



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = **48.1**

IBM System x3500 M3 (Intel Xeon X5680)

SPECfp_base2006 = **45.3**

CPU2006 license: 11

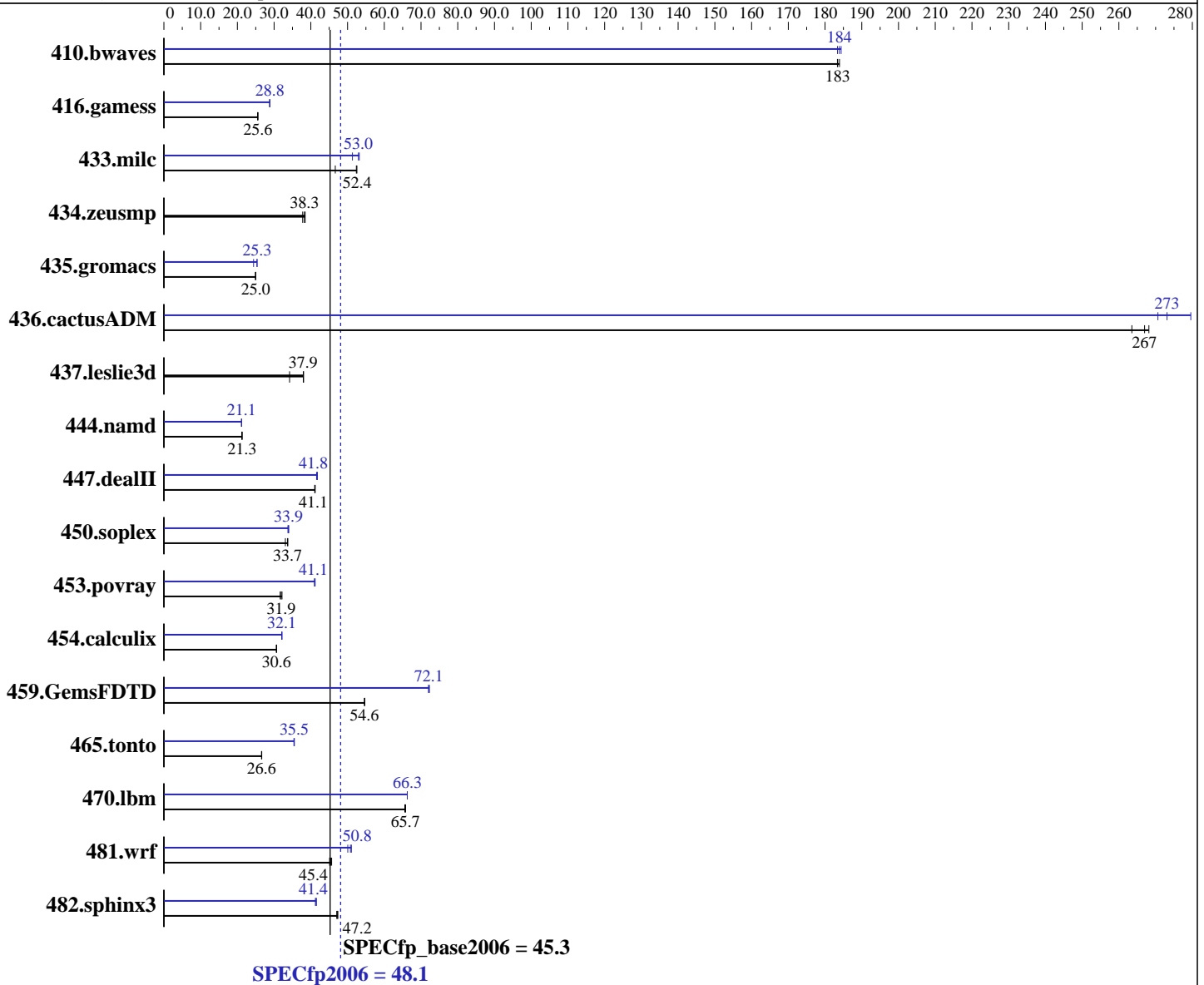
Test date: Feb-2010

Test sponsor: IBM Corporation

Hardware Availability: Mar-2010

Tested by: IBM Corporation

Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon X5680
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3333
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 cores/chip, 2 threads/core
 CPU(s) orderable: 1,2 chip
 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: 12 MB I+D on chip per chip
Other Cache: None
Memory: 48 GB (12 x 4 GB PC3-10600R-ECC)
Disk Subsystem: 1 x 73 GB SAS, 15000RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<u>74.1</u>	<u>183</u>	74.1	183	73.9	184	74.1	183	<u>73.9</u>	<u>184</u>	73.7	184
416.gamess	765	25.6	767	25.5	<u>766</u>	<u>25.6</u>	681	28.8	678	28.9	<u>679</u>	<u>28.8</u>
433.milc	<u>175</u>	<u>52.4</u>	197	46.7	175	52.5	<u>173</u>	<u>53.0</u>	173	53.2	179	51.3
434.zeusmp	237	38.5	<u>238</u>	<u>38.3</u>	241	37.8	237	38.5	<u>238</u>	<u>38.3</u>	241	37.8
435.gromacs	<u>286</u>	<u>25.0</u>	286	25.0	286	24.9	281	25.4	<u>282</u>	<u>25.3</u>	293	24.4
436.cactusADM	44.6	268	<u>44.8</u>	<u>267</u>	45.3	264	42.7	280	44.2	271	<u>43.8</u>	<u>273</u>
437.leslie3d	275	34.2	<u>248</u>	<u>37.9</u>	247	38.0	275	34.2	<u>248</u>	<u>37.9</u>	247	38.0
444.namd	377	21.3	<u>377</u>	<u>21.3</u>	378	21.2	<u>379</u>	<u>21.1</u>	379	21.2	380	21.1
447.dealII	278	41.2	278	41.1	<u>278</u>	<u>41.1</u>	274	41.8	275	41.6	<u>274</u>	<u>41.8</u>
450.soplex	<u>248</u>	<u>33.7</u>	252	33.1	247	33.7	247	33.8	245	34.0	<u>246</u>	<u>33.9</u>
453.povray	<u>167</u>	<u>31.9</u>	168	31.7	165	32.2	129	41.2	<u>130</u>	<u>41.1</u>	130	41.0
454.calculix	269	30.7	269	30.6	<u>269</u>	<u>30.6</u>	257	32.1	257	32.1	<u>257</u>	<u>32.1</u>
459.GemsFDTD	194	54.7	<u>194</u>	<u>54.6</u>	194	54.6	<u>147</u>	<u>72.1</u>	147	72.3	147	72.1
465.tonto	<u>370</u>	<u>26.6</u>	369	26.6	370	26.6	<u>277</u>	<u>35.5</u>	278	35.4	277	35.5
470.lbm	209	65.6	209	65.8	<u>209</u>	<u>65.7</u>	<u>207</u>	<u>66.3</u>	207	66.3	207	66.3
481.wrf	248	45.1	<u>246</u>	<u>45.4</u>	245	45.7	219	51.0	223	50.1	<u>220</u>	<u>50.8</u>
482.sphinx3	412	47.4	<u>413</u>	<u>47.2</u>	414	47.1	473	41.2	<u>470</u>	<u>41.4</u>	470	41.5

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

Platform Notes

Turbo Mode Enable
CPU C State Enable

General Notes

'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-calloc -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.20100330.00.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.20100330.00.xml>



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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 05:16:26 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 30 March 2010.