



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

### SPECfp®\_rate2006 = 218

### IBM System x3400 M3 (Intel Xeon E5649)

### SPECfp\_rate\_base2006 = 212

CPU2006 license: 11

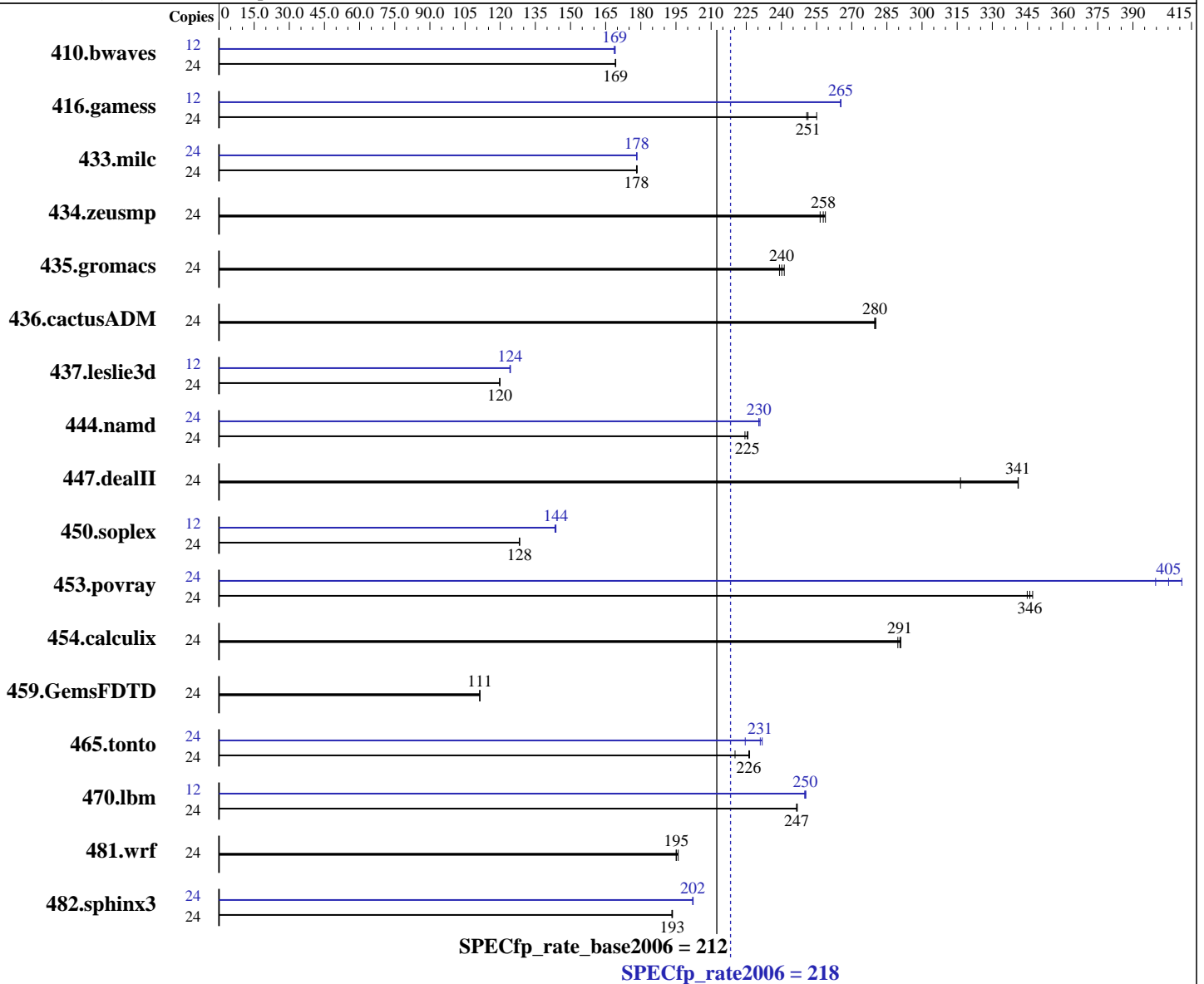
Test date: Mar-2011

Test sponsor: IBM Corporation

Hardware Availability: Feb-2011

Tested by: IBM Corporation

Software Availability: Jan-2011



#### Hardware

CPU Name: Intel Xeon E5649  
 CPU Characteristics: Intel Turbo Boost Technology up to 2.93 GHz  
 CPU MHz: 2533  
 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

Continued on next page

#### Software

Operating System: SUSE Linux Enterprise Server 11 SP1 (x86\_64), Kernel 2.6.32.12-0.7-default  
 Compiler: Intel C++ and Fortran Intel 64 Compiler XE for applications running on Intel 64 Version 12.0.1.116 Build 20101116  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## IBM Corporation

SPECfp\_rate2006 = 218

## IBM System x3400 M3 (Intel Xeon E5649)

SPECfp\_rate\_base2006 = 212

CPU2006 license: 11

Test date: Mar-2011

Test sponsor: IBM Corporation

Hardware Availability: Feb-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

L3 Cache: 12 MB I+D on chip per chip  
Other Cache: None  
Memory: 96 GB (12 x 8 GB 2Rx4 PC3-10600R-9, ECC)  
Disk Subsystem: 1 x 146 GB SAS, 15000 RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: None

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	24	1928	169	1926	169	<b>1928</b>	<b>169</b>	12	967	169	<b>966</b>	<b>169</b>	964	169
416.gamess	24	1842	255	<b>1870</b>	<b>251</b>	1874	251	12	<b>886</b>	<b>265</b>	886	265	885	265
433.milc	24	<b>1237</b>	<b>178</b>	1235	178	1237	178	24	<b>1236</b>	<b>178</b>	1236	178	1236	178
434.zeusmp	24	<b>847</b>	<b>258</b>	844	259	851	257	24	<b>847</b>	<b>258</b>	844	259	851	257
435.gromacs	24	710	241	<b>714</b>	<b>240</b>	716	239	24	710	241	<b>714</b>	<b>240</b>	716	239
436.cactusADM	24	1025	280	1023	280	<b>1025</b>	<b>280</b>	24	1025	280	1023	280	<b>1025</b>	<b>280</b>
437.leslie3d	24	1884	120	1882	120	<b>1883</b>	<b>120</b>	12	907	124	909	124	<b>908</b>	<b>124</b>
444.namd	24	<b>854</b>	<b>225</b>	853	226	858	224	24	<b>835</b>	<b>230</b>	836	230	834	231
447.dealII	24	868	316	805	341	<b>805</b>	<b>341</b>	24	868	316	805	341	<b>805</b>	<b>341</b>
450.soplex	24	<b>1561</b>	<b>128</b>	1560	128	1562	128	12	698	143	696	144	<b>696</b>	<b>144</b>
453.povray	24	370	345	368	347	<b>369</b>	<b>346</b>	24	<b>315</b>	<b>405</b>	319	400	311	411
454.calculix	24	681	291	<b>681</b>	<b>291</b>	684	290	24	681	291	<b>681</b>	<b>291</b>	684	290
459.GemsFDTD	24	2289	111	2287	111	<b>2287</b>	<b>111</b>	24	2289	111	2287	111	<b>2287</b>	<b>111</b>
465.tonto	24	<b>1045</b>	<b>226</b>	1072	220	1043	226	24	1019	232	<b>1022</b>	<b>231</b>	1052	225
470.lbm	24	1338	246	<b>1337</b>	<b>247</b>	1336	247	12	658	250	660	250	<b>659</b>	<b>250</b>
481.wrf	24	<b>1373</b>	<b>195</b>	1374	195	1368	196	24	<b>1373</b>	<b>195</b>	1374	195	1368	196
482.sphinx3	24	2420	193	<b>2419</b>	<b>193</b>	2417	194	24	2314	202	2312	202	<b>2313</b>	<b>202</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

## Operating System Notes

```
'ulimit -s unlimited' was used to set the stacksize to unlimited prior to run
'mount -t hugetlbfs nodev /mnt/hugepages' was used to enable large pages
echo 10800 > /proc/sys/vm/nr_hugepages
export HUGETLB_MORECORE=yes
export LD_PRELOAD=/usr/lib64/libhugetlbfs.so
```



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 218

IBM System x3400 M3 (Intel Xeon E5649)

SPECfp\_rate\_base2006 = 212

CPU2006 license: 11

Test date: Mar-2011

Test sponsor: IBM Corporation

Hardware Availability: Feb-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

## Platform Notes

Turbo Mode enabled in BIOS  
Turbo Boost set to Traditional in BIOS  
Power C-State enabled in BIOS  
Data Reuse disabled in BIOS  
Demand Scrub disabled in BIOS

## General Notes

Binaries compiled on RHEL5.5

## 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



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 218

IBM System x3400 M3 (Intel Xeon E5649)

SPECfp\_rate\_base2006 = 212

CPU2006 license: 11

Test date: Mar-2011

Test sponsor: IBM Corporation

Hardware Availability: Feb-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

## Base Optimization Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## 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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 218

IBM System x3400 M3 (Intel Xeon E5649)

SPECfp\_rate\_base2006 = 212

CPU2006 license: 11

Test date: Mar-2011

Test sponsor: IBM Corporation

Hardware Availability: Feb-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

## Peak Portability Flags (Continued)

470.lbm: -DSPEC\_CPU\_LP64

481.wrf: -DSPEC\_CPU\_LP64 -DSPEC\_CPU\_CASE\_FLAG -DSPEC\_CPU\_LINUX

## 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) -prof-use(pass 2) -static -auto-ilp32

470.lbm: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3  
-ansi-alias -opt-prefetch -static -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -fno-alias  
-auto-ilp32

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) -prof-use(pass 2) -opt-malloc-options=3  
-B /usr/share/libhugetlbfs/ -Wl,-hugetlbfs-link=BDT

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

Fortran benchmarks:

410.bwaves: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll2  
-inline-level=0 -scalar-rep- -static

434.zeusmp: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div  
-B /usr/share/libhugetlbfs/ -Wl,-melf\_x86\_64 -Wl,-hugetlbfs-link=BDT

459.GemsFDTD: basepeak = yes

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

IBM Corporation

SPECfp\_rate2006 = 218

IBM System x3400 M3 (Intel Xeon E5649)

SPECfp\_rate\_base2006 = 212

CPU2006 license: 11

Test date: Mar-2011

Test sponsor: IBM Corporation

Hardware Availability: Feb-2011

Tested by: IBM Corporation

Software Availability: Jan-2011

## Peak Optimization Flags (Continued)

```
465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -auto
-inline-calloc -opt-malloc-options=3
-B /usr/share/libhugetlbfs/ -Wl,-melf_x86_64 -Wl,-hugetlbfs-link=BDT
```

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.html>

<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.20110420.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12.0-linux64-revB.xml>

<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revA.20110420.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 19:47:10 2014 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 20 April 2011.

Standard Performance Evaluation Corporation

[info@spec.org](mailto:info@spec.org)

<http://www.spec.org/>

Page 6