# SPEC® CFP2006 Result

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## Intel Corporation

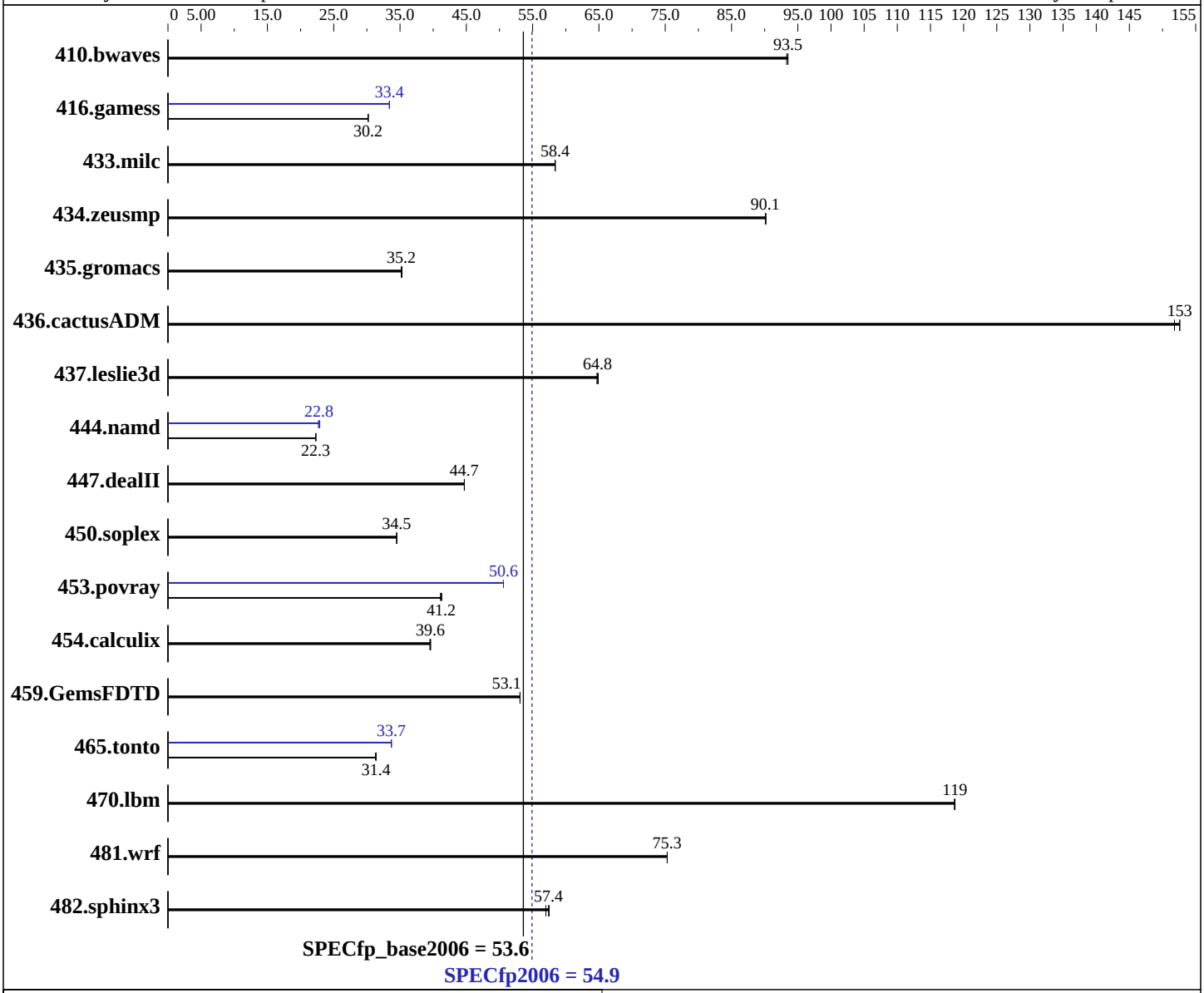
## Intel DH67BL Motherboard (Intel Core i5-2320)

SPECfp®2006 = 54.9

SPECfp_base2006 = 53.6

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

**Test date:** May-2012
**Hardware Availability:** Sep-2011
**Software Availability:** Apr-2011




### Hardware

| | |
|---|---|
| CPU Name: | Intel Core i5-2320 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.3 GHz |
| CPU MHz: | 3000 |
| 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: | Microsoft Windows 7 Ultimate 6.1.7601 Service Pack 1 Build 7601 |
| Compiler: | C/C++: Version 12.1.0.229 of Intel C++ Studio XE for Windows; Fortran: Version 12.1.0.229 of Intel Fortran Studio XE for Windows; Libraries: Version 15.00.30729.01 of Microsoft Visual Studio 2008 Professional SP1 |
| Auto Parallel: | Yes |

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| | | | |
|---|---|---|---|
| L3 Cache: | 6 MB I+D on chip per chip | File System: | NTFS |
| Other Cache: | None | System State: | Default |
| Memory: | 4 GB (2 x 2 GB 2Rx4 PC3-10600U-9) | Base Pointers: | 32/64-bit |
| Disk Subsystem: | 1 TB SATA, 7200 RPM | Peak Pointers: | 32/64-bit |
| Other Hardware: | None | 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 | 146 | 93.3 | 145 | 93.5 | **145** | **93.5** | 146 | 93.3 | 145 | 93.5 | **145** | **93.5** |
| 416.gamess | 649 | 30.2 | 649 | 30.2 | **649** | **30.2** | **587** | **33.4** | 587 | 33.4 | 587 | 33.4 |
| 433.milc | 157 | 58.4 | **157** | **58.4** | 157 | 58.4 | 157 | 58.4 | **157** | **58.4** | 157 | 58.4 |
| 434.zeusmp | **101** | **90.1** | 101 | 90.1 | 101 | 90.2 | **101** | **90.1** | 101 | 90.1 | 101 | 90.2 |
| 435.gromacs | 203 | 35.2 | **203** | **35.2** | 203 | 35.3 | 203 | 35.2 | **203** | **35.2** | 203 | 35.3 |
| 436.cactusADM | 78.7 | 152 | 78.3 | 153 | **78.3** | **153** | 78.7 | 152 | 78.3 | 153 | **78.3** | **153** |
| 437.leslie3d | 145 | 64.7 | **145** | **64.8** | 145 | 64.9 | 145 | 64.7 | **145** | **64.8** | 145 | 64.9 |
| 444.namd | 360 | 22.3 | **360** | **22.3** | 360 | 22.3 | 353 | 22.7 | **353** | **22.8** | 350 | 22.9 |
| 447.dealII | 256 | 44.7 | 256 | 44.7 | **256** | **44.7** | 256 | 44.7 | 256 | 44.7 | **256** | **44.7** |
| 450.soplex | 242 | 34.5 | **242** | **34.5** | 242 | 34.5 | 242 | 34.5 | **242** | **34.5** | 242 | 34.5 |
| 453.povray | 129 | 41.1 | 129 | 41.3 | **129** | **41.2** | 105 | 50.6 | **105** | **50.6** | 105 | 50.6 |
| 454.calculix | 208 | 39.6 | **208** | **39.6** | 209 | 39.5 | 208 | 39.6 | **208** | **39.6** | 209 | 39.5 |
| 459.GemsFDTD | **200** | **53.1** | 200 | 53.1 | 200 | 53.1 | **200** | **53.1** | 200 | 53.1 | 200 | 53.1 |
| 465.tonto | 314 | 31.4 | **314** | **31.4** | 315 | 31.3 | **292** | **33.7** | 292 | 33.7 | 292 | 33.7 |
| 470.lbm | 116 | 119 | 116 | 119 | **116** | **119** | 116 | 119 | 116 | 119 | **116** | **119** |
| 481.wrf | 148 | 75.3 | **148** | **75.3** | 148 | 75.3 | 148 | 75.3 | **148** | **75.3** | 148 | 75.3 |
| 482.sphinx3 | 342 | 57.0 | 339 | 57.5 | **340** | **57.4** | 342 | 57.0 | 339 | 57.5 | **340** | **57.4** |

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

## Compiler Invocation Notes

To compile these binaries, the Intel Compiler was set up to generate 64-bit binaries with the command:
"ipsxe-comp-vars.bat intel64 vs2008" (shortcut provided in the Intel(r) Parallel Studio XE 2011 program folder)

## Platform Notes

```
Sysinfo program C:\CPU200~1.17A/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on CltE06995D78610 Fri May  4 22:08:27 2012

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo
```

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## Platform Notes (Continued)

```
Trying 'systeminfo'
OS Name        : Microsoft Windows 7 Ultimate
OS Version     : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: INTEL_
System Model   : DH67BL__
Processor(s)   : 1 Processor(s) Installed.
      [01]: Intel64 Family 6 Model 42 Stepping 7 GenuineIntel ~3001 Mhz
BIOS Version   : Intel Corp. BLH6710H.86A.0125.2011.0705.1517, 7/5/2011
Total Physical Memory: 4,003 MB

Trying 'wmic cpu get /value'
DeviceID       : CPU0
L2CacheSize    : 1024
L3CacheSize    : 6144
MaxClockSpeed  : 3001
Name           : Intel(R) Core(TM) i5-2320 CPU @ 3.00GHz
NumberOfCores  : 4
NumberOfLogicalProcessors: 4

(End of data from sysinfo program)
```

## Component Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
```

## General Notes

```
OMP_NUM_THREADS set to number of processors cores
KMP_AFFINITY set to granularity=fine,scatter
Binaries compiled on a system with 1x Intel Core i7-860 CPU
+ 8GB memory using Windows 7 Enterprise 64-bit
```

# Base 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
```

## 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

Continued on next page

## Peak Compiler Invocation (Continued)

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

Continued on next page

# Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

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: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-windows.20120117.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-windows.20120117.xml


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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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