



# SPEC® CFP2006 Result

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## IBM Corporation

SPECfp®2006 = 46.4

### IBM BladeCenter HS22V (Intel Xeon X5667)

SPECfp\_base2006 = 43.7

CPU2006 license: 11

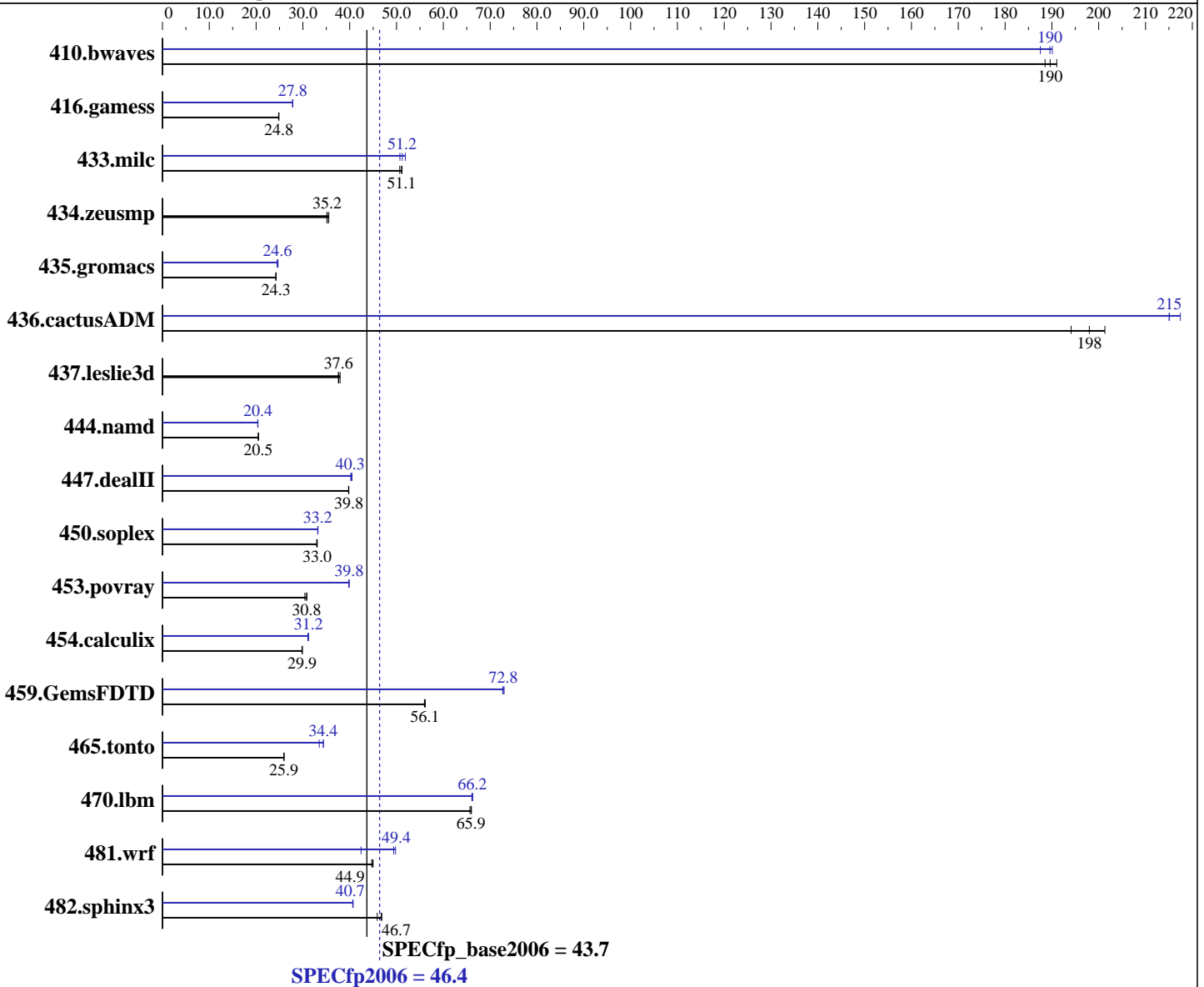
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Mar-2010

Hardware Availability: Mar-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon X5667  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.46 GHz  
 CPU MHz: 3067  
 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, 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	71.1	191	72.1	189	<b><u>71.7</u></b>	<b><u>190</u></b>	<b><u>71.7</u></b>	<b><u>190</u></b>	71.5	190	72.5	188
416.gamess	787	24.9	789	24.8	<b><u>788</u></b>	<b><u>24.8</u></b>	<b><u>704</u></b>	<b><u>27.8</u></b>	703	27.8	705	27.8
433.milc	<b><u>180</u></b>	<b><u>51.1</u></b>	181	50.7	179	51.2	181	50.7	<b><u>179</u></b>	<b><u>51.2</u></b>	177	51.9
434.zeusmp	256	35.5	<b><u>258</u></b>	<b><u>35.2</u></b>	259	35.1	256	35.5	<b><u>258</u></b>	<b><u>35.2</u></b>	259	35.1
435.gromacs	295	24.2	294	24.3	<b><u>294</u></b>	<b><u>24.3</u></b>	<b><u>291</u></b>	<b><u>24.6</u></b>	292	24.5	289	24.7
436.cactusADM	59.4	201	61.6	194	<b><u>60.4</u></b>	<b><u>198</u></b>	55.6	215	55.0	217	<b><u>55.6</u></b>	<b><u>215</u></b>
437.leslie3d	248	37.9	<b><u>250</u></b>	<b><u>37.6</u></b>	250	37.6	248	37.9	<b><u>250</u></b>	<b><u>37.6</u></b>	250	37.6
444.namd	<b><u>391</u></b>	<b><u>20.5</u></b>	391	20.5	391	20.5	<b><u>393</u></b>	<b><u>20.4</u></b>	394	20.3	393	20.4
447.dealII	287	39.8	288	39.8	<b><u>288</u></b>	<b><u>39.8</u></b>	283	40.5	<b><u>284</u></b>	<b><u>40.3</u></b>	284	40.3
450.soplex	<b><u>252</u></b>	<b><u>33.0</u></b>	253	32.9	252	33.1	251	33.2	<b><u>251</u></b>	<b><u>33.2</u></b>	251	33.2
453.povray	172	30.8	175	30.4	<b><u>173</u></b>	<b><u>30.8</u></b>	134	39.8	133	39.9	<b><u>134</u></b>	<b><u>39.8</u></b>
454.calculix	277	29.8	276	29.9	<b><u>276</u></b>	<b><u>29.9</u></b>	264	31.2	266	31.1	<b><u>265</u></b>	<b><u>31.2</u></b>
459.GemsFDTD	189	56.1	<b><u>189</u></b>	<b><u>56.1</u></b>	190	56.0	146	72.7	145	73.0	<b><u>146</u></b>	<b><u>72.8</u></b>
465.tonto	380	25.9	379	26.0	<b><u>379</u></b>	<b><u>25.9</u></b>	286	34.4	294	33.5	<b><u>286</u></b>	<b><u>34.4</u></b>
470.lbm	209	65.7	208	66.0	<b><u>208</u></b>	<b><u>65.9</u></b>	<b><u>208</u></b>	<b><u>66.2</u></b>	208	66.1	207	66.3
481.wrf	248	45.0	250	44.7	<b><u>249</u></b>	<b><u>44.9</u></b>	263	42.4	<b><u>226</u></b>	<b><u>49.4</u></b>	224	49.8
482.sphinx3	416	46.9	<b><u>417</u></b>	<b><u>46.7</u></b>	425	45.9	<b><u>479</u></b>	<b><u>40.7</u></b>	480	40.6	479	40.7

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-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.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 06:57:41 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 11 May 2010.