



SPEC[®] CFP2006 Result

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Dell Inc.

SPECfp[®]_rate2006 = 80.1

PowerEdge 1950 III (Intel Xeon X5460, 3.16 GHz)

SPECfp_rate_base2006 = 73.4

CPU2006 license: 55

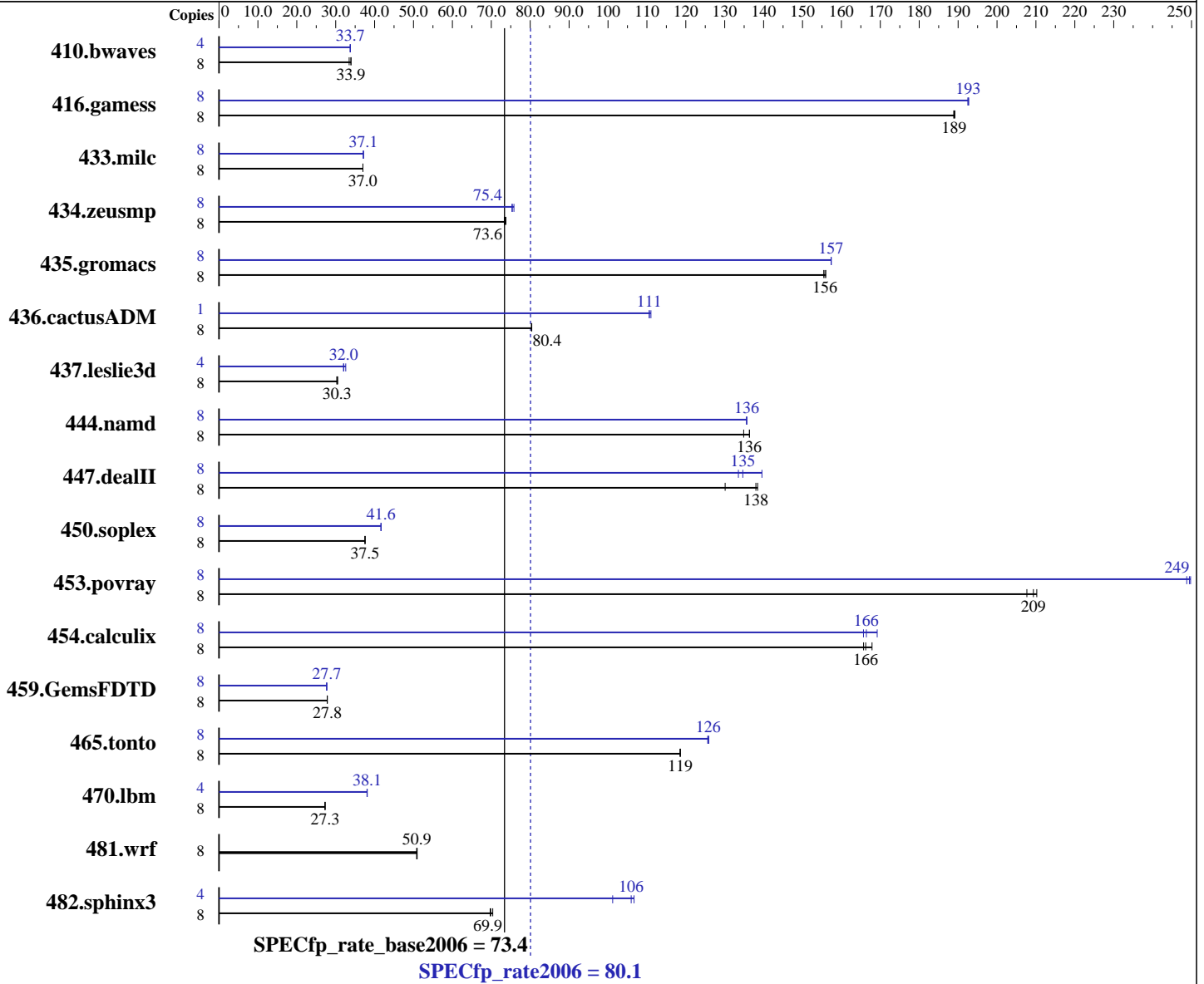
Test date: Sep-2008

Test sponsor: Dell Inc.

Hardware Availability: Sep-2008

Tested by: Dell Inc.

Software Availability: Nov-2008



Hardware

CPU Name: Intel Xeon X5460
 CPU Characteristics: 3166
 CPU MHz: 3166
 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_cc_b_11.0.042, l_fc_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 (8x2GB 667 MHz ECC CL5 FB-DIMM)
Disk Subsystem: 1 x 73 GB 15000 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	3249	33.5	<u>3206</u>	<u>33.9</u>	3204	33.9	4	1612	33.7	1610	33.8	<u>1611</u>	<u>33.7</u>
416.gamess	8	<u>829</u>	<u>189</u>	828	189	829	189	8	813	193	814	193	<u>813</u>	<u>193</u>
433.milc	8	1985	37.0	<u>1985</u>	<u>37.0</u>	1985	37.0	8	1979	37.1	1979	37.1	<u>1979</u>	<u>37.1</u>
434.zeusmp	8	<u>990</u>	<u>73.6</u>	987	73.8	993	73.3	8	967	75.3	<u>965</u>	<u>75.4</u>	960	75.8
435.gromacs	8	<u>367</u>	<u>156</u>	367	155	366	156	8	<u>363</u>	<u>157</u>	363	157	363	157
436.cactusADM	8	1190	80.3	<u>1190</u>	<u>80.4</u>	1189	80.4	1	<u>108</u>	<u>111</u>	108	111	108	111
437.leslie3d	8	2464	30.5	<u>2479</u>	<u>30.3</u>	2482	30.3	4	1174	32.0	1154	32.6	<u>1173</u>	<u>32.0</u>
444.namd	8	476	135	<u>471</u>	<u>136</u>	470	136	8	<u>473</u>	<u>136</u>	473	136	473	136
447.dealII	8	<u>663</u>	<u>138</u>	703	130	661	138	8	<u>680</u>	<u>135</u>	656	140	685	134
450.soplex	8	1776	37.6	<u>1778</u>	<u>37.5</u>	1778	37.5	8	<u>1602</u>	<u>41.6</u>	1603	41.6	1600	41.7
453.povray	8	205	208	202	210	<u>203</u>	<u>209</u>	8	170	250	171	249	<u>171</u>	<u>249</u>
454.calculix	8	398	166	<u>397</u>	<u>166</u>	393	168	8	390	169	398	166	<u>397</u>	<u>166</u>
459.GemsFDTD	8	3049	27.8	3051	27.8	<u>3050</u>	<u>27.8</u>	8	3066	27.7	3064	27.7	<u>3065</u>	<u>27.7</u>
465.tonto	8	664	119	664	119	<u>664</u>	<u>119</u>	8	625	126	627	126	<u>626</u>	<u>126</u>
470.lbm	8	4034	27.2	<u>4030</u>	<u>27.3</u>	4030	27.3	4	<u>1443</u>	<u>38.1</u>	1442	38.1	1445	38.0
481.wrf	8	1754	50.9	1758	50.8	<u>1757</u>	<u>50.9</u>	8	1754	50.9	1758	50.8	<u>1757</u>	<u>50.9</u>
482.sphinx3	8	2237	69.7	<u>2232</u>	<u>69.9</u>	2216	70.4	4	<u>736</u>	<u>106</u>	731	107	770	101

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.20090713.02.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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Tested with SPEC CPU2006 v1.1.

Report generated on Tue Jul 22 22:13:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 14 October 2008.