



SPEC® CFP2006 Result

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IBM Corporation

SPECfp®2006 = 42.7

IBM BladeCenter HS22V (Intel Xeon X5650)

SPECfp_base2006 = 40.1

CPU2006 license: 11

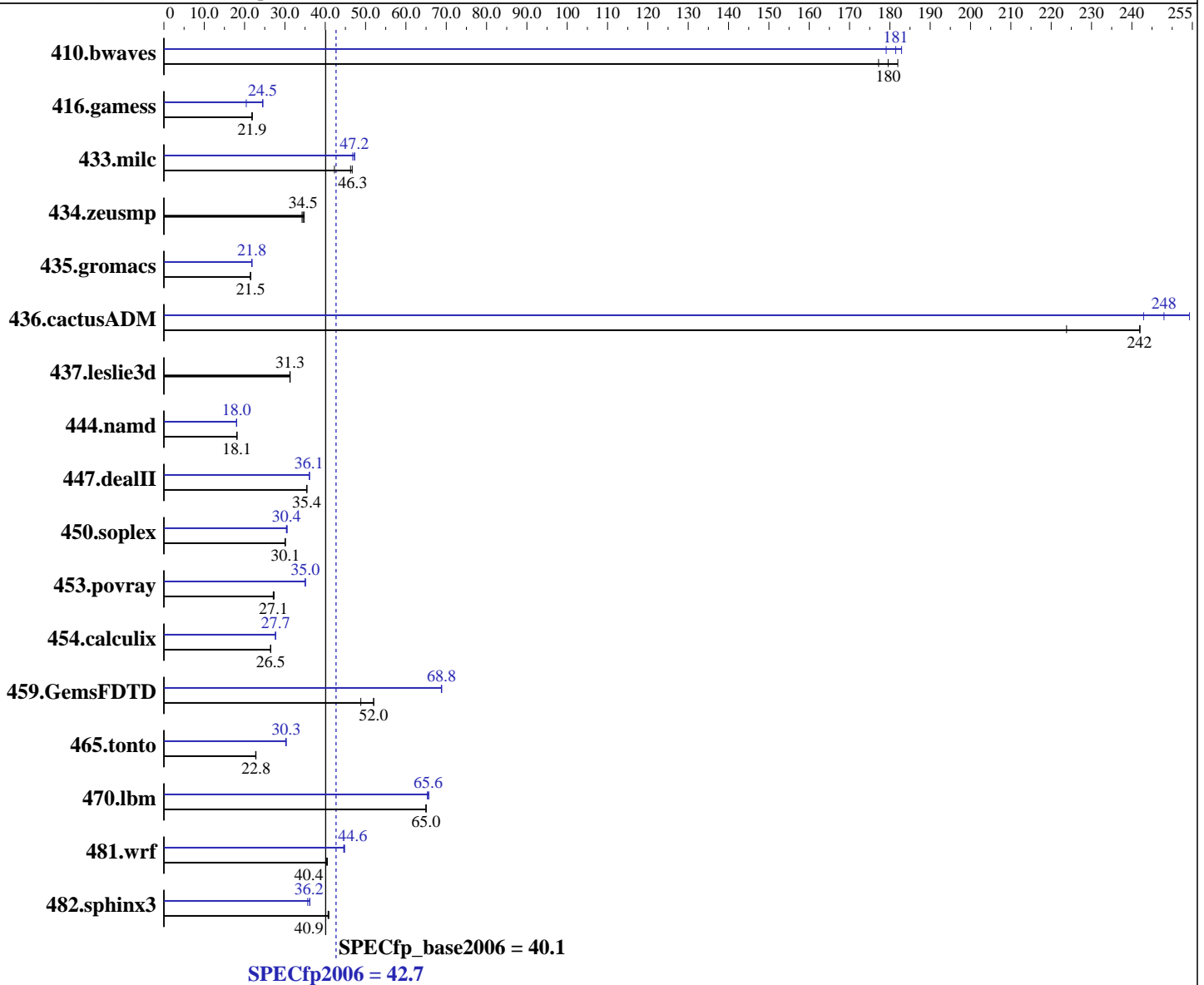
Test date: Apr-2010

Test sponsor: IBM Corporation

Hardware Availability: Mar-2010

Tested by: IBM Corporation

Software Availability: Jan-2010



Hardware

CPU Name: Intel Xeon X5650
 CPU Characteristics: Intel Turbo Boost Technology up to 3.06 GHz
 CPU MHz: 2667
 FPU: Integrated
 CPU(s) enabled: 12 cores, 2 chips, 6 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: 12 MB I+D on chip per chip
Other Cache: None
Memory: 24 GB (12 x 2 GB PC3-10600R, 2 Rank)
Disk Subsystem: 2 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	76.7	177	<u>75.7</u>	<u>180</u>	74.7	182	74.3	183	75.9	179	<u>74.9</u>	<u>181</u>
416.gamess	897	21.8	893	21.9	<u>896</u>	<u>21.9</u>	959	20.4	797	24.6	<u>801</u>	<u>24.5</u>
433.milc	<u>198</u>	<u>46.3</u>	197	46.7	217	42.3	194	47.3	<u>194</u>	<u>47.2</u>	196	46.8
434.zeusmp	261	34.8	<u>264</u>	<u>34.5</u>	266	34.2	261	34.8	<u>264</u>	<u>34.5</u>	266	34.2
435.gromacs	<u>332</u>	<u>21.5</u>	333	21.4	331	21.6	<u>328</u>	<u>21.8</u>	327	21.9	328	21.8
436.cactusADM	<u>49.4</u>	<u>242</u>	49.4	242	53.4	224	49.2	243	<u>48.2</u>	<u>248</u>	47.0	254
437.leslie3d	<u>301</u>	<u>31.3</u>	301	31.2	300	31.3	<u>301</u>	<u>31.3</u>	301	31.2	300	31.3
444.namd	442	18.1	443	18.1	<u>443</u>	<u>18.1</u>	446	18.0	444	18.0	<u>445</u>	<u>18.0</u>
447.dealII	<u>323</u>	<u>35.4</u>	323	35.4	322	35.5	<u>317</u>	<u>36.1</u>	317	36.1	317	36.1
450.soplex	<u>277</u>	<u>30.1</u>	278	30.0	277	30.1	<u>274</u>	<u>30.4</u>	275	30.4	273	30.6
453.povray	196	27.1	195	27.3	<u>196</u>	<u>27.1</u>	152	35.0	152	35.1	<u>152</u>	<u>35.0</u>
454.calculix	312	26.5	<u>312</u>	<u>26.5</u>	312	26.5	298	27.7	<u>298</u>	<u>27.7</u>	298	27.7
459.GemsFDTD	217	48.8	204	52.0	<u>204</u>	<u>52.0</u>	154	68.9	<u>154</u>	<u>68.8</u>	154	68.8
465.tonto	431	22.8	<u>431</u>	<u>22.8</u>	433	22.7	326	30.2	<u>325</u>	<u>30.3</u>	324	30.3
470.lbm	<u>211</u>	<u>65.0</u>	211	65.0	212	65.0	210	65.3	<u>210</u>	<u>65.6</u>	209	65.7
481.wrf	275	40.5	<u>276</u>	<u>40.4</u>	277	40.3	249	44.8	<u>250</u>	<u>44.6</u>	250	44.6
482.sphinx3	<u>477</u>	<u>40.9</u>	479	40.7	477	40.9	<u>539</u>	<u>36.2</u>	547	35.6	539	36.2

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

Platform Notes

Turbo Mode enabled
Turbo Boost set to Traditional
Power C-states enabled
Demand Scrub disabled

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.20100330.03.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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