# SPEC® CFP2006 Result

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## IBM Corporation

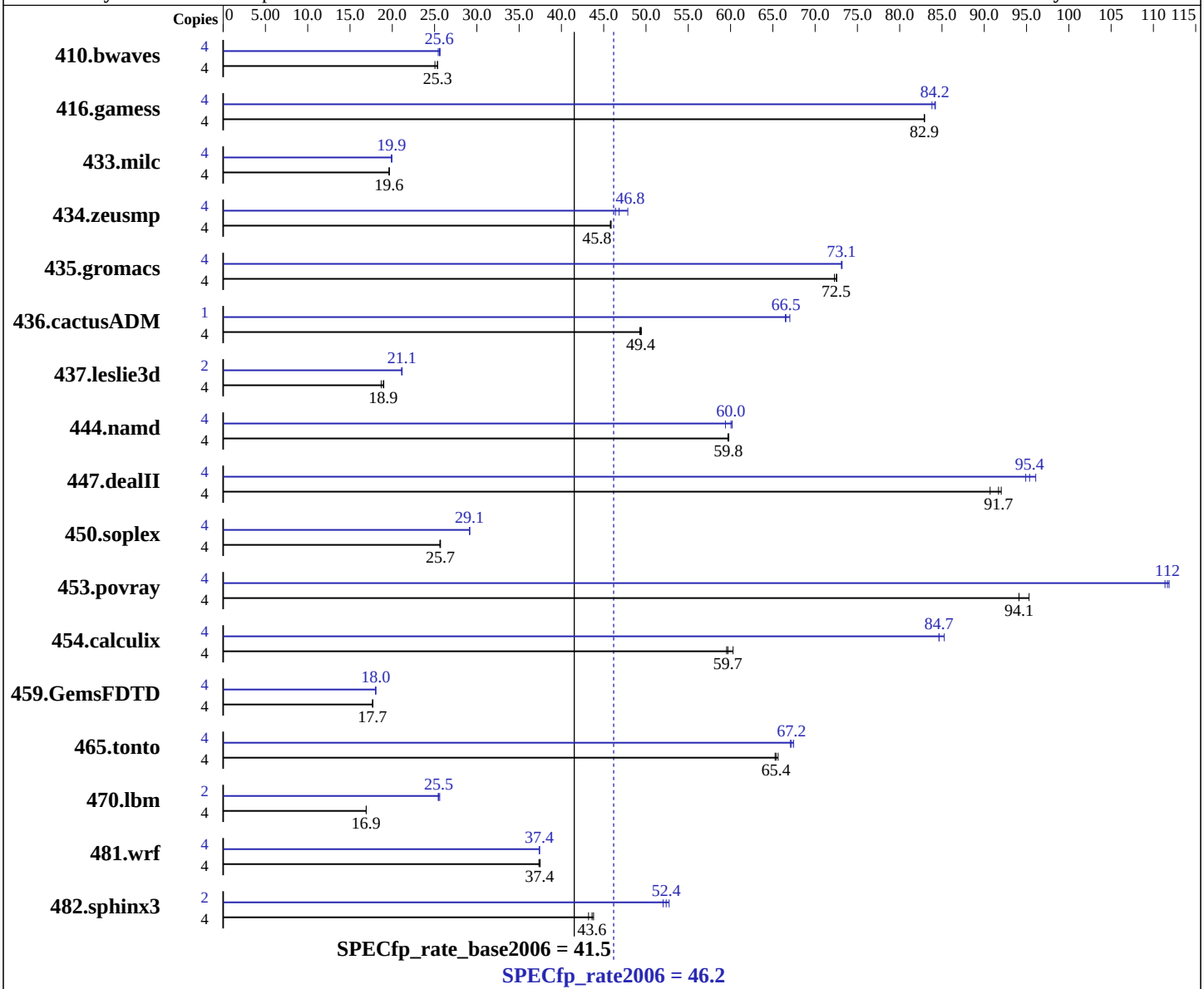
## IBM BladeCenter HS12 (Intel Xeon X3363)

SPECfp®_rate2006 = 46.2

SPECfp_rate_base2006 = 41.5

**CPU2006 license:** 11
**Test sponsor:** IBM Corporation
**Tested by:** IBM Corporation

**Test date:** Mar-2008
**Hardware Availability:** May-2008
**Software Availability:** Nov-2007




### Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon X3363 |
| CPU Characteristics: | 1333MHz system bus |
| CPU MHz: | 2833 |
| 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 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 2171 | 25.0 | 2144 | 25.4 | **2145** | **25.3** | 4 | **2126** | **25.6** | 2137 | 25.4 | 2119 | 25.7 |
| 416.gamess | 4 | **945** | **82.9** | 944 | 82.9 | 945 | 82.9 | 4 | 930 | 84.2 | 934 | 83.8 | **931** | **84.2** |
| 433.milc | 4 | 1871 | 19.6 | 1870 | 19.6 | **1870** | **19.6** | 4 | 1845 | 19.9 | 1841 | 19.9 | **1843** | **19.9** |
| 434.zeusmp | 4 | 795 | 45.8 | 794 | 45.9 | **794** | **45.8** | 4 | **777** | **46.8** | 761 | 47.9 | 785 | 46.4 |
| 435.gromacs | 4 | 395 | 72.3 | 394 | 72.6 | **394** | **72.5** | 4 | 391 | 73.1 | 390 | 73.2 | **391** | **73.1** |
| 436.cactusADM | 4 | 970 | 49.3 | **968** | **49.4** | 967 | 49.5 | 1 | 180 | 66.5 | **180** | **66.5** | 178 | 67.0 |
| 437.leslie3d | 4 | 2012 | 18.7 | 1979 | 19.0 | **1986** | **18.9** | 2 | 891 | 21.1 | 888 | 21.2 | **889** | **21.1** |
| 444.namd | 4 | **537** | **59.8** | 536 | 59.8 | 538 | 59.7 | 4 | 533 | 60.2 | **534** | **60.0** | 540 | 59.4 |
| 447.dealII | 4 | 497 | 92.0 | 505 | 90.7 | **499** | **91.7** | 4 | **480** | **95.4** | 482 | 94.9 | 476 | 96.1 |
| 450.soplex | 4 | 1298 | 25.7 | **1299** | **25.7** | 1302 | 25.6 | 4 | 1144 | 29.2 | 1145 | 29.1 | **1145** | **29.1** |
| 453.povray | 4 | 223 | 95.3 | **226** | **94.1** | 226 | 94.1 | 4 | 191 | 111 | **191** | **112** | 190 | 112 |
| 454.calculix | 4 | 547 | 60.3 | **553** | **59.7** | 554 | 59.5 | 4 | 390 | 84.6 | 387 | 85.3 | **390** | **84.7** |
| 459.GemsFDTD | 4 | 2396 | 17.7 | **2402** | **17.7** | 2402 | 17.7 | 4 | 2352 | 18.0 | **2352** | **18.0** | 2354 | 18.0 |
| 465.tonto | 4 | **602** | **65.4** | 603 | 65.3 | 600 | 65.6 | 4 | 583 | 67.5 | **586** | **67.2** | 587 | 67.1 |
| 470.lbm | 4 | 3250 | 16.9 | **3249** | **16.9** | 3248 | 16.9 | 2 | 1073 | 25.6 | **1078** | **25.5** | 1081 | 25.4 |
| 481.wrf | 4 | **1194** | **37.4** | 1192 | 37.5 | 1197 | 37.3 | 4 | **1195** | **37.4** | 1194 | 37.4 | 1196 | 37.4 |
| 482.sphinx3 | 4 | 1780 | 43.8 | **1787** | **43.6** | 1804 | 43.2 | 2 | 749 | 52.0 | **744** | **52.4** | 739 | 52.7 |

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
Powersaved dameon was disabled in OS
```

## Base Compiler Invocation

C benchmarks:
icc

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

# 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.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-rep- -prefetch -opt-malloc-options=3`

Continued on next page

# 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.dealII: -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-intel64-linux-flags.20090714.html

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic10.1-FP-intel64-linux-flags.20090714.xml`


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For other inquiries, please contact webmaster@spec.org.

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