



# SPEC® CFP2006 Result

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## IBM Corporation

### SPECfp®\_rate2006 = 39.1

### IBM BladeCenter HS12 (Intel Xeon X3323)

### SPECfp\_rate\_base2006 = 36.7

CPU2006 license: 11

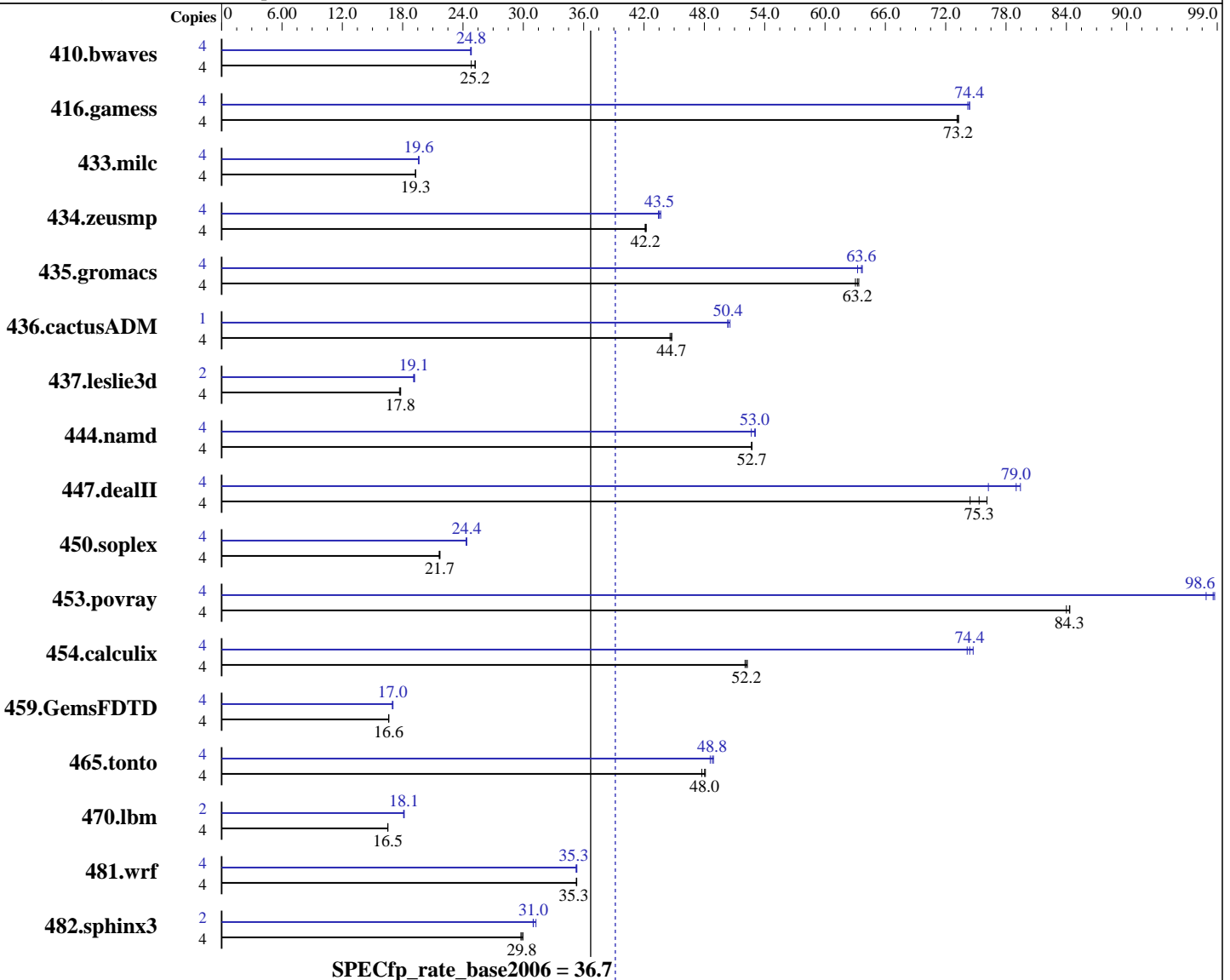
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: May-2008

Hardware Availability: May-2008

Software Availability: Nov-2007



#### Hardware

CPU Name: Intel Xeon X3323  
 CPU Characteristics: 1333MHz system bus  
 CPU MHz: 2500  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 6 MB I+D on chip per chip, 3 MB shared / 2 cores

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#### Software

Operating System: SuSE Linux Enterprise Server 10 (x86\_64) SP1, Kernel 2.6.16.46-0.12-smp  
 Compiler: Intel C++ and Fortran Compiler 10.1 for Linux Build 20070913 Package ID: l\_cc\_p\_10.1.008, l\_fc\_p\_10.1.008  
 Auto Parallel: Yes  
 File System: ReiserFS  
 System State: Multi-user, run level 3  
 Base Pointers: 64-bit

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L3 Cache: None  
Other Cache: None  
Memory: 8 GB (4 x 2 GB DDR2-5300 ECC)  
Disk Subsystem: 1 x 73 GB SAS, 10000 RPM  
Other Hardware: None

Peak Pointers: 32/64-bit  
Other Software: Binutils 2.17.50.0.15

### Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	2190	24.8	<u>2158</u>	<u>25.2</u>	2155	25.2	4	2190	24.8	2196	24.8	<u>2191</u>	<u>24.8</u>
416.gamess	4	1071	73.1	<u>1069</u>	<u>73.2</u>	1069	73.3	4	1053	74.4	1056	74.2	<u>1053</u>	<u>74.4</u>
433.milc	4	1905	19.3	<u>1903</u>	<u>19.3</u>	1903	19.3	4	1872	19.6	1876	19.6	<u>1872</u>	<u>19.6</u>
434.zeusmp	4	864	42.1	862	42.2	<u>863</u>	<u>42.2</u>	4	838	43.4	834	43.7	<u>836</u>	<u>43.5</u>
435.gromacs	4	451	63.4	<u>452</u>	<u>63.2</u>	453	63.0	4	448	63.7	452	63.2	<u>449</u>	<u>63.6</u>
436.cactusADM	4	1072	44.6	<u>1068</u>	<u>44.7</u>	1068	44.8	1	<u>237</u>	<u>50.4</u>	236	50.5	237	50.3
437.leslie3d	4	<u>2116</u>	<u>17.8</u>	2112	17.8	2126	17.7	2	980	19.2	985	19.1	<u>982</u>	<u>19.1</u>
444.namd	4	<u>608</u>	<u>52.7</u>	609	52.7	608	52.7	4	609	52.7	604	53.1	<u>605</u>	<u>53.0</u>
447.dealII	4	601	76.1	615	74.4	<u>608</u>	<u>75.3</u>	4	576	79.4	600	76.2	<u>579</u>	<u>79.0</u>
450.soplex	4	1536	21.7	<u>1539</u>	<u>21.7</u>	1542	21.6	4	<u>1369</u>	<u>24.4</u>	1369	24.4	1372	24.3
453.povray	4	253	84.0	252	84.3	<u>252</u>	<u>84.3</u>	4	216	98.7	<u>216</u>	<u>98.6</u>	217	97.9
454.calculix	4	634	52.0	<u>632</u>	<u>52.2</u>	631	52.3	4	445	74.1	442	74.7	<u>444</u>	<u>74.4</u>
459.GemsFDTD	4	2554	16.6	<u>2555</u>	<u>16.6</u>	2555	16.6	4	2491	17.0	<u>2496</u>	<u>17.0</u>	2499	17.0
465.tonto	4	818	48.1	824	47.7	<u>820</u>	<u>48.0</u>	4	<u>807</u>	<u>48.8</u>	810	48.6	805	48.9
470.lbm	4	<u>3326</u>	<u>16.5</u>	3326	16.5	3325	16.5	2	1519	18.1	<u>1516</u>	<u>18.1</u>	1514	18.2
481.wrf	4	1265	35.3	<u>1266</u>	<u>35.3</u>	1267	35.3	4	<u>1265</u>	<u>35.3</u>	1265	35.3	1268	35.2
482.sphinx3	4	2602	30.0	2620	29.8	<u>2612</u>	<u>29.8</u>	2	<u>1257</u>	<u>31.0</u>	1258	31.0	1247	31.3

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

### General Notes

All benchmarks compiled in 64-bit mode except 437.leslie3d, 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode  
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Disabled  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 64M  
taskset utility used to bind CPU(s) to processes

### Base Compiler Invocation

C benchmarks:  
icc

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## Base Compiler Invocation (Continued)

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:  
-fast

C++ benchmarks:  
-fast

Fortran benchmarks:  
-fast

Benchmarks using both Fortran and C:  
-fast



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## Peak Compiler Invocation

C benchmarks (except as noted below):

```
/opt/intel/cc/10.1.008/bin/icc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

433.milc: icc

C++ benchmarks (except as noted below):

icpc

```
450.soplex: /opt/intel/cc/10.1.008/bin/icpc -L/opt/intel/cc/10.1.008/lib
-I/opt/intel/cc/10.1.008/include
```

Fortran benchmarks (except as noted below):

ifort

```
437.leslie3d: /opt/intel/fc/10.1.008/bin/ifort -L/opt/intel/fc/10.1.008/lib
-I/opt/intel/fc/10.1.008/include
```

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.deall: -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
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
```

## Peak Optimization Flags

C benchmarks:

```
433.milc: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias
-auto-ilp32
```

```
470.lbm: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2
-scalar-rep- -prefetch -opt-malloc-options=3
```

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## Peak Optimization Flags (Continued)

482.sphinx3: -fast -unroll2

### C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -fast -fno-alias  
-auto-ilp32

447.dealIII: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-ansi-alias -scalar-rep-

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -fast  
-opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4  
-ansi-alias

### Fortran benchmarks:

410.bwaves: -fast -prefetch

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-ansi-alias -scalar-rep-

434.zeusmp: -prof-gen(pass 1) -prof-use(pass 2) -fast

437.leslie3d: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-opt-malloc-options=3

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2 -Ob0  
-prefetch

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll4 -auto

### Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -fast -prefetch  
-auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -fast -unroll2  
-prefetch -parallel -auto-ilp32

454.calculix: -fast -unroll-aggressive -auto-ilp32

481.wrf: -fast -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revC.20090713.html>



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

<http://www.spec.org/cpu2006/flags/Intel-ic10.1-fp-linux64-revC.20090713.xml>

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