



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = 43.6

IBM System x3550 M3 (Intel Xeon X5570)

SPECfp_base2006 = 40.5

CPU2006 license: 11

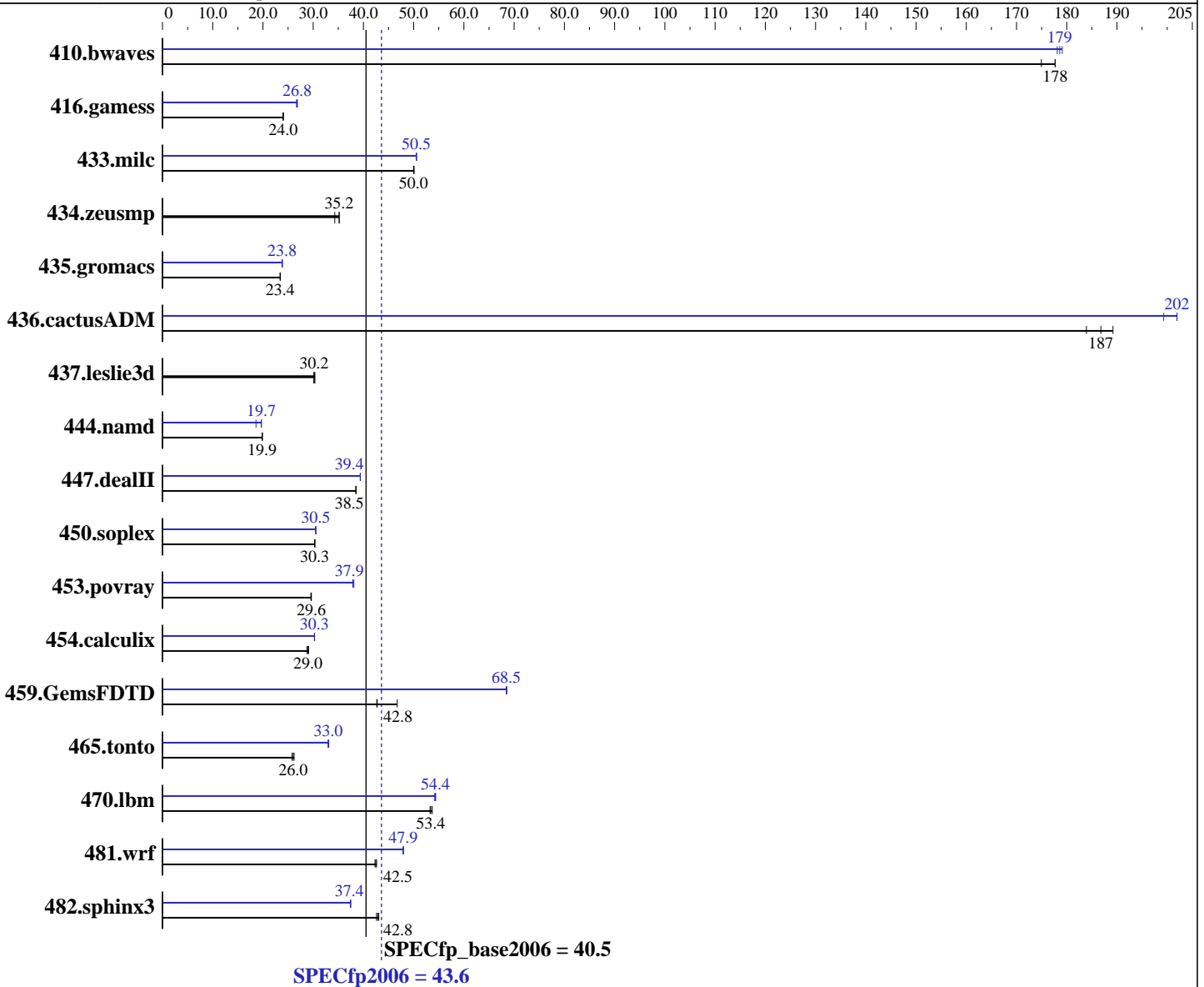
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jul-2010

Hardware Availability: Jun-2010

Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon X5570
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 8 cores, 2 chips, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chips
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: SuSe Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064
 Auto Parallel: Yes
 File System: ext3
 System State: Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (6 x 4 GB PC3-10600R CL9, 2 Rank)
Disk Subsystem: 1 x 73 GB SAS, 15000 RPM
Other Hardware: None

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

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	77.7	175	<u>76.5</u>	<u>178</u>	76.5	178	76.3	178	75.9	179	<u>76.1</u>	<u>179</u>
416.gamess	814	24.1	<u>815</u>	<u>24.0</u>	816	24.0	<u>730</u>	<u>26.8</u>	730	26.8	734	26.7
433.milc	<u>184</u>	<u>50.0</u>	184	50.0	183	50.1	<u>182</u>	<u>50.5</u>	182	50.5	182	50.6
434.zeusmp	259	35.2	265	34.3	<u>259</u>	<u>35.2</u>	259	35.2	265	34.3	<u>259</u>	<u>35.2</u>
435.gromacs	<u>305</u>	<u>23.4</u>	304	23.5	305	23.4	<u>300</u>	<u>23.8</u>	300	23.8	299	23.9
436.cactusADM	65.0	184	63.2	189	<u>64.0</u>	<u>187</u>	<u>59.2</u>	<u>202</u>	60.0	199	59.2	202
437.leslie3d	<u>311</u>	<u>30.2</u>	312	30.1	310	30.3	<u>311</u>	<u>30.2</u>	312	30.1	310	30.3
444.namd	<u>404</u>	<u>19.9</u>	403	19.9	404	19.8	407	19.7	<u>407</u>	<u>19.7</u>	431	18.6
447.dealII	297	38.5	<u>297</u>	<u>38.5</u>	297	38.5	<u>291</u>	<u>39.4</u>	291	39.4	290	39.4
450.soplex	275	30.3	<u>275</u>	<u>30.3</u>	275	30.3	274	30.5	273	30.5	<u>273</u>	<u>30.5</u>
453.povray	180	29.5	179	29.6	<u>180</u>	<u>29.6</u>	140	37.9	140	38.1	<u>140</u>	<u>37.9</u>
454.calculix	<u>285</u>	<u>29.0</u>	287	28.8	284	29.1	273	30.2	<u>273</u>	<u>30.3</u>	272	30.3
459.GemsFDTD	249	42.7	<u>248</u>	<u>42.8</u>	227	46.7	155	68.5	155	68.5	<u>155</u>	<u>68.5</u>
465.tonto	376	26.2	381	25.8	<u>378</u>	<u>26.0</u>	297	33.1	299	33.0	<u>298</u>	<u>33.0</u>
470.lbm	258	53.3	<u>257</u>	<u>53.4</u>	256	53.7	254	54.2	253	54.4	<u>253</u>	<u>54.4</u>
481.wrf	264	42.3	262	42.6	<u>263</u>	<u>42.5</u>	233	48.0	<u>233</u>	<u>47.9</u>	233	47.9
482.sphinx3	453	43.1	457	42.6	<u>455</u>	<u>42.8</u>	<u>521</u>	<u>37.4</u>	520	37.5	521	37.4

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

Platform Notes

Turbo Mode Enable
Turbo Boost set to Traditional
CPU C State Enable

General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M



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Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

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.lelie3d: -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:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch



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Peak Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-ansi-alias

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-parallel -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32
-unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-fno-alias -auto-ilp32

447.dealII: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias -scalar-rep- -auto-ilp32

450.soplex: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-malloc-options=3 -auto-ilp32

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Peak Optimization Flags (Continued)

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-inline-alloc -opt-malloc-options=3 -auto -unroll4

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: Same as 454.calculix

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100804.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100804.xml>



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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 10:26:31 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 3 August 2010.