



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

### SPECfp®\_rate2006 = 244

### IBM System x3650 M3 (Intel Xeon X5670)

### SPECfp\_rate\_base2006 = 235

CPU2006 license: 11

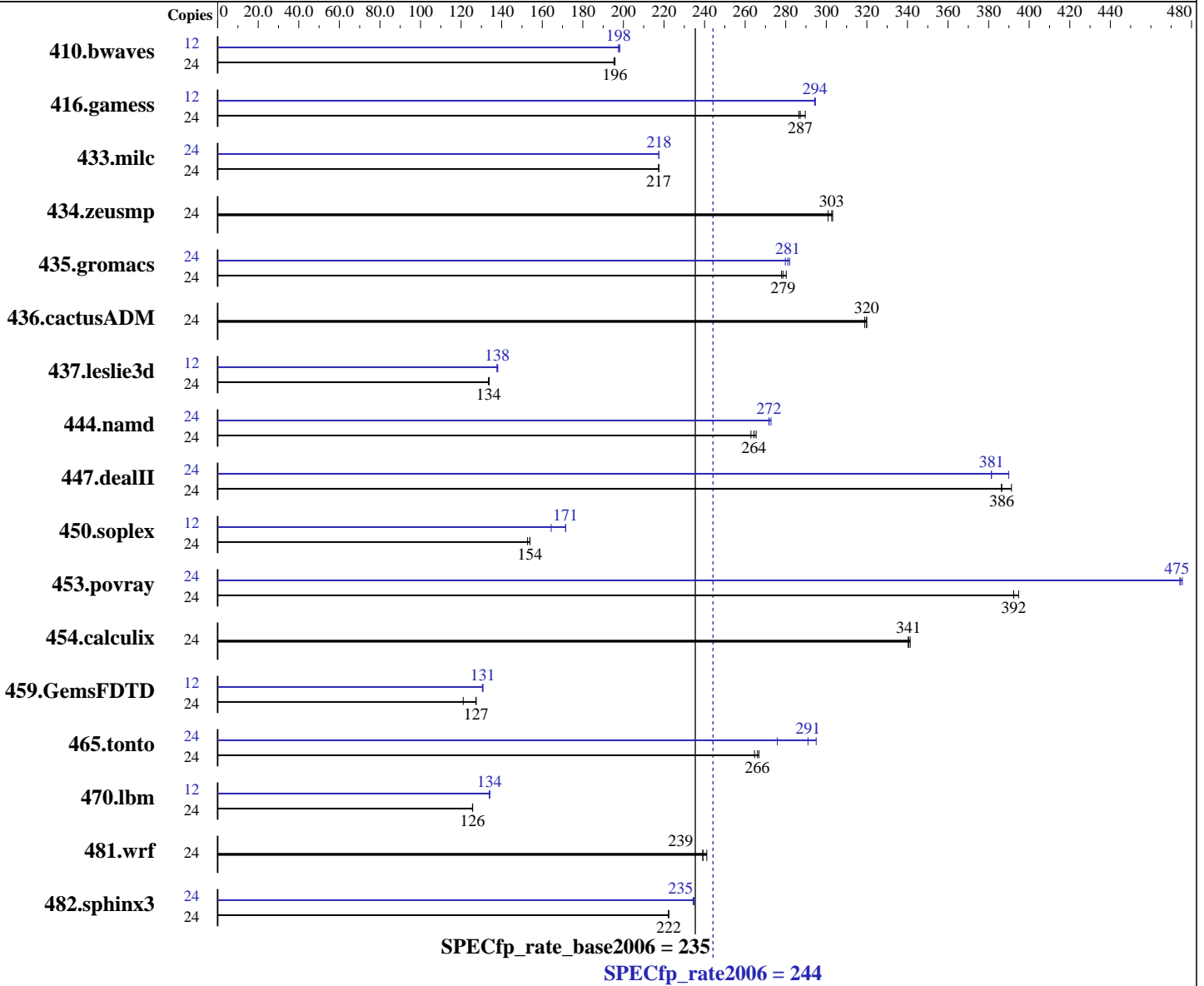
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: May-2010

Hardware Availability: Jun-2010

Software Availability: Jan-2010



#### Hardware

CPU Name: Intel Xeon X5670  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.33 GHz  
 CPU MHz: 2933  
 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

Continued on next page

#### 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: No  
 File System: ext3  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

SPECfp\_rate2006 = 244

## IBM System x3650 M3 (Intel Xeon X5670)

SPECfp\_rate\_base2006 = 235

CPU2006 license: 11

Test date: May-2010

Test sponsor: IBM Corporation

Hardware Availability: Jun-2010

Tested by: IBM Corporation

Software Availability: Jan-2010

L3 Cache: 12 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 48 GB (12 x 4 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: Noe

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1670	195	<b><u>1666</u></b>	<b><u>196</u></b>	1665	196	12	<b><u>825</u></b>	<b><u>198</u></b>	823	198	825	198
416.gamess	24	<b><u>1636</u></b>	<b><u>287</u></b>	1622	290	1640	287	12	799	294	797	295	<b><u>798</u></b>	<b><u>294</u></b>
433.milc	24	<b><u>1013</u></b>	<b><u>217</u></b>	1013	217	1014	217	24	<b><u>1013</u></b>	<b><u>218</u></b>	1013	218	1013	217
434.zeusmp	24	<b><u>722</u></b>	<b><u>303</u></b>	726	301	721	303	24	<b><u>722</u></b>	<b><u>303</u></b>	726	301	721	303
435.gromacs	24	611	280	617	278	<b><u>615</u></b>	<b><u>279</u></b>	24	608	282	612	280	<b><u>610</u></b>	<b><u>281</u></b>
436.cactusADM	24	897	320	<b><u>897</u></b>	<b><u>320</u></b>	899	319	24	897	320	<b><u>897</u></b>	<b><u>320</u></b>	899	319
437.leslie3d	24	1685	134	1689	134	<b><u>1689</u></b>	<b><u>134</u></b>	12	819	138	<b><u>819</u></b>	<b><u>138</u></b>	817	138
444.namd	24	725	265	732	263	<b><u>728</u></b>	<b><u>264</u></b>	24	<b><u>708</u></b>	<b><u>272</u></b>	708	272	706	273
447.dealII	24	<b><u>710</u></b>	<b><u>386</u></b>	711	386	702	391	24	704	390	<b><u>720</u></b>	<b><u>381</u></b>	720	381
450.soplex	24	1310	153	1301	154	<b><u>1301</u></b>	<b><u>154</u></b>	12	609	164	<b><u>584</u></b>	<b><u>171</u></b>	583	172
453.povray	24	323	395	<b><u>325</u></b>	<b><u>392</u></b>	325	392	24	<b><u>269</u></b>	<b><u>475</u></b>	269	475	269	474
454.calculix	24	<b><u>581</u></b>	<b><u>341</u></b>	580	341	582	340	24	<b><u>581</u></b>	<b><u>341</u></b>	580	341	582	340
459.GemsFDTD	24	2104	121	<b><u>1999</u></b>	<b><u>127</u></b>	1999	127	12	<b><u>974</u></b>	<b><u>131</u></b>	974	131	976	130
465.tonto	24	892	265	885	267	<b><u>888</u></b>	<b><u>266</u></b>	24	800	295	856	276	<b><u>812</u></b>	<b><u>291</u></b>
470.lbm	24	2623	126	<b><u>2625</u></b>	<b><u>126</u></b>	2626	126	12	1229	134	1231	134	<b><u>1230</u></b>	<b><u>134</u></b>
481.wrf	24	1112	241	<b><u>1121</u></b>	<b><u>239</u></b>	1121	239	24	1112	241	<b><u>1121</u></b>	<b><u>239</u></b>	1121	239
482.sphinx3	24	2106	222	<b><u>2103</u></b>	<b><u>222</u></b>	2103	222	24	1992	235	1996	234	<b><u>1994</u></b>	<b><u>235</u></b>

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

## Submit Notes

The config file option 'submit' was used.  
numactl was used to bind copies to the cores

## Platform Notes

Turbo Mode Enable  
Turbo Boost set to Traditional  
CPU C State Enable  
Data Reuse Disable



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 244

IBM System x3650 M3 (Intel Xeon X5670)

SPECfp\_rate\_base2006 = 235

CPU2006 license: 11

Test date: May-2010

Test sponsor: IBM Corporation

Hardware Availability: Jun-2010

Tested by: IBM Corporation

Software Availability: Jan-2010

## General Notes

Binaries were compiled on SLES 10 with Binutils 2.18.50.0.7.20080502  
'ulimit -s unlimited' was used to set the stack size to unlimited prior to run

## 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

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 244

IBM System x3650 M3 (Intel Xeon X5670)

SPECfp\_rate\_base2006 = 235

CPU2006 license: 11

Test date: May-2010

Test sponsor: IBM Corporation

Hardware Availability: Jun-2010

Tested by: IBM Corporation

Software Availability: Jan-2010

## Base Optimization Flags (Continued)

Fortran benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static

Benchmarks using both Fortran and C:

-xSSE4.2 -ipo -O3 -no-prec-div -static

## Peak Compiler Invocation

C benchmarks (except as noted below):

icc -m64

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc -m64

450.soplex: icpc -m32

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

## Peak 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  
 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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 244

IBM System x3650 M3 (Intel Xeon X5670)

SPECfp\_rate\_base2006 = 235

CPU2006 license: 11

Test date: May-2010

Test sponsor: IBM Corporation

Hardware Availability: Jun-2010

Tested by: IBM Corporation

Software Availability: Jan-2010

## 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)  
-fno-alias -opt-prefetch

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)  
-opt-malloc-options=3 -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -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.dealIII: -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-

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

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

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: -xSSE4.2 -ipo -O3 -no-prec-div -static

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

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)  
-unroll4 -auto -inline-calloc -opt-malloc-options=3

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 244

IBM System x3650 M3 (Intel Xeon X5670)

SPECfp\_rate\_base2006 = 235

CPU2006 license: 11

Test date: May-2010

Test sponsor: IBM Corporation

Hardware Availability: Jun-2010

Tested by: IBM Corporation

Software Availability: Jan-2010

## Peak Optimization Flags (Continued)

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: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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.20100601.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.20100601.xml>

SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 08:36:55 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 18 June 2010.