



# SPEC® CFP2006 Result

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## IBM Corporation

**SPECfp®2006 = 51.9**

### IBM System x3100 M4 (Intel Core i3-2130)

**SPECfp\_base2006 = 50.9**

CPU2006 license: 11

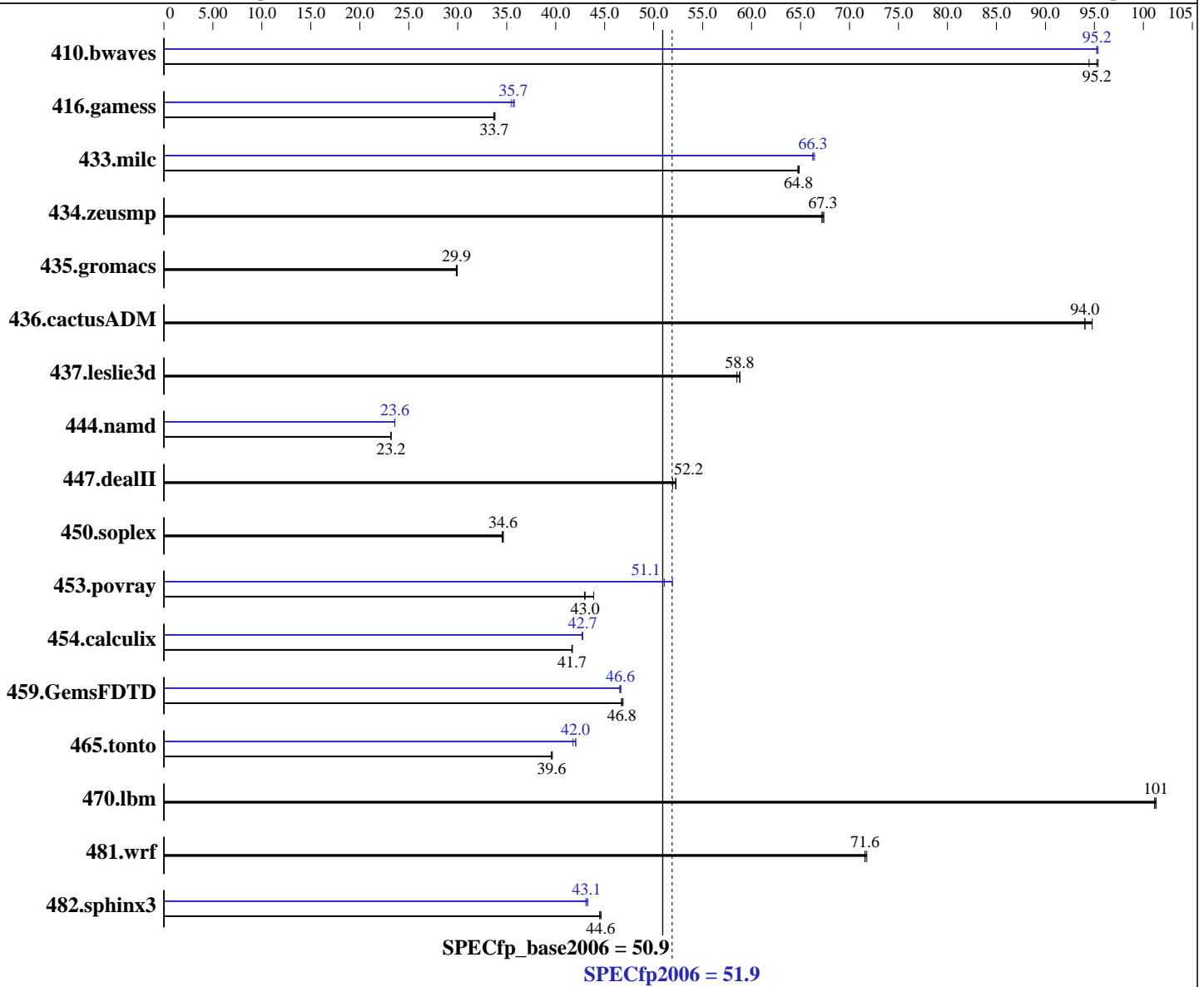
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Nov-2011

Hardware Availability: Oct-2011

Software Availability: Sep-2011



#### Hardware

CPU Name: Intel Core i3-2130  
 CPU Characteristics:  
 CPU MHz: 3400  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 chip  
 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: Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.el6.x86\_64  
 Compiler: C/C++/Fortran: Version 12.1.0.225 of Intel Compiler XE Build 20110803  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 3 MB I+D on chip per chip  
Other Cache: None  
Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC)  
Disk Subsystem: 1 x 250 GB SATA, 7200 RPM  
Other Hardware: None

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	144	94.5	142	95.4	<b>143</b>	<b>95.2</b>	143	95.2	142	95.4	<b>143</b>	<b>95.2</b>
416.gamess	<b>580</b>	<b>33.7</b>	579	33.8	581	33.7	<b>549</b>	<b>35.7</b>	552	35.4	547	35.8
433.milc	142	64.7	<b>142</b>	<b>64.8</b>	142	64.9	139	66.3	138	66.4	<b>139</b>	<b>66.3</b>
434.zeusmp	135	67.2	135	67.4	<b>135</b>	<b>67.3</b>	135	67.2	135	67.4	<b>135</b>	<b>67.3</b>
435.gromacs	238	30.0	<b>239</b>	<b>29.9</b>	239	29.9	238	30.0	<b>239</b>	<b>29.9</b>	239	29.9
436.cactusADM	<b>127</b>	<b>94.0</b>	126	94.8	127	94.0	<b>127</b>	<b>94.0</b>	126	94.8	127	94.0
437.leslie3d	160	58.8	161	58.5	<b>160</b>	<b>58.8</b>	160	58.8	161	58.5	<b>160</b>	<b>58.8</b>
444.namd	<b>346</b>	<b>23.2</b>	346	23.2	346	23.2	340	23.6	<b>340</b>	<b>23.6</b>	340	23.6
447.dealII	220	51.9	219	52.3	<b>219</b>	<b>52.2</b>	220	51.9	219	52.3	<b>219</b>	<b>52.2</b>
450.soplex	241	34.6	242	34.5	<b>241</b>	<b>34.6</b>	241	34.6	242	34.5	<b>241</b>	<b>34.6</b>
453.povray	121	43.9	124	42.9	<b>124</b>	<b>43.0</b>	102	51.9	<b>104</b>	<b>51.1</b>	104	51.1
454.calculix	<b>198</b>	<b>41.7</b>	198	41.7	198	41.7	<b>193</b>	<b>42.7</b>	193	42.8	193	42.7
459.GemsFDTD	<b>227</b>	<b>46.8</b>	226	46.9	227	46.7	<b>228</b>	<b>46.6</b>	228	46.5	227	46.7
465.tonto	249	39.6	248	39.7	<b>249</b>	<b>39.6</b>	234	42.0	236	41.8	<b>234</b>	<b>42.0</b>
470.lbm	136	101	<b>136</b>	<b>101</b>	136	101	136	101	<b>136</b>	<b>101</b>	136	101
481.wrf	156	71.6	<b>156</b>	<b>71.6</b>	156	71.8	156	71.6	<b>156</b>	<b>71.6</b>	156	71.8
482.sphinx3	<b>437</b>	<b>44.6</b>	438	44.5	437	44.6	450	43.3	<b>452</b>	<b>43.1</b>	452	43.1

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

## Platform Notes

BIOS Settings:  
C-State enabled in BIOS

## General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,scatter"

LD\_LIBRARY\_PATH = "/root/SPECcpu12.1/smartheap:/root/SPECcpu12.1/ic12.1-libs/ia32:/root/SPECcpu12.1/ic12.1-libs/intel64"

OMP\_NUM\_THREADS = "2"

Binaries compiled on a system with 1x Core i7-860 CPU + 8GB memory  
using RHEL5.5 with binutils-2.17.50.0.6-14.el5  
Stack size set to unlimited using "ulimit -s unlimited"  
Transparent Huge Pages enabled with:

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## General Notes (Continued)

```
echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1> /proc/sys/vm/drop_caches
```

## 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:

```
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch
-ansi-alias
```

C++ benchmarks:

```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias
```

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## Base Optimization Flags (Continued)

Fortran benchmarks:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:

-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch  
-ansi-alias

## 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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -static -auto-ilp32  
-ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias  
-parallel

C++ benchmarks:

444.namd: -xAVX(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

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## Peak Optimization Flags (Continued)

447.dealll: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -unroll4 -ansi-alias

### Fortran benchmarks:

410.bwaves: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel  
-static

416.gamess: -xAVX(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: basepeak = yes

459.GemsFDTD: -xAVX(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 -opt-prefetch -parallel

465.tonto: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)  
-no-prec-div(pass 2) -prof-use(pass 2) -inline-calloc  
-opt-malloc-options=3 -auto -unroll4

### Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: -xAVX -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias

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-ic12.1-linux64.html>

<http://www.spec.org/cpu2006/flags/IBM-platform-linux64-revB.20111220.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic12.1-linux64.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.1.  
Report generated on Thu Jul 24 00:40:54 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 20 December 2011.