# SPEC® CFP2006 Result

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## Intel Corporation

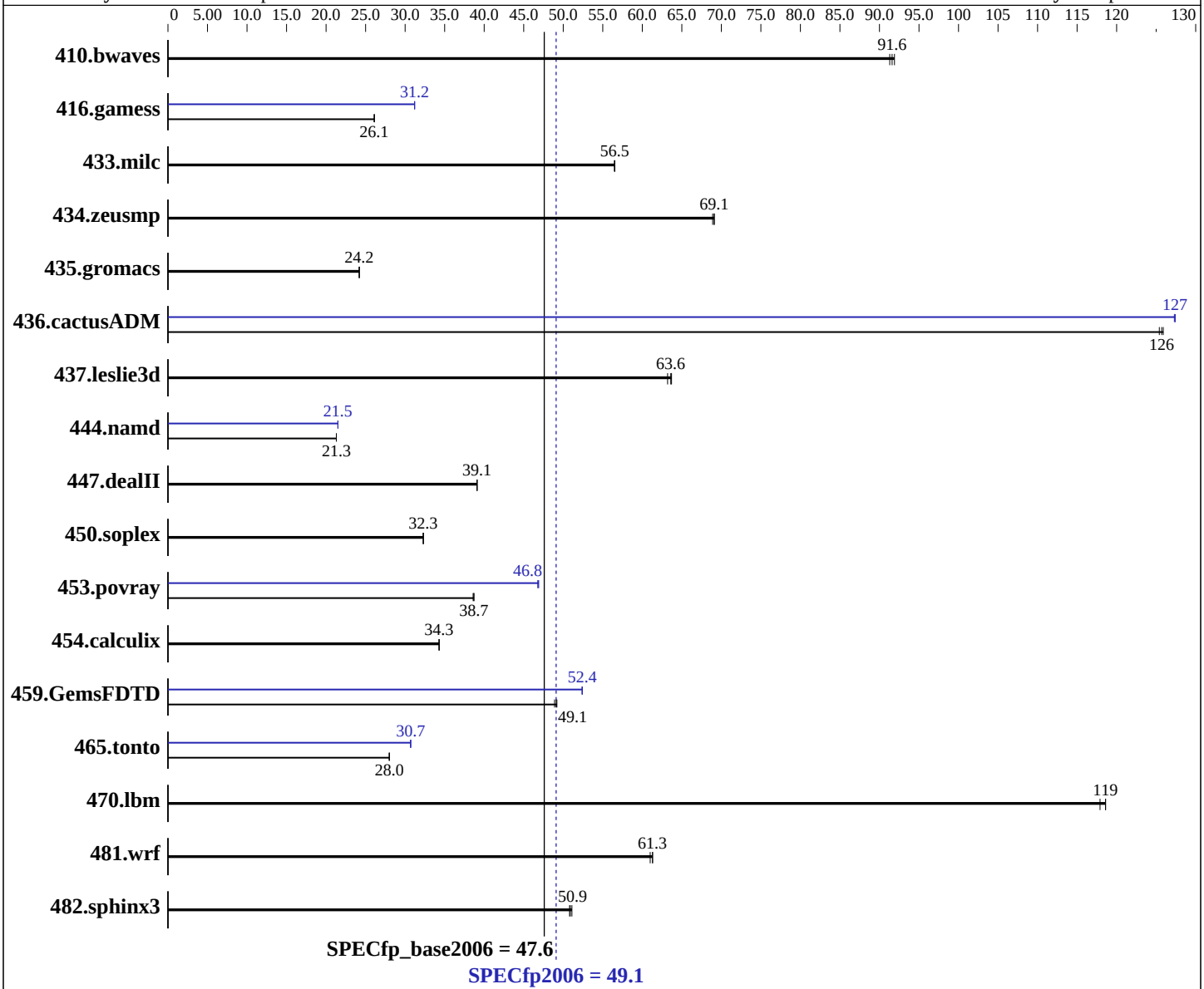
Intel DH67BLB3 Motherboard (Intel Core i5-2300)

SPECfp®2006 = 49.1

SPECfp_base2006 = 47.6

**CPU2006 license:** 13
**Test sponsor:** Intel Corporation
**Tested by:** Intel Corporation

**Test date:** Apr-2011
**Hardware Availability:** Mar-2011
**Software Availability:** Apr-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Core i5-2300 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.1 GHz |
| CPU MHz: | 2800 |
| 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: | 256 KB I+D on chip per core |

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## Software

| | |
|---|---|
| Operating System: | Windows 7 Ultimate (64-bit) |
| Compiler: | Intel C++ Compiler XE for Intel64<br>Version 12.0.3.163 Build 20110217<br>Intel Visual Fortran Compiler XE for Intel64<br>Version 12.0.3.163 Build 20110217<br>Microsoft Visual Studio 2008 Professional SP1 (for libraries) |
| Auto Parallel: | Yes |
| File System: | NTFS |

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L3 Cache: 6 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600U-9)
Disk Subsystem: Seagate 1 TB SATA, 7200 RPM
Other Hardware: None

System State: Default
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: SmartHeap Library Version 9.01 from http://www.microquill.com/

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 148 | 91.9 | **148** | **91.6** | 149 | 91.3 | 148 | 91.9 | **148** | **91.6** | 149 | 91.3 |
| 416.gamess | **749** | **26.1** | 749 | 26.1 | 750 | 26.1 | 627 | 31.2 | **627** | **31.2** | 627 | 31.2 |
| 433.milc | 162 | 56.5 | **163** | **56.5** | 163 | 56.5 | 162 | 56.5 | **163** | **56.5** | 163 | 56.5 |
| 434.zeusmp | 132 | 69.1 | 132 | 68.9 | **132** | **69.1** | 132 | 69.1 | 132 | 68.9 | **132** | **69.1** |
| 435.gromacs | **295** | **24.2** | 295 | 24.2 | 295 | 24.2 | **295** | **24.2** | 295 | 24.2 | 295 | 24.2 |
| 436.cactusADM | **95.1** | **126** | 95.3 | 125 | 94.9 | 126 | 93.8 | 127 | 93.9 | 127 | **93.8** | **127** |
| 437.leslie3d | **148** | **63.6** | 148 | 63.7 | 149 | 63.2 | **148** | **63.6** | 148 | 63.7 | 149 | 63.2 |
| 444.namd | 377 | 21.3 | **377** | **21.3** | 377 | 21.3 | 374 | 21.5 | **374** | **21.5** | 374 | 21.5 |
| 447.dealII | 293 | 39.1 | **293** | **39.1** | 293 | 39.1 | 293 | 39.1 | **293** | **39.1** | 293 | 39.1 |
| 450.soplex | **259** | **32.3** | 258 | 32.3 | 259 | 32.3 | **259** | **32.3** | 258 | 32.3 | 259 | 32.3 |
| 453.povray | 138 | 38.7 | 138 | 38.6 | **138** | **38.7** | **114** | **46.8** | 114 | 46.8 | 114 | 46.9 |
| 454.calculix | 241 | 34.3 | **241** | **34.3** | 241 | 34.3 | 241 | 34.3 | **241** | **34.3** | 241 | 34.3 |
| 459.GemsFDTD | 217 | 48.9 | 216 | 49.2 | **216** | **49.1** | 202 | 52.4 | **202** | **52.4** | 203 | 52.4 |
| 465.tonto | 351 | 28.0 | **352** | **28.0** | 352 | 28.0 | **321** | **30.7** | 321 | 30.7 | 321 | 30.7 |
| 470.lbm | 117 | 118 | 116 | 119 | **116** | **119** | 117 | 118 | 116 | 119 | **116** | **119** |
| 481.wrf | **182** | **61.3** | 182 | 61.3 | 183 | 61.0 | **182** | **61.3** | 182 | 61.3 | 183 | 61.0 |
| 482.sphinx3 | 381 | 51.1 | **383** | **50.9** | 383 | 50.8 | 381 | 51.1 | **383** | **50.9** | 383 | 50.8 |

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

## General Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
OMP_NUM_THREADS set to number of processors cores
KMP_AFFINITY set to granularity=fine,scatter
```

## Base Compiler Invocation

C benchmarks:

```
icl -Qvc9 -Qstd=c99
```

C++ benchmarks:

```
icl -Qvc9
```

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## Base Compiler Invocation (Continued)

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc9 -Qstd=c99 ifort

## Base Portability Flags

410.bwaves: -DSPEC_CPU_P64 -names:lowercase
416.gamess: -DSPEC_CPU_P64
433.milc: -DSPEC_CPU_P64
434.zeusmp: -DSPEC_CPU_P64
435.gromacs: -DSPEC_CPU_P64
436.cactusADM: -DSPEC_CPU_P64 -names:lowercase /assume:underscore
437.leslie3d: -DSPEC_CPU_P64
444.namd: -DSPEC_CPU_P64 /TP
447.dealII: -DSPEC_CPU_P64 -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
450.soplex: -DSPEC_CPU_P64
453.povray: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
454.calculix: -DSPEC_CPU_P64 -DSPEC_CPU_NOZMODIFIER -names:lowercase
459.GemsFDTD: -DSPEC_CPU_P64
465.tonto: -DSPEC_CPU_P64
470.lbm: -DSPEC_CPU_P64
481.wrf: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
482.sphinx3: -DSPEC_CPU_P64

## Base Optimization Flags

C benchmarks:
-QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000

C++ benchmarks:
-QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
-Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
/F1000000000

Benchmarks using both Fortran and C:
-QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000

## Peak Compiler Invocation

C benchmarks:
```
icl -Qvc9 -Qstd=c99
```

C++ benchmarks:
```
icl -Qvc9
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc9 -Qstd=c99 ifort
```

## Peak Portability Flags

```
Same as Base Portability Flags
```

## Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

470.lbm: `basepeak = yes`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `-QxAVX`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Oa -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

447.dealII: `basepeak = yes`

450.soplex: `basepeak = yes`

453.povray: `-QxAVX`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

416.gamess: `-QxAVX`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qansi-alias -Qscalar-rep- /F1000000000`

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# Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -QxAVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch -Qparallel /F1000000000

465.tonto: -QxAVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto -Qinline-calloc /F1000000000

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: -QxAVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel -Qunroll2 -Qauto-ilp32 /F1000000000

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revB.html
http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revB.xml
http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings.xml


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

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 21:12:39 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 May 2011.