



# SPEC<sup>®</sup> CFP2006 Result

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## IBM Corporation

### SPECfp<sup>®</sup>\_rate2006 = 84.2

### IBM System x3250 M3 (Intel Xeon X3450)

### SPECfp\_rate\_base2006 = 80.8

CPU2006 license: 11

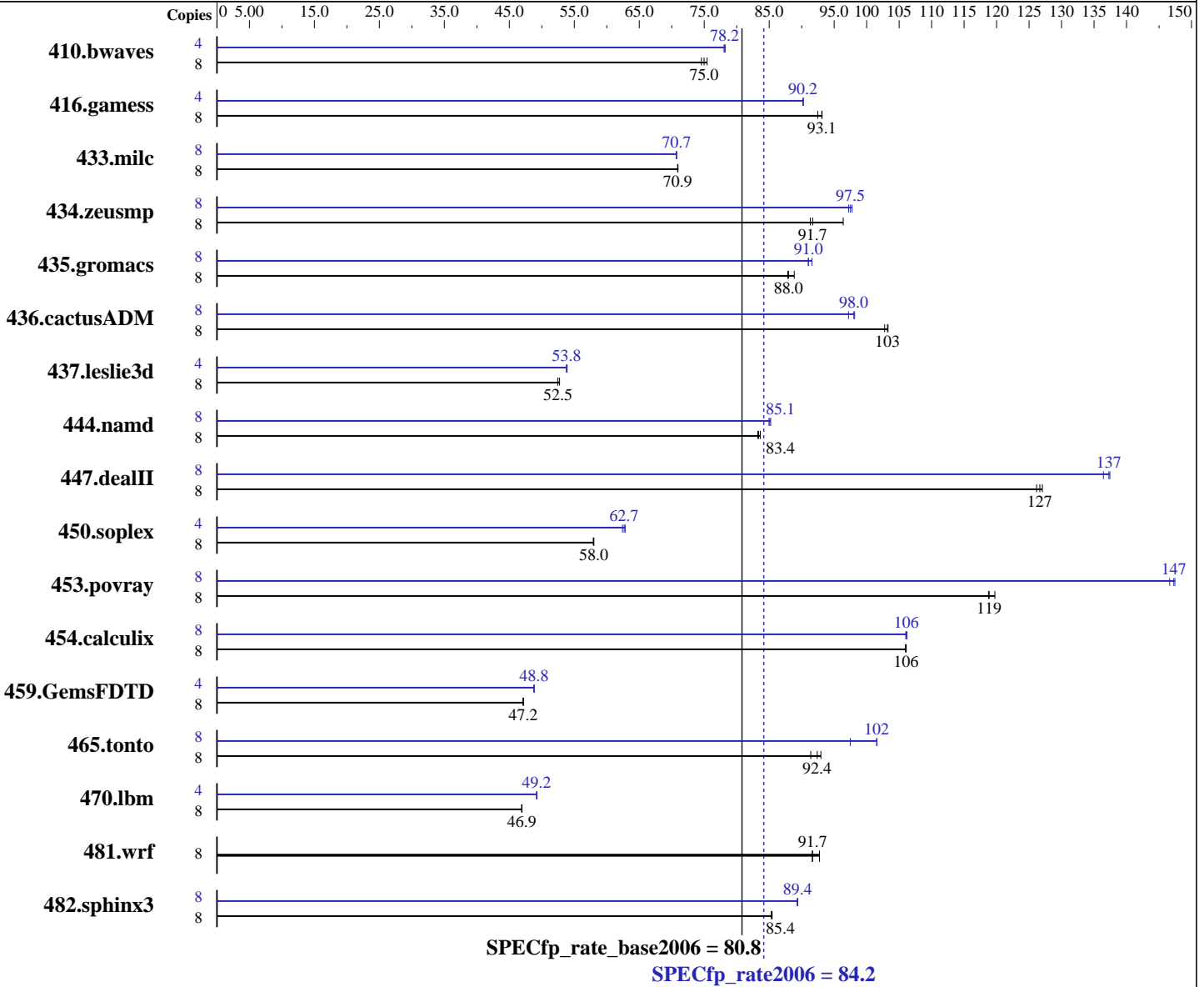
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Oct-2009

Hardware Availability: Oct-2009

Software Availability: Mar-2009



#### Hardware

CPU Name: Intel Xeon X3450  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.20 GHz  
 CPU MHz: 2667  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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: SuSE Linux Enterprise Server 11 (x86\_64), Kernel 2.6.27.19-5-default  
 Compiler: Intel C++ and Fortran Compiler 11.0 for Linux Build 20090131 Package ID: l\_cproc\_p\_11.0.080, l\_cprof\_p\_11.0.080  
 Auto Parallel: No  
 File System: ext3  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit

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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 16 GB (4 x 4 GB PC3-10600R)  
Disk Subsystem: 1 x 73 GB SAS, 15000RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	8	1458	74.6	<b><u>1450</u></b>	<b><u>75.0</u></b>	1441	75.4	4	697	78.0	<b><u>696</u></b>	<b><u>78.2</u></b>	695	78.2
416.gamess	8	1694	92.5	1682	93.1	<b><u>1683</u></b>	<b><u>93.1</u></b>	4	<b><u>868</u></b>	<b><u>90.2</u></b>	868	90.3	868	90.2
433.milc	8	<b><u>1035</u></b>	<b><u>70.9</u></b>	1035	71.0	1036	70.9	8	<b><u>1038</u></b>	<b><u>70.7</u></b>	1038	70.7	1038	70.7
434.zeusmp	8	797	91.3	755	96.4	<b><u>794</u></b>	<b><u>91.7</u></b>	8	749	97.2	<b><u>747</u></b>	<b><u>97.5</u></b>	745	97.8
435.gromacs	8	643	88.9	650	87.9	<b><u>649</u></b>	<b><u>88.0</u></b>	8	<b><u>627</u></b>	<b><u>91.0</u></b>	628	91.0	624	91.6
436.cactusADM	8	930	103	<b><u>926</u></b>	<b><u>103</u></b>	926	103	8	<b><u>975</u></b>	<b><u>98.0</u></b>	974	98.2	983	97.2
437.leslie3d	8	<b><u>1433</u></b>	<b><u>52.5</u></b>	1433	52.5	1426	52.7	4	699	53.8	<b><u>699</u></b>	<b><u>53.8</u></b>	698	53.9
444.namd	8	771	83.3	<b><u>769</u></b>	<b><u>83.4</u></b>	767	83.6	8	753	85.2	<b><u>754</u></b>	<b><u>85.1</u></b>	755	85.0
447.dealII	8	725	126	720	127	<b><u>723</u></b>	<b><u>127</u></b>	8	671	136	666	137	<b><u>667</u></b>	<b><u>137</u></b>
450.soplex	8	1152	57.9	<b><u>1150</u></b>	<b><u>58.0</u></b>	1150	58.0	4	<b><u>532</u></b>	<b><u>62.7</u></b>	531	62.8	534	62.4
453.povray	8	<b><u>358</u></b>	<b><u>119</u></b>	355	120	358	119	8	290	147	<b><u>289</u></b>	<b><u>147</u></b>	289	147
454.calculix	8	<b><u>622</u></b>	<b><u>106</u></b>	622	106	623	106	8	<b><u>622</u></b>	<b><u>106</u></b>	623	106	621	106
459.GemsFDTD	8	1802	47.1	1799	47.2	<b><u>1800</u></b>	<b><u>47.2</u></b>	4	<b><u>869</u></b>	<b><u>48.8</u></b>	870	48.8	869	48.8
465.tonto	8	861	91.4	847	93.0	<b><u>852</u></b>	<b><u>92.4</u></b>	8	808	97.5	775	102	<b><u>775</u></b>	<b><u>102</u></b>
470.lbm	8	2342	46.9	<b><u>2342</u></b>	<b><u>46.9</u></b>	2343	46.9	4	1116	49.2	<b><u>1117</u></b>	<b><u>49.2</u></b>	1117	49.2
481.wrf	8	964	92.7	975	91.6	<b><u>975</u></b>	<b><u>91.7</u></b>	8	964	92.7	975	91.6	<b><u>975</u></b>	<b><u>91.7</u></b>
482.sphinx3	8	<b><u>1826</u></b>	<b><u>85.4</u></b>	1827	85.3	1825	85.5	8	1746	89.3	1744	89.4	<b><u>1745</u></b>	<b><u>89.4</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

## General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run  
CPU C-States Enable and Adjacent Sector Prefetch Enable  
Turbo Mode Enable



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IBM System x3250 M3 (Intel Xeon X3450)

SPECfp\_rate\_base2006 = 80.8

CPU2006 license: 11

Test date: Oct-2009

Test sponsor: IBM Corporation

Hardware Availability: Oct-2009

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Software Availability: Mar-2009

## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icc ifort

## 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

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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



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## Peak Compiler Invocation

C benchmarks (except as noted below):

icc

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):

icpc

450.soplex: icpc -m32

Fortran benchmarks (except as noted below):

ifort

437.leslie3d: ifort -m32

Benchmarks using both Fortran and C:

icc ifort

## 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  
 444.namd: -DSPEC\_CPU\_LP64  
 447.deallI: -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

## 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

470.lbm: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch  
 -auto-ilp32

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## Peak Optimization Flags (Continued)

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.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-

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: -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)

437.leslie3d: -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 -opt-prefetch

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

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

### 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

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## Peak Optimization Flags (Continued)

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 -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

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-ic11.0-fp-linux64-revA.20091028.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20091028.xml>

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

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