



# SPEC® CFP2006 Result

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## IBM Corporation

### SPECfp®\_rate2006 = 119

### IBM BladeCenter HS22V (Intel Xeon L5609)

### SPECfp\_rate\_base2006 = 115

CPU2006 license: 11

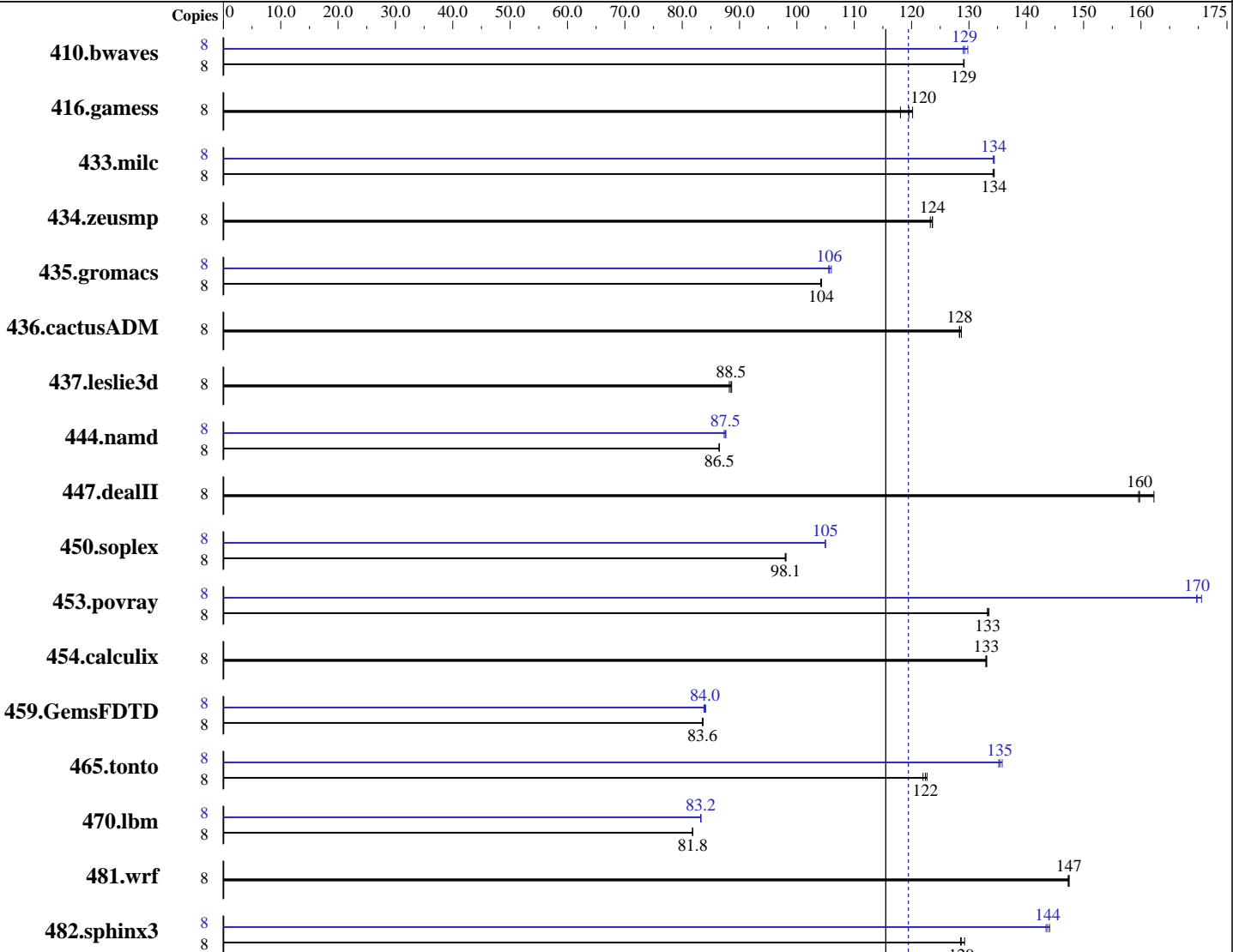
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Aug-2010

Hardware Availability: Sep-2010

Software Availability: Jan-2010



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#### Hardware

CPU Name: Intel Xeon L5609  
 CPU Characteristics:  
 CPU MHz: 1867  
 FPU: Integrated  
 CPU(s) enabled: 8 cores, 2 chips, 4 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: No  
 File System: ext3  
 System State: Run level 3 (multi-user)

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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, running at 1066 MHz)  
 Disk Subsystem: 2 x 50 GB SATA, SSD, RAID 0  
 Other Hardware: None

Base Pointers: 64-bit  
 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	8	842	129	<b>842</b>	<b>129</b>	842	129	8	838	130	843	129	<b>841</b>	<b>129</b>
416.gamess	8	1327	118	<b>1311</b>	<b>120</b>	1303	120	8	1327	118	<b>1311</b>	<b>120</b>	1303	120
433.milc	8	546	134	547	134	<b>547</b>	<b>134</b>	8	547	134	<b>547</b>	<b>134</b>	546	134
434.zeusmp	8	<b>589</b>	<b>124</b>	589	124	591	123	8	<b>589</b>	<b>124</b>	589	124	591	123
435.gromacs	8	548	104	548	104	<b>548</b>	<b>104</b>	8	<b>541</b>	<b>106</b>	539	106	541	106
436.cactusADM	8	745	128	<b>745</b>	<b>128</b>	743	129	8	745	128	<b>745</b>	<b>128</b>	743	129
437.leslie3d	8	<b>850</b>	<b>88.5</b>	849	88.6	852	88.2	8	<b>850</b>	<b>88.5</b>	849	88.6	852	88.2
444.namd	8	742	86.5	743	86.4	<b>742</b>	<b>86.5</b>	8	<b>733</b>	<b>87.5</b>	732	87.6	735	87.3
447.dealII	8	573	160	564	162	<b>573</b>	<b>160</b>	8	573	160	564	162	<b>573</b>	<b>160</b>
450.soplex	8	<b>680</b>	<b>98.1</b>	681	98.0	680	98.1	8	<b>636</b>	<b>105</b>	636	105	636	105
453.povray	8	319	133	319	133	<b>319</b>	<b>133</b>	8	250	171	<b>251</b>	<b>170</b>	251	170
454.calculix	8	496	133	<b>496</b>	<b>133</b>	496	133	8	496	133	<b>496</b>	<b>133</b>	496	133
459.GemsFDTD	8	1016	83.5	<b>1016</b>	<b>83.6</b>	1015	83.6	8	1009	84.1	1013	83.8	<b>1011</b>	<b>84.0</b>
465.tonto	8	<b>643</b>	<b>122</b>	645	122	642	123	8	<b>581</b>	<b>135</b>	580	136	582	135
470.lbm	8	1344	81.8	<b>1344</b>	<b>81.8</b>	1343	81.9	8	1321	83.2	1320	83.3	<b>1320</b>	<b>83.2</b>
481.wrf	8	<b>606</b>	<b>147</b>	606	147	607	147	8	<b>606</b>	<b>147</b>	606	147	607	147
482.sphinx3	8	1213	129	1206	129	<b>1212</b>	<b>129</b>	8	1082	144	1087	143	<b>1085</b>	<b>144</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

Power C-states enabled  
Demand Scrub disabled

### General Notes

'ulimit -s unlimited' was used to set the stack size to unlimited prior to run  
Binaries were compiled on SLES 10 with Binutils 2.18.50.50.0.7.20080502



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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

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 -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

## 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

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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.deallI: basepeak = yes

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: basepeak = yes

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

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

### 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



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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.20100603.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.20100603.xml>

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