



# SPEC® CFP2006 Result

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## IBM Corporation

SPECfp®2006 = 25.7

## IBM System x3550 M3 (Intel Xeon E5503)

SPECfp\_base2006 = 24.0

CPU2006 license: 11

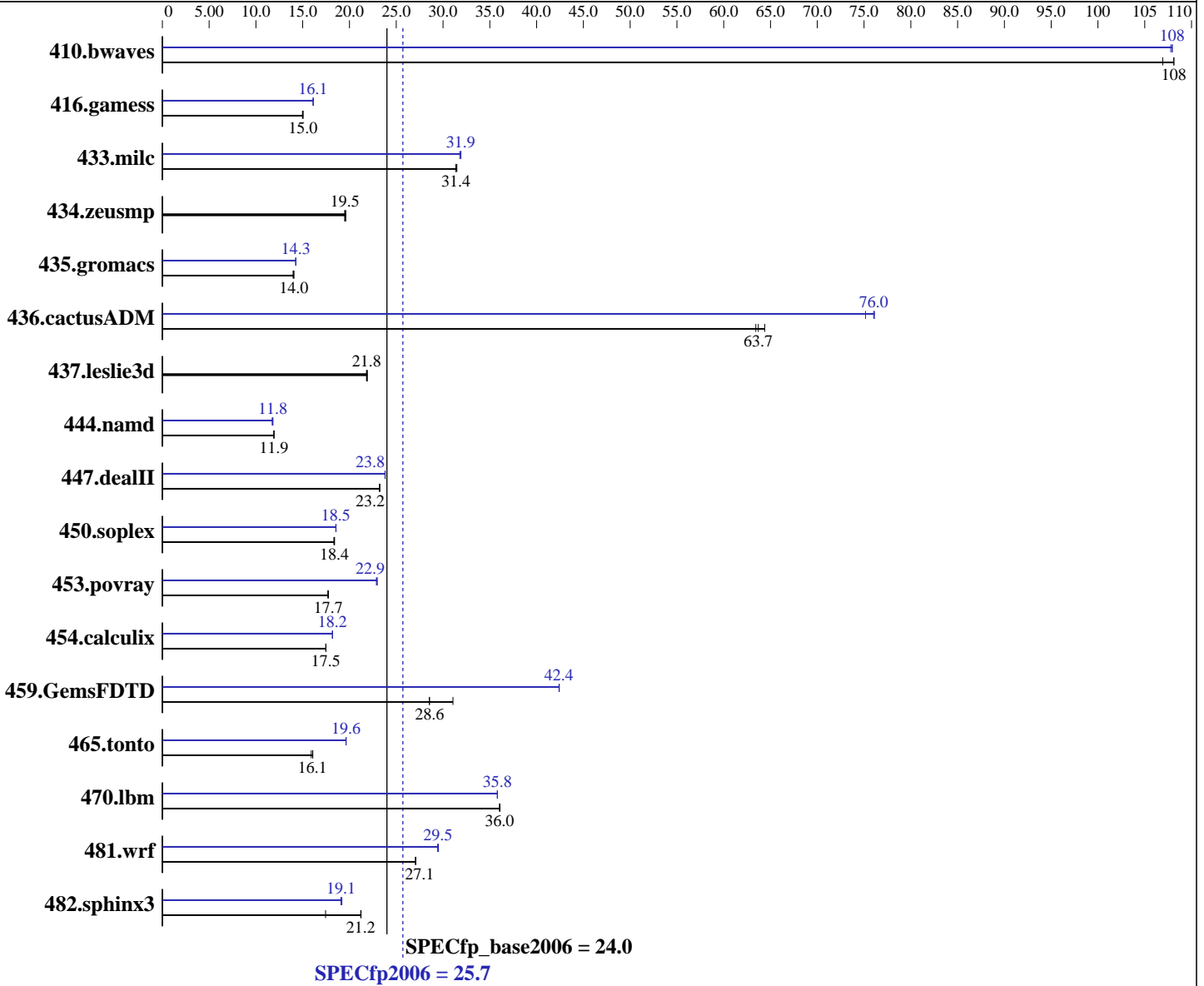
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Jun-2010

Hardware Availability: Jun-2010

Software Availability: Jan-2010



### Hardware

CPU Name: Intel Xeon E5503  
 CPU Characteristics:  
 CPU MHz: 2000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 2 chips, 2 cores/chip  
 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: 4 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: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	127	107	<b><u>126</u></b>	<b><u>108</u></b>	126	108	126	108	126	108	<b><u>126</u></b>	<b><u>108</u></b>
416.gamess	1308	15.0	1302	15.0	<b><u>1303</u></b>	<b><u>15.0</u></b>	<b><u>1215</u></b>	<b><u>16.1</u></b>	1214	16.1	1215	16.1
433.milc	293	31.4	<b><u>293</u></b>	<b><u>31.4</u></b>	292	31.5	289	31.8	288	31.9	<b><u>288</u></b>	<b><u>31.9</u></b>
434.zeusmp	464	19.6	<b><u>467</u></b>	<b><u>19.5</u></b>	467	19.5	464	19.6	<b><u>467</u></b>	<b><u>19.5</u></b>	467	19.5
435.gromacs	508	14.1	511	14.0	<b><u>508</u></b>	<b><u>14.0</u></b>	500	14.3	501	14.2	<b><u>500</u></b>	<b><u>14.3</u></b>
436.cactusADM	188	63.4	<b><u>188</u></b>	<b><u>63.7</u></b>	186	64.4	<b><u>157</u></b>	<b><u>76.0</u></b>	159	75.2	157	76.1
437.leslie3d	431	21.8	<b><u>430</u></b>	<b><u>21.8</u></b>	429	21.9	431	21.8	<b><u>430</u></b>	<b><u>21.8</u></b>	429	21.9
444.namd	673	11.9	<b><u>673</u></b>	<b><u>11.9</u></b>	672	11.9	683	11.7	679	11.8	<b><u>679</u></b>	<b><u>11.8</u></b>
447.dealII	492	23.2	493	23.2	<b><u>493</u></b>	<b><u>23.2</u></b>	481	23.8	<b><u>481</u></b>	<b><u>23.8</u></b>	480	23.8
450.soplex	453	18.4	<b><u>453</u></b>	<b><u>18.4</u></b>	455	18.3	449	18.6	450	18.5	<b><u>450</u></b>	<b><u>18.5</u></b>
453.povray	301	17.7	<b><u>300</u></b>	<b><u>17.7</u></b>	300	17.7	<b><u>232</u></b>	<b><u>22.9</u></b>	233	22.9	232	23.0
454.calculix	472	17.5	472	17.5	<b><u>472</u></b>	<b><u>17.5</u></b>	454	18.2	<b><u>454</u></b>	<b><u>18.2</u></b>	454	18.2
459.GemsFDTD	372	28.5	342	31.1	<b><u>372</u></b>	<b><u>28.6</u></b>	250	42.4	250	42.4	<b><u>250</u></b>	<b><u>42.4</u></b>
465.tonto	612	16.1	618	15.9	<b><u>613</u></b>	<b><u>16.1</u></b>	501	19.6	501	19.6	<b><u>501</u></b>	<b><u>19.6</u></b>
470.lbm	381	36.1	<b><u>381</u></b>	<b><u>36.0</u></b>	381	36.0	384	35.8	384	35.8	<b><u>384</u></b>	<b><u>35.8</u></b>
481.wrf	412	27.1	<b><u>413</u></b>	<b><u>27.1</u></b>	413	27.1	379	29.5	<b><u>379</u></b>	<b><u>29.5</u></b>	379	29.4
482.sphinx3	1117	17.4	<b><u>919</u></b>	<b><u>21.2</u></b>	918	21.2	1015	19.2	1021	19.1	<b><u>1021</u></b>	<b><u>19.1</u></b>

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

## Platform Notes

Turbo Mode Enable  
Turbo Boost set to Traditional  
CPU C State Enable

## 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  
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-calloc -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.20100804.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.20100804.xml>



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Tested with SPEC CPU2006 v1.1.  
Report generated on Wed Jul 23 10:37:35 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 3 August 2010.