



# SPEC® CFP2006 Result

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## IBM Corporation

### SPECfp®\_rate2006 = 20.9

### IBM BladeCenter HS12 (Intel Core 2 Duo E6405)

### SPECfp\_rate\_base2006 = 20.7

CPU2006 license: 11

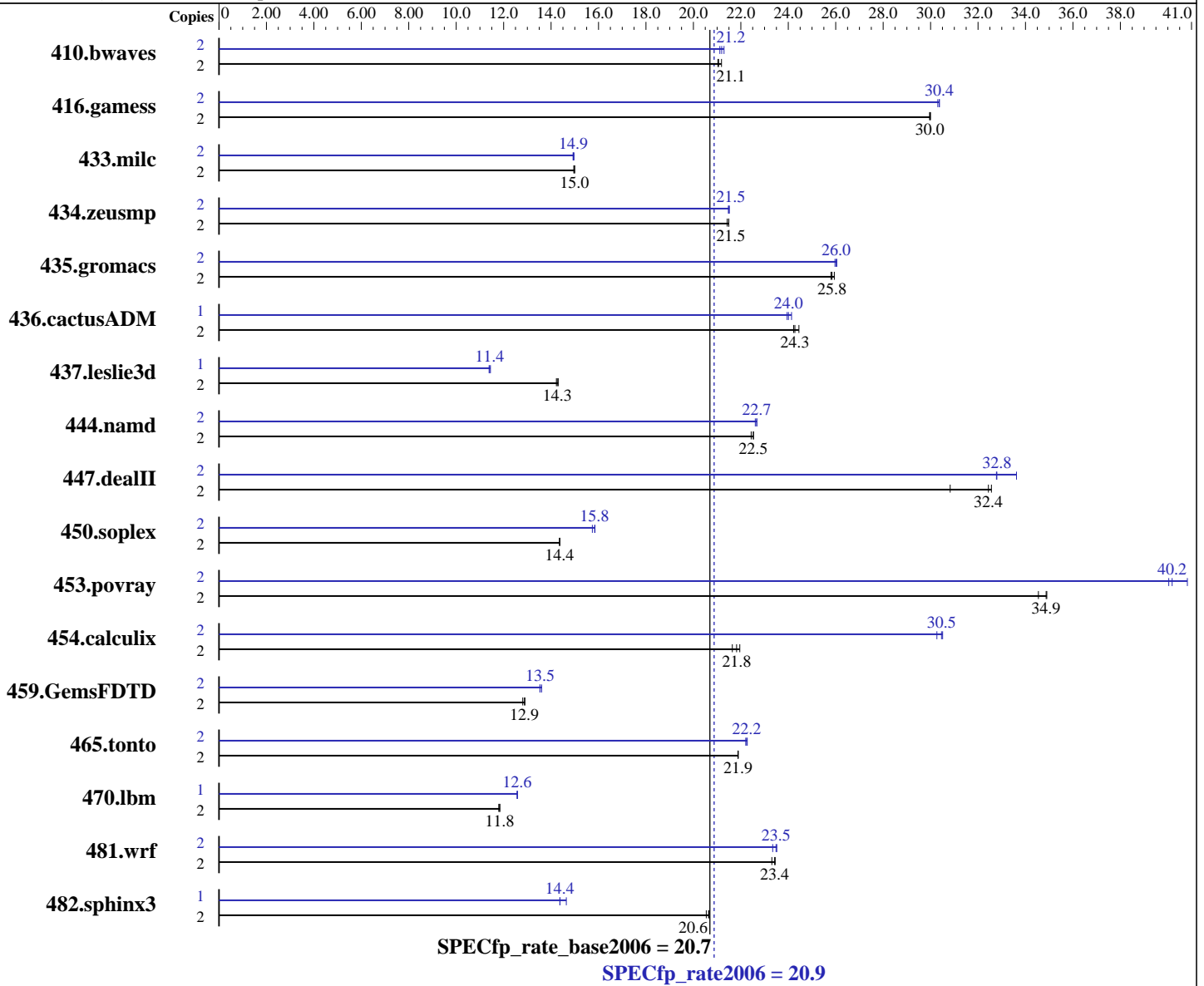
Test sponsor: IBM Corporation

Tested by: IBM Corporation

Test date: Apr-2008

Hardware Availability: May-2008

Software Availability: Nov-2007



#### Hardware

CPU Name: Intel Core 2 Duo E6405  
 CPU Characteristics: 1066MHz system bus  
 CPU MHz: 2133  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 2 MB I+D on chip per chip

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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	2	1292	21.0	<u>1290</u>	<u>21.1</u>	1283	21.2	2	1277	21.3	1287	21.1	<u>1282</u>	<u>21.2</u>
416.gamess	2	<u>1306</u>	<u>30.0</u>	1307	30.0	1305	30.0	2	1289	30.4	1292	30.3	<u>1290</u>	<u>30.4</u>
433.milc	2	1225	15.0	1227	15.0	<u>1225</u>	<u>15.0</u>	2	<u>1229</u>	<u>14.9</u>	1230	14.9	1227	15.0
434.zeusmp	2	849	21.4	847	21.5	<u>847</u>	<u>21.5</u>	2	846	21.5	847	21.5	<u>847</u>	<u>21.5</u>
435.gromacs	2	553	25.8	<u>553</u>	<u>25.8</u>	550	25.9	2	548	26.0	550	26.0	<u>549</u>	<u>26.0</u>
436.cactusADM	2	987	24.2	978	24.4	<u>984</u>	<u>24.3</u>	1	499	23.9	495	24.1	<u>498</u>	<u>24.0</u>
437.leslie3d	2	1315	14.3	<u>1318</u>	<u>14.3</u>	1322	14.2	1	<u>824</u>	<u>11.4</u>	821	11.4	826	11.4
444.namd	2	712	22.5	<u>712</u>	<u>22.5</u>	715	22.4	2	707	22.7	<u>708</u>	<u>22.7</u>	709	22.6
447.dealII	2	<u>705</u>	<u>32.4</u>	742	30.8	703	32.6	2	698	32.8	<u>698</u>	<u>32.8</u>	681	33.6
450.soplex	2	1162	14.4	1161	14.4	<u>1161</u>	<u>14.4</u>	2	1052	15.9	1060	15.7	<u>1053</u>	<u>15.8</u>
453.povray	2	308	34.5	305	34.9	<u>305</u>	<u>34.9</u>	2	261	40.8	266	40.0	<u>265</u>	<u>40.2</u>
454.calculix	2	<u>756</u>	<u>21.8</u>	752	22.0	762	21.6	2	<u>542</u>	<u>30.5</u>	545	30.3	541	30.5
459.GemsFDTD	2	<u>1648</u>	<u>12.9</u>	1645	12.9	1657	12.8	2	1568	13.5	1560	13.6	<u>1567</u>	<u>13.5</u>
465.tonto	2	<u>899</u>	<u>21.9</u>	900	21.9	899	21.9	2	886	22.2	<u>885</u>	<u>22.2</u>	884	22.3
470.lbm	2	2330	11.8	<u>2323</u>	<u>11.8</u>	2321	11.8	1	1093	12.6	1092	12.6	<u>1093</u>	<u>12.6</u>
481.wrf	2	953	23.4	<u>954</u>	<u>23.4</u>	959	23.3	2	957	23.3	<u>951</u>	<u>23.5</u>	950	23.5
482.sphinx3	2	1897	20.5	1888	20.6	<u>1888</u>	<u>20.6</u>	1	<u>1356</u>	<u>14.4</u>	1356	14.4	1331	14.6

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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