



# SPEC® CFP2006 Result

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## IBM Corporation

SPECfp®2006 = 48.7

## IBM BladeCenter HS22 (Intel Xeon X5677)

SPECfp\_base2006 = 45.4

CPU2006 license: 11

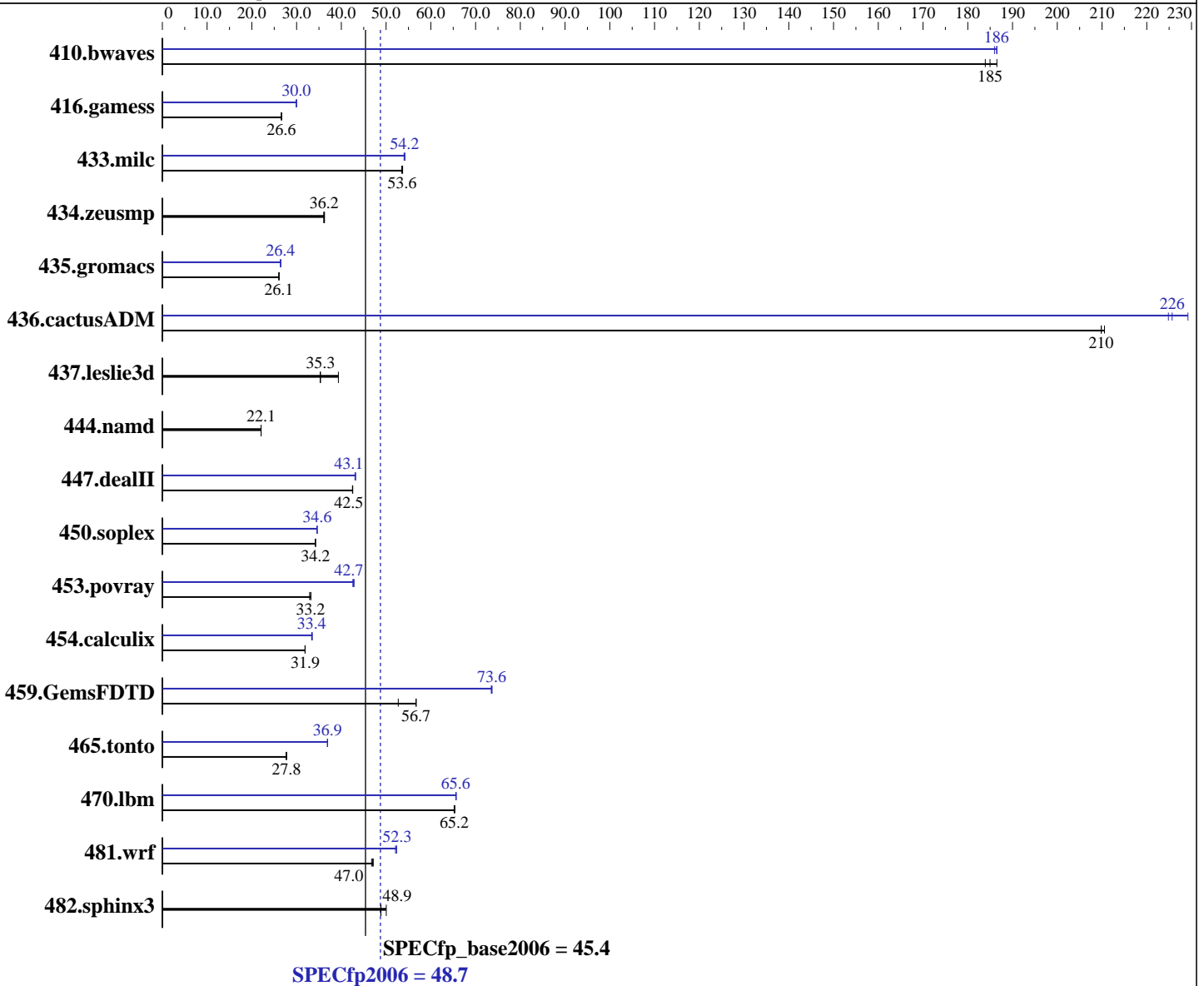
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: May-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon X5677  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.73 GHz  
 CPU MHz: 3467  
 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: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 24 GB (12 x 2 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	<b><u>73.5</u></b>	<b><u>185</u></b>	72.9	187	73.9	184	72.9	187	<b><u>72.9</u></b>	<b><u>186</u></b>	73.1	186
416.gamess	735	26.6	<b><u>735</u></b>	<b><u>26.6</u></b>	737	26.6	654	29.9	653	30.0	<b><u>654</u></b>	<b><u>30.0</u></b>
433.milc	172	53.5	<b><u>171</u></b>	<b><u>53.6</u></b>	171	53.7	170	54.0	169	54.2	<b><u>169</u></b>	<b><u>54.2</u></b>
434.zeusmp	<b><u>252</u></b>	<b><u>36.2</u></b>	252	36.1	251	36.2	<b><u>252</u></b>	<b><u>36.2</u></b>	252	36.1	251	36.2
435.gromacs	274	26.1	274	26.0	<b><u>274</u></b>	<b><u>26.1</u></b>	270	26.5	271	26.4	<b><u>270</u></b>	<b><u>26.4</u></b>
436.cactusADM	56.8	211	<b><u>56.9</u></b>	<b><u>210</u></b>	57.0	210	53.2	225	52.1	229	<b><u>53.0</u></b>	<b><u>226</u></b>
437.leslie3d	267	35.3	<b><u>266</u></b>	<b><u>35.3</u></b>	239	39.3	267	35.3	<b><u>266</u></b>	<b><u>35.3</u></b>	239	39.3
444.namd	364	22.1	<b><u>364</u></b>	<b><u>22.1</u></b>	363	22.1	364	22.1	<b><u>364</u></b>	<b><u>22.1</u></b>	363	22.1
447.dealII	269	42.6	<b><u>269</u></b>	<b><u>42.5</u></b>	269	42.5	<b><u>265</u></b>	<b><u>43.1</u></b>	265	43.2	266	43.0
450.soplex	244	34.2	<b><u>244</u></b>	<b><u>34.2</u></b>	244	34.2	242	34.5	<b><u>241</u></b>	<b><u>34.6</u></b>	241	34.6
453.povray	<b><u>160</u></b>	<b><u>33.2</u></b>	160	33.2	162	32.9	125	42.6	<b><u>124</u></b>	<b><u>42.7</u></b>	124	42.8
454.calculix	<b><u>258</u></b>	<b><u>31.9</u></b>	259	31.9	258	31.9	246	33.5	247	33.4	<b><u>247</u></b>	<b><u>33.4</u></b>
459.GemsFDTD	187	56.7	<b><u>187</u></b>	<b><u>56.7</u></b>	201	52.7	144	73.5	144	73.7	<b><u>144</u></b>	<b><u>73.6</u></b>
465.tonto	355	27.8	<b><u>355</u></b>	<b><u>27.8</u></b>	356	27.6	267	36.9	<b><u>267</u></b>	<b><u>36.9</u></b>	266	36.9
470.lbm	210	65.4	<b><u>211</u></b>	<b><u>65.2</u></b>	211	65.2	209	65.7	209	65.6	<b><u>209</u></b>	<b><u>65.6</u></b>
481.wrf	<b><u>238</u></b>	<b><u>47.0</u></b>	239	46.8	237	47.1	213	52.3	214	52.1	<b><u>213</u></b>	<b><u>52.3</u></b>
482.sphinx3	390	50.0	<b><u>399</u></b>	<b><u>48.9</u></b>	399	48.8	390	50.0	<b><u>399</u></b>	<b><u>48.9</u></b>	399	48.8

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  
Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502



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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: -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

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

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## Peak Optimization Flags (Continued)

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.20100603.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.20100603.xml>



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