



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = 36.0

IBM System x3850 X5 (Intel Xeon X7550)

SPECfp_base2006 = 32.7

CPU2006 license: 11

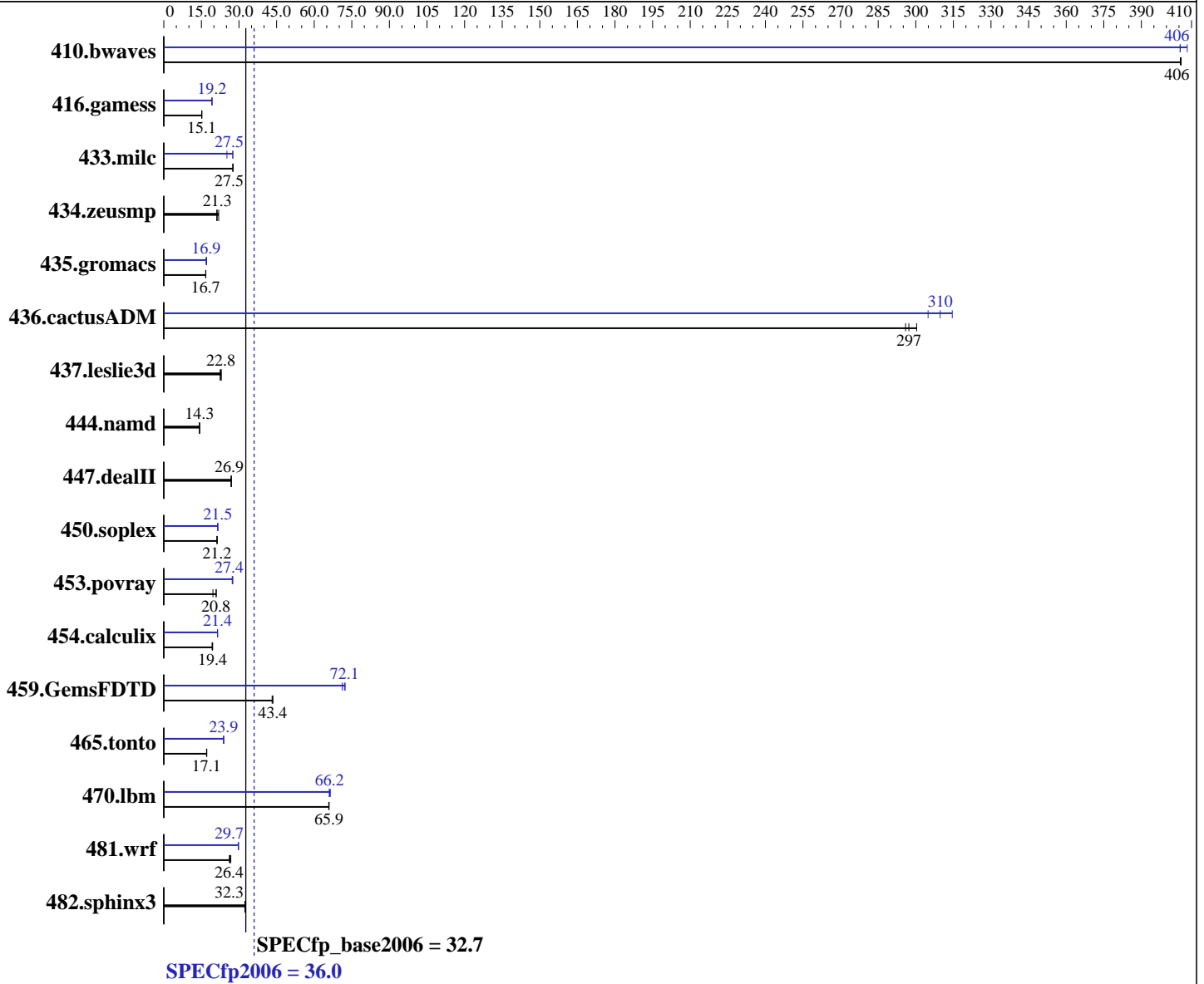
Test date: Apr-2010

Test sponsor: IBM Corporation

Hardware Availability: Mar-2010

Tested by: IBM Corporation

Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon X7550
 CPU Characteristics: Intel Turbo Boost Technology up to 2.40 GHz
 CPU MHz: 2000
 FPU: Integrated
 CPU(s) enabled: 32 cores, 4 chips, 8 cores/chip, 2 threads/core
 CPU(s) orderable: 2,4 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: 18 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (64 x 4 GB PC3-8500R, Quad Rank)
Disk Subsystem: 3 x 50 GB SATA, SSD
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	33.5	406	33.5	406	<u>33.5</u>	<u>406</u>	33.5	405	33.3	408	<u>33.5</u>	<u>406</u>
416.gamess	1290	15.2	1295	15.1	<u>1293</u>	<u>15.1</u>	<u>1019</u>	<u>19.2</u>	1019	19.2	1017	19.2
433.milc	332	27.7	333	27.5	<u>333</u>	<u>27.5</u>	<u>334</u>	<u>27.5</u>	364	25.2	333	27.6
434.zeusmp	431	21.1	416	21.9	<u>427</u>	<u>21.3</u>	431	21.1	416	21.9	<u>427</u>	<u>21.3</u>
435.gromacs	425	16.8	427	16.7	<u>427</u>	<u>16.7</u>	418	17.1	423	16.9	<u>421</u>	<u>16.9</u>
436.cactusADM	<u>40.2</u>	<u>297</u>	40.4	296	39.8	300	39.2	305	38.0	315	<u>38.6</u>	<u>310</u>
437.leslie3d	410	22.9	419	22.5	<u>412</u>	<u>22.8</u>	410	22.9	419	22.5	<u>412</u>	<u>22.8</u>
444.namd	562	14.3	562	14.3	<u>562</u>	<u>14.3</u>	562	14.3	562	14.3	<u>562</u>	<u>14.3</u>
447.dealII	425	26.9	<u>425</u>	<u>26.9</u>	425	26.9	425	26.9	<u>425</u>	<u>26.9</u>	425	26.9
450.soplex	393	21.2	<u>393</u>	<u>21.2</u>	391	21.3	387	21.6	388	21.5	<u>388</u>	<u>21.5</u>
453.povray	254	20.9	271	19.6	<u>255</u>	<u>20.8</u>	<u>194</u>	<u>27.4</u>	193	27.5	195	27.3
454.calculix	428	19.3	423	19.5	<u>425</u>	<u>19.4</u>	385	21.4	<u>385</u>	<u>21.4</u>	385	21.5
459.GemsFDTD	244	43.5	<u>244</u>	<u>43.4</u>	246	43.2	<u>147</u>	<u>72.1</u>	147	72.4	149	71.2
465.tonto	577	17.1	573	17.2	<u>576</u>	<u>17.1</u>	412	23.9	<u>412</u>	<u>23.9</u>	413	23.9
470.lbm	209	65.8	208	65.9	<u>209</u>	<u>65.9</u>	207	66.4	208	66.0	<u>208</u>	<u>66.2</u>
481.wrf	418	26.7	<u>424</u>	<u>26.4</u>	427	26.1	<u>376</u>	<u>29.7</u>	374	29.9	376	29.7
482.sphinx3	602	32.4	<u>603</u>	<u>32.3</u>	603	32.3	<u>602</u>	<u>32.4</u>	<u>603</u>	<u>32.3</u>	603	32.3

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

Platform Notes

Turbo Boost set to Traditional
Demand Scrub disabled

General Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run



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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.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:

-xSSE4.2 -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: basepeak = yes

C++ benchmarks:

444.namd: basepeak = yes

447.dealII: basepeak = yes

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

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:

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Peak Optimization Flags (Continued)

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.20100330.03.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.20100330.03.xml>



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Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 07:09:05 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 May 2010.