



# SPEC® CFP2006 Result

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## IBM Corporation

### SPECfp®\_rate2006 = 74.9

### IBM System x3550 M3 (Intel Xeon E5503)

### SPECfp\_rate\_base2006 = 72.5

CPU2006 license: 11

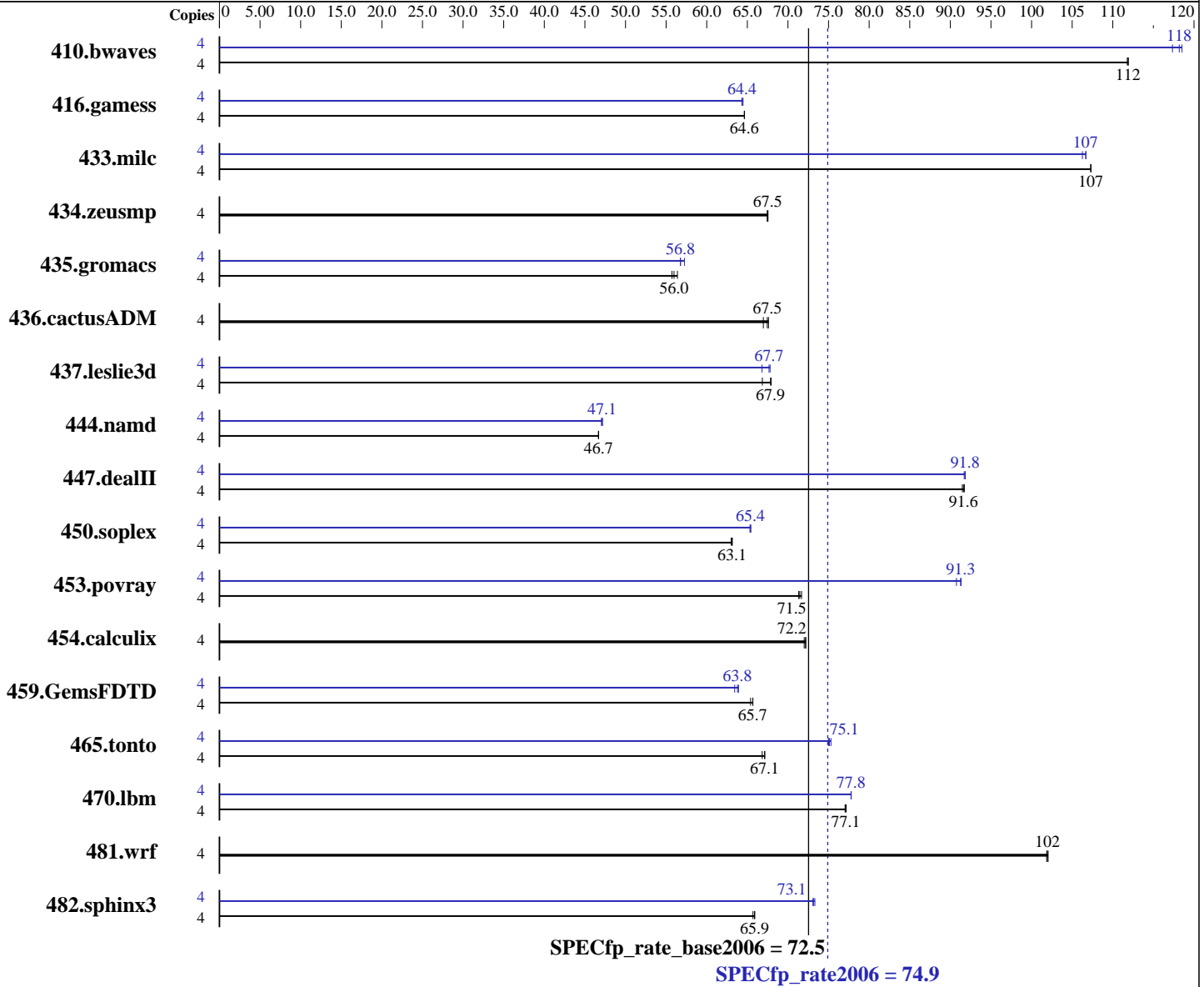
Test sponsor: IBM Corporation

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: No  
 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        |             |            |             |             |             |  |  |
|---------------|--------|------------|-------------|-------------|-------------|-------------|-------------|--------|-------------|-------------|------------|-------------|-------------|-------------|--|--|
|               | Copies | Seconds    | Ratio       | Seconds     | Ratio       | Seconds     | Ratio       | Copies | Seconds     | Ratio       | Seconds    | Ratio       | Seconds     | Ratio       |  |  |
| 410.bwaves    | 4      | 486        | 112         | <b>486</b>  | <b>112</b>  | 486         | 112         | 4      | 459         | 119         | <b>460</b> | <b>118</b>  | 463         | 117         |  |  |
| 416.gamess    | 4      | 1212       | 64.6        | <b>1212</b> | <b>64.6</b> | 1211        | 64.7        | 4      | 1215        | 64.5        | 1217       | 64.3        | <b>1217</b> | <b>64.4</b> |  |  |
| 433.milc      | 4      | 342        | 107         | 342         | 107         | <b>342</b>  | <b>107</b>  | 4      | 346         | 106         | 344        | 107         | <b>344</b>  | <b>107</b>  |  |  |
| 434.zeusmp    | 4      | 539        | 67.5        | <b>539</b>  | <b>67.5</b> | 540         | 67.5        | 4      | 539         | 67.5        | <b>539</b> | <b>67.5</b> | 540         | 67.5        |  |  |
| 435.gromacs   | 4      | 506        | 56.4        | <b>510</b>  | <b>56.0</b> | 513         | 55.7        | 4      | 503         | 56.8        | 499        | 57.3        | <b>503</b>  | <b>56.8</b> |  |  |
| 436.cactusADM | 4      | 714        | 67.0        | 707         | 67.6        | <b>709</b>  | <b>67.5</b> | 4      | 714         | 67.0        | 707        | 67.6        | <b>709</b>  | <b>67.5</b> |  |  |
| 437.leslie3d  | 4      | 562        | 66.9        | 553         | 67.9        | <b>554</b>  | <b>67.9</b> | 4      | 555         | 67.8        | <b>556</b> | <b>67.7</b> | 563         | 66.8        |  |  |
| 444.namd      | 4      | 687        | 46.7        | 687         | 46.7        | <b>687</b>  | <b>46.7</b> | 4      | 680         | 47.2        | 682        | 47.0        | <b>681</b>  | <b>47.1</b> |  |  |
| 447.dealII    | 4      | 499        | 91.7        | <b>500</b>  | <b>91.6</b> | 500         | 91.5        | 4      | 498         | 91.8        | <b>498</b> | <b>91.8</b> | 499         | 91.7        |  |  |
| 450.soplex    | 4      | 529        | 63.0        | <b>528</b>  | <b>63.1</b> | 528         | 63.1        | 4      | 511         | 65.3        | <b>510</b> | <b>65.4</b> | 510         | 65.4        |  |  |
| 453.povray    | 4      | <b>298</b> | <b>71.5</b> | 298         | 71.3        | 297         | 71.7        | 4      | 233         | 91.3        | 234        | 90.7        | <b>233</b>  | <b>91.3</b> |  |  |
| 454.calculix  | 4      | 457        | 72.2        | 458         | 72.0        | <b>457</b>  | <b>72.2</b> | 4      | 457         | 72.2        | 458        | 72.0        | <b>457</b>  | <b>72.2</b> |  |  |
| 459.GemsFDTD  | 4      | 649        | 65.4        | <b>646</b>  | <b>65.7</b> | 646         | 65.7        | 4      | <b>665</b>  | <b>63.8</b> | 664        | 63.9        | 669         | 63.4        |  |  |
| 465.tonto     | 4      | 586        | 67.2        | <b>586</b>  | <b>67.1</b> | 589         | 66.8        | 4      | 525         | 75.0        | 523        | 75.3        | <b>524</b>  | <b>75.1</b> |  |  |
| 470.lbm       | 4      | <b>713</b> | <b>77.1</b> | 713         | 77.0        | 712         | 77.2        | 4      | 706         | 77.8        | <b>707</b> | <b>77.8</b> | 707         | 77.8        |  |  |
| 481.wrf       | 4      | <b>438</b> | <b>102</b>  | 438         | 102         | 439         | 102         | 4      | <b>438</b>  | <b>102</b>  | 438        | 102         | 439         | 102         |  |  |
| 482.sphinx3   | 4      | 1187       | 65.7        | 1183        | 65.9        | <b>1183</b> | <b>65.9</b> | 4      | <b>1066</b> | <b>73.1</b> | 1067       | 73.1        | 1063        | 73.3        |  |  |

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

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



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IBM System x3550 M3 (Intel Xeon E5503)

SPECfp\_rate\_base2006 = 72.5

CPU2006 license: 11

Test date: Jun-2010

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## 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

## 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:

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

C++ benchmarks:

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

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## Base Optimization Flags (Continued)

Fortran benchmarks:

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

Benchmarks using both Fortran and C:

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

## 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



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## 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

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.dealIII: -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: basepeak = yes

437.leslie3d: -xSSE4.2 -ipo -O3 -no-prec-div -static

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

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## Peak Optimization Flags (Continued)

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

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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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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