# SPEC® CFP2006 Result

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## IBM Corporation

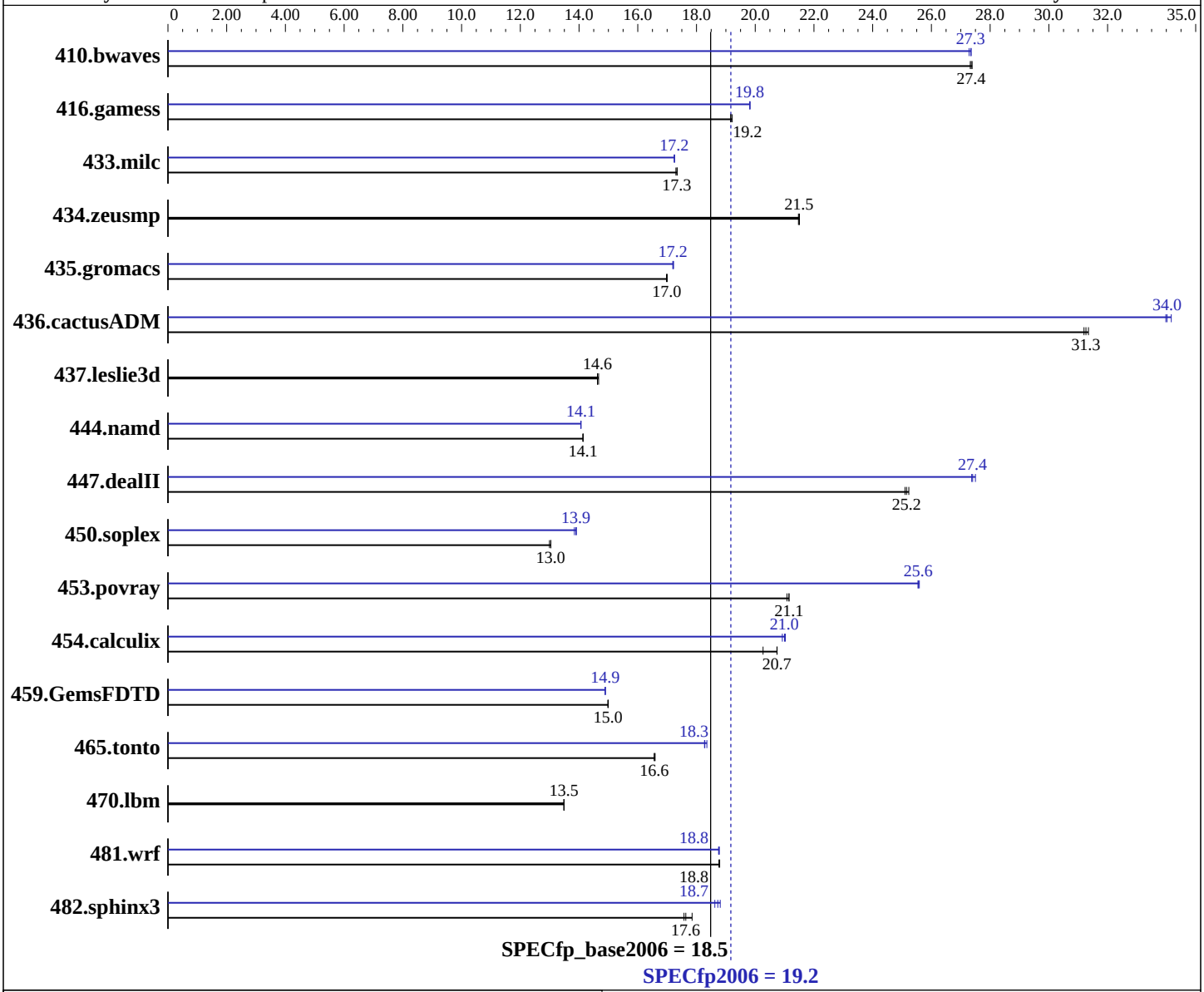
## IBM System x3250 M2 (Intel Pentium E5300)

**SPECfp®2006 = 19.2**

**SPECfp_base2006 = 18.5**

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

**Test date:** Jun-2009
**Hardware Availability:** Apr-2009
**Software Availability:** Nov-2008




### Hardware

| | |
|---|---|
| CPU Name: | Intel Pentium E5300 |
| CPU Characteristics: | 800 MHz system bus |
| CPU MHz: | 2600 |
| 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 11.0 for Linux Build 20080930 Package ID: l_cproc_p_11.0.066, l_cprof_p_11.0.066 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Run level 3 (multi-user) |
| Base Pointers: | 64-bit |

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L3 Cache: None
Other Cache: None
Memory: 8 GB(4 x 2 GB DDR2-6400E ECC)
Disk Subsystem: 1 x 250 GB SATA, 7200RPM
Other Hardware: None

Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 497 | 27.3 | 496 | 27.4 | **497** | **27.4** | **497** | **27.3** | 498 | 27.3 | 497 | 27.4 |
| 416.gamess | 1019 | 19.2 | **1021** | **19.2** | 1022 | 19.2 | 988 | 19.8 | 988 | 19.8 | **988** | **19.8** |
| 433.milc | **530** | **17.3** | 529 | 17.3 | 531 | 17.3 | 532 | 17.2 | 532 | 17.3 | **532** | **17.2** |
| 434.zeusmp | 423 | 21.5 | 424 | 21.5 | **423** | **21.5** | 423 | 21.5 | 424 | 21.5 | **423** | **21.5** |
| 435.gromacs | **420** | **17.0** | 421 | 17.0 | 420 | 17.0 | **415** | **17.2** | 415 | 17.2 | 415 | 17.2 |
| 436.cactusADM | **382** | **31.3** | 383 | 31.2 | 381 | 31.3 | 350 | 34.2 | **351** | **34.0** | 352 | 34.0 |
| 437.leslie3d | 643 | 14.6 | 641 | 14.7 | **643** | **14.6** | 643 | 14.6 | 641 | 14.7 | **643** | **14.6** |
| 444.namd | 568 | 14.1 | 567 | 14.1 | **567** | **14.1** | 570 | 14.1 | 570 | 14.1 | **570** | **14.1** |
| 447.dealII | 456 | 25.1 | 453 | 25.2 | **455** | **25.2** | 416 | 27.5 | **417** | **27.4** | 418 | 27.4 |
| 450.soplex | 640 | 13.0 | **640** | **13.0** | 642 | 13.0 | 600 | 13.9 | **600** | **13.9** | 603 | 13.8 |
| 453.povray | 252 | 21.2 | 252 | 21.1 | **252** | **21.1** | 208 | 25.5 | 208 | 25.6 | **208** | **25.6** |
| 454.calculix | 398 | 20.7 | **398** | **20.7** | 407 | 20.3 | 392 | 21.0 | **393** | **21.0** | 394 | 20.9 |
| 459.GemsFDTD | 708 | 15.0 | 707 | 15.0 | **708** | **15.0** | **712** | **14.9** | 713 | 14.9 | 712 | 14.9 |
| 465.tonto | 593 | 16.6 | **594** | **16.6** | 594 | 16.6 | 539 | 18.3 | **538** | **18.3** | 536 | 18.4 |
| 470.lbm | **1019** | **13.5** | 1018 | 13.5 | 1019 | 13.5 | **1019** | **13.5** | 1018 | 13.5 | 1019 | 13.5 |
| 481.wrf | 594 | 18.8 | **595** | **18.8** | 595 | 18.8 | 595 | 18.8 | 596 | 18.8 | **595** | **18.8** |
| 482.sphinx3 | 1109 | 17.6 | **1105** | **17.6** | 1092 | 17.9 | 1046 | 18.6 | 1036 | 18.8 | **1041** | **18.7** |

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

## General Notes

```
Hardware Sector Prefetch Enable and Adjacent Sector Prefetch Enable
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

C++ benchmarks:
icpc

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## Base Compiler Invocation (Continued)

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:
-xSSSE3 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

C++ benchmarks:
-xSSSE3 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSSE3 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xSSSE3 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

## Peak Compiler Invocation

C benchmarks (except as noted below):
icc

Continued on next page

## Peak Compiler Invocation (Continued)

482.sphinx3: icc -m32

C++ benchmarks (except as noted below):
icpc

450.soplex: icpc -m32

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
470.lbm: -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) -xSSSE3 -ipo -O3
-no-prec-div -static -fno-alias

470.lbm: basepeak = yes

482.sphinx3: -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2

C++ benchmarks:

444.namd: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3
-no-prec-div -static -fno-alias -auto-ilp32

Continued on next page

# Peak Optimization Flags (Continued)

447.dealII: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -ansi-alias -scalar-rep- -opt-prefetch

450.soplex: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -opt-malloc-options=3

453.povray: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel

416.gamess: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch -auto-ilp32

436.cactusADM: -prof-gen(pass 1) -prof-use(pass 2) -xSSSE3 -ipo -O3 -no-prec-div -static -unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSSE3 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSSE3 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel -auto-ilp32

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090827.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-fp-linux64-revA.20090827.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Tue Sep 23 18:18:09 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 2 September 2009.