



# SPEC® CFP2006 Result

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## IBM Corporation

SPECfp®2006 = 20.7

### IBM BladeCenter HS12 (Intel Xeon X3353)

SPECfp\_base2006 = 19.0

CPU2006 license: 11

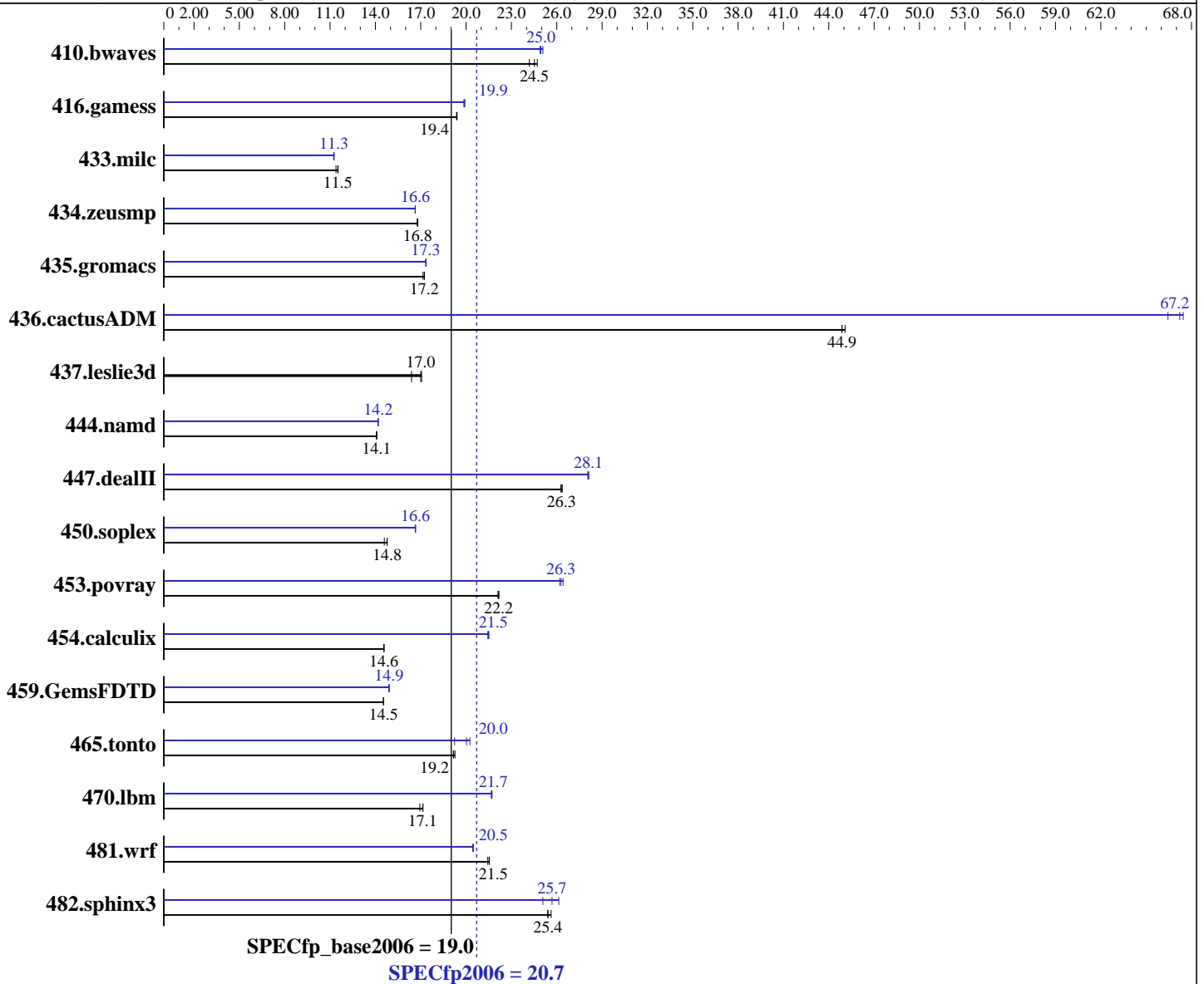
Test date: May-2008

Test sponsor: IBM Corporation

Hardware Availability: May-2008

Tested by: IBM Corporation

Software Availability: Nov-2007



### Hardware

CPU Name: Intel Xeon X3353  
 CPU Characteristics: 1333MHz system bus  
 CPU MHz: 2667  
 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: 12 MB I+D on chip per chip, 6 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	562	24.2	<b>554</b>	<b>24.5</b>	550	24.7	<b>545</b>	<b>25.0</b>	546	24.9	542	25.1
416.gamess	1011	19.4	1009	19.4	<b>1010</b>	<b>19.4</b>	986	19.9	<b>985</b>	<b>19.9</b>	983	19.9
433.milc	806	11.4	<b>797</b>	<b>11.5</b>	796	11.5	817	11.2	<b>815</b>	<b>11.3</b>	815	11.3
434.zeusmp	543	16.8	541	16.8	<b>542</b>	<b>16.8</b>	547	16.6	547	16.6	<b>547</b>	<b>16.6</b>
435.gromacs	414	17.3	416	17.2	<b>414</b>	<b>17.2</b>	412	17.3	412	17.3	<b>412</b>	<b>17.3</b>
436.cactusADM	266	44.9	<b>266</b>	<b>44.9</b>	265	45.1	180	66.4	177	67.5	<b>178</b>	<b>67.2</b>
437.leslie3d	573	16.4	<b>553</b>	<b>17.0</b>	551	17.1	573	16.4	<b>553</b>	<b>17.0</b>	551	17.1
444.namd	570	14.1	<b>570</b>	<b>14.1</b>	569	14.1	566	14.2	565	14.2	<b>565</b>	<b>14.2</b>
447.dealII	436	26.3	434	26.4	<b>435</b>	<b>26.3</b>	408	28.1	407	28.1	<b>407</b>	<b>28.1</b>
450.soplex	572	14.6	<b>564</b>	<b>14.8</b>	564	14.8	501	16.6	<b>501</b>	<b>16.6</b>	500	16.7
453.povray	241	22.1	240	22.2	<b>240</b>	<b>22.2</b>	<b>202</b>	<b>26.3</b>	203	26.2	201	26.4
454.calculix	567	14.6	<b>566</b>	<b>14.6</b>	566	14.6	384	21.5	385	21.4	<b>384</b>	<b>21.5</b>
459.GemsFDTD	730	14.5	<b>730</b>	<b>14.5</b>	730	14.5	<b>712</b>	<b>14.9</b>	713	14.9	711	14.9
465.tonto	511	19.3	<b>513</b>	<b>19.2</b>	514	19.2	486	20.3	511	19.2	<b>491</b>	<b>20.0</b>
470.lbm	811	16.9	<b>802</b>	<b>17.1</b>	801	17.1	633	21.7	<b>633</b>	<b>21.7</b>	634	21.7
481.wrf	521	21.4	<b>519</b>	<b>21.5</b>	519	21.5	546	20.4	<b>546</b>	<b>20.5</b>	545	20.5
482.sphinx3	761	25.6	<b>767</b>	<b>25.4</b>	767	25.4	777	25.1	746	26.1	<b>759</b>	<b>25.7</b>

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 450.soplex, 470.lbm and 482.sphinx3, at peak, are compiled in 32-bit mode  
Hardware Sector Prefetch Enabled and Adjacent Sector Prefetch Enabled  
OMP\_NUM\_THREADS set to number of cores  
KMP\_AFFINITY set to physical,0  
KMP\_STACKSIZE set to 200M

## 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 -parallel

C++ benchmarks:  
-fast -parallel

Fortran benchmarks:  
-fast -parallel

Benchmarks using both Fortran and C:  
-fast -parallel



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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:

```
ifort
```

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
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
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-req- -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 -parallel

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: basepeak = yes

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

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 -parallel -prefetch -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>

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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