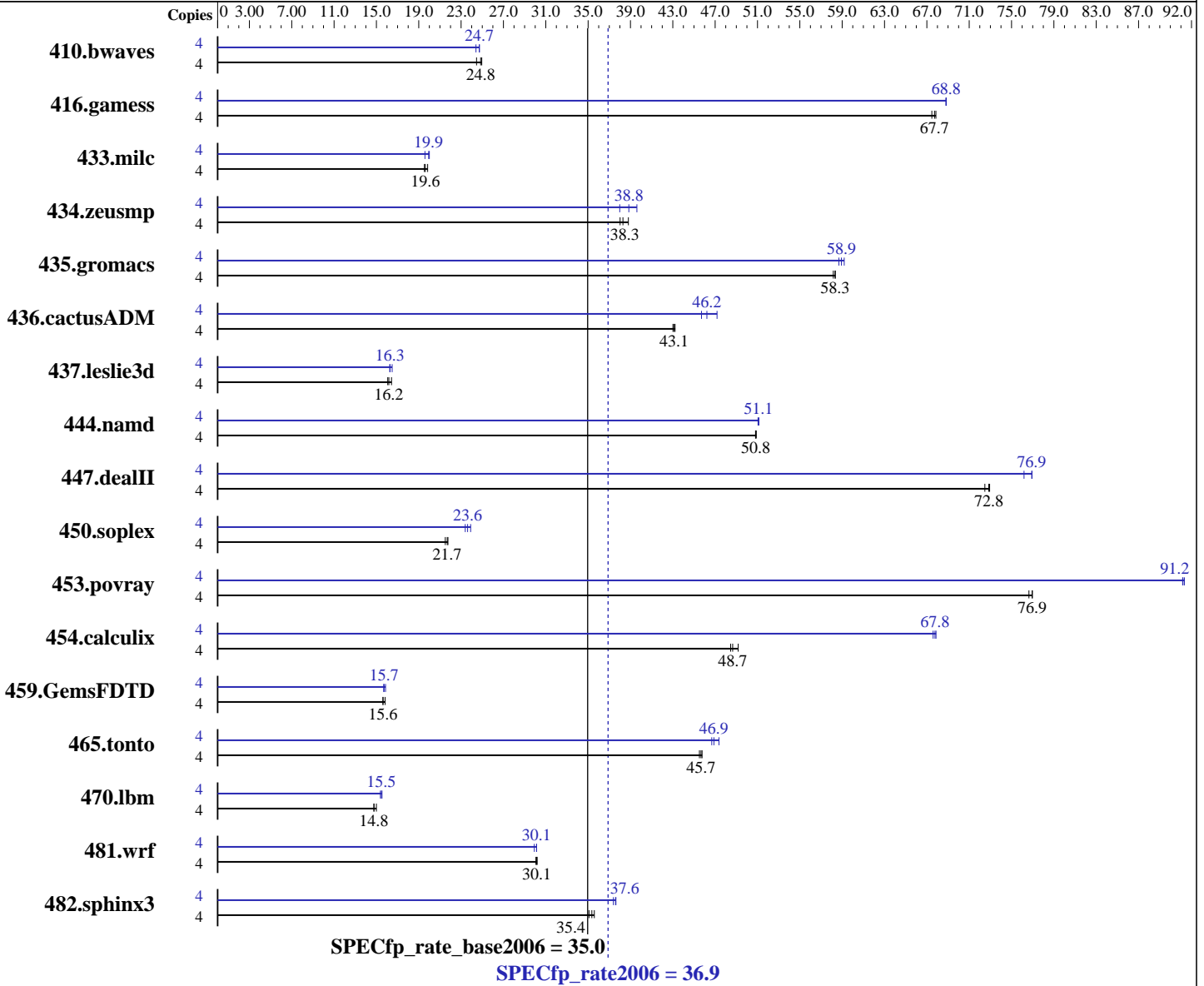
Test date: Sep-2007

Test sponsor: Dell Inc.

Hardware Availability: Jan-2007

Tested by: Dell Inc.

Software Availability: Nov-2007



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

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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	4	<u>2188</u>	<u>24.8</u>	2179	25.0	2222	24.5	4	2227	24.4	<u>2199</u>	<u>24.7</u>	2198	24.7
416.gamess	4	<u>1157</u>	<u>67.7</u>	1154	67.9	1161	67.5	4	1138	68.8	1139	68.8	<u>1138</u>	<u>68.8</u>
433.milc	4	1880	19.5	1851	19.8	<u>1871</u>	<u>19.6</u>	4	1875	19.6	1836	20.0	<u>1842</u>	<u>19.9</u>
434.zeusmp	4	957	38.0	938	38.8	<u>951</u>	<u>38.3</u>	4	958	38.0	<u>937</u>	<u>38.8</u>	919	39.6
435.gromacs	4	<u>490</u>	<u>58.3</u>	491	58.2	489	58.4	4	482	59.2	487	58.7	<u>485</u>	<u>58.9</u>
436.cactusADM	4	1106	43.2	1111	43.0	<u>1109</u>	<u>43.1</u>	4	1046	45.7	<u>1034</u>	<u>46.2</u>	1013	47.2
437.leslie3d	4	<u>2324</u>	<u>16.2</u>	2340	16.1	2289	16.4	4	<u>2308</u>	<u>16.3</u>	2312	16.3	2281	16.5
444.namd	4	631	50.8	<u>631</u>	<u>50.8</u>	630	50.9	4	628	51.0	<u>628</u>	<u>51.1</u>	627	51.1
447.dealII	4	631	72.5	627	72.9	<u>628</u>	<u>72.8</u>	4	601	76.2	<u>595</u>	<u>76.9</u>	595	76.9
450.soplex	4	1551	21.5	1533	21.8	<u>1538</u>	<u>21.7</u>	4	1426	23.4	1396	23.9	<u>1413</u>	<u>23.6</u>
453.povray	4	<u>277</u>	<u>76.9</u>	278	76.6	276	77.0	4	233	91.3	<u>233</u>	<u>91.2</u>	233	91.2
454.calculix	4	681	48.5	<u>678</u>	<u>48.7</u>	671	49.2	4	488	67.6	<u>487</u>	<u>67.8</u>	486	67.9
459.GemsFDTD	4	2683	15.8	<u>2716</u>	<u>15.6</u>	2718	15.6	4	2676	15.9	<u>2700</u>	<u>15.7</u>	2705	15.7
465.tonto	4	860	45.8	865	45.5	<u>862</u>	<u>45.7</u>	4	831	47.4	<u>840</u>	<u>46.9</u>	843	46.7
470.lbm	4	3665	15.0	3722	14.8	<u>3722</u>	<u>14.8</u>	4	3540	15.5	3574	15.4	<u>3553</u>	<u>15.5</u>
481.wrf	4	1480	30.2	1486	30.1	<u>1482</u>	<u>30.1</u>	4	<u>1483</u>	<u>30.1</u>	1494	29.9	1483	30.1
482.sphinx3	4	2222	35.1	<u>2205</u>	<u>35.4</u>	2191	35.6	4	2085	37.4	2072	37.6	<u>2074</u>	<u>37.6</u>

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:

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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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Tested with SPEC CPU2006 v1.0.
Report generated on Tue Jul 22 13:55:16 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 October 2007.