# SPEC® CFP2006 Result

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## Intel Corporation

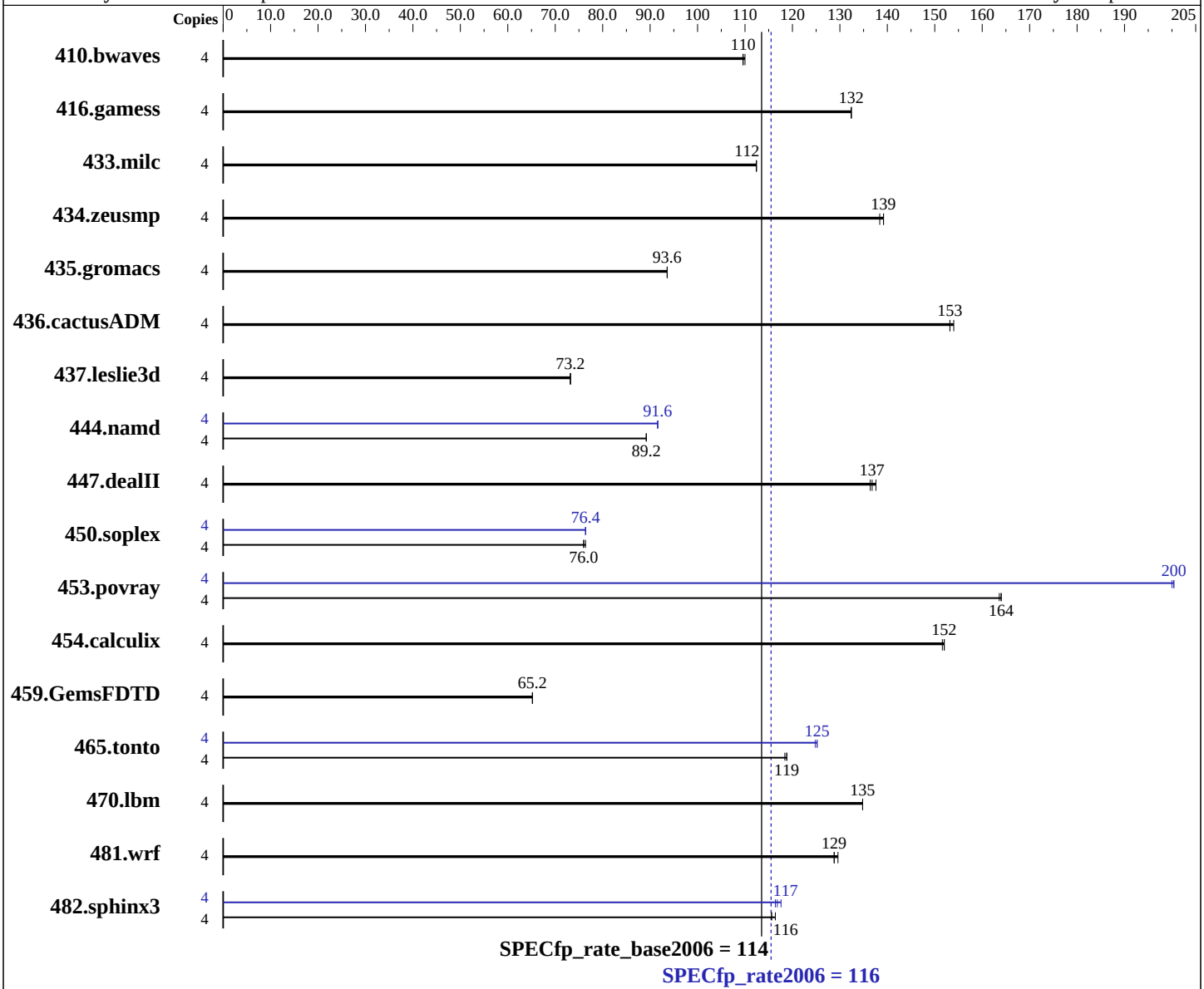
Intel DH77KC motherboard (Intel Core i5-3470S)

SPECfp®_rate2006 = 116

SPECfp_rate_base2006 = 114

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

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




### Hardware

| | |
|---|---|
| CPU Name: | Intel Core i5-3470S |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.60 GHz |
| CPU MHz: | 2900 |
| 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 (64-bit) 6.1.7601 Service Pack 1 Build 7601 |
| Compiler: | C/C++: Version 12.1.0.229 of Intel C++ Studio XE for Windows;<br>Fortran: Version 12.1.0.229 of Intel Fortran Studio XE for Windows;<br>Libraries: Version 15.00.30729.01 of Microsoft Visual Studio 2008 Professional SP1 |
| Auto Parallel: | No |
| 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 2Rx4 PC3-12800U-11)
Disk Subsystem: 1 TB Seagate 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 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 496 | 110 | 495 | 110 | **495** | **110** | 4 | 496 | 110 | 495 | 110 | **495** | **110** |
| 416.gamess | 4 | 591 | 132 | **591** | **132** | 591 | 132 | 4 | 591 | 132 | **591** | **132** | 591 | 132 |
| 433.milc | 4 | 326 | 112 | **327** | **112** | 327 | 112 | 4 | 326 | 112 | **327** | **112** | 327 | 112 |
| 434.zeusmp | 4 | 263 | 138 | 261 | 139 | **262** | **139** | 4 | 263 | 138 | 261 | 139 | **262** | **139** |
| 435.gromacs | 4 | 305 | 93.6 | **305** | **93.6** | 305 | 93.6 | 4 | 305 | 93.6 | **305** | **93.6** | 305 | 93.6 |
| 436.cactusADM | 4 | 310 | 154 | 312 | 153 | **312** | **153** | 4 | 310 | 154 | 312 | 153 | **312** | **153** |
| 437.leslie3d | 4 | **513** | **73.2** | 513 | 73.2 | 513 | 73.2 | 4 | **513** | **73.2** | 513 | 73.2 | 513 | 73.2 |
| 444.namd | 4 | **360** | **89.2** | 360 | 89.2 | 359 | 89.2 | 4 | 351 | 91.6 | **351** | **91.6** | 351 | 91.6 |
| 447.dealII | 4 | 336 | 136 | **334** | **137** | 333 | 138 | 4 | 336 | 136 | **334** | **137** | 333 | 138 |
| 450.soplex | 4 | 438 | 76.0 | 437 | 76.4 | **438** | **76.0** | 4 | 436 | 76.4 | **437** | **76.4** | 437 | 76.4 |
| 453.povray | 4 | 130 | 164 | **130** | **164** | 130 | 164 | 4 | 106 | 200 | 106 | 200 | **106** | **200** |
| 454.calculix | 4 | 217 | 152 | **217** | **152** | 217 | 152 | 4 | 217 | 152 | **217** | **152** | 217 | 152 |
| 459.GemsFDTD | 4 | **652** | **65.2** | 652 | 65.2 | 651 | 65.2 | 4 | **652** | **65.2** | 652 | 65.2 | 651 | 65.2 |
| 465.tonto | 4 | 332 | 118 | **332** | **119** | 331 | 119 | 4 | 316 | 125 | 314 | 125 | **315** | **125** |
| 470.lbm | 4 | 408 | 135 | **408** | **135** | 408 | 135 | 4 | 408 | 135 | **408** | **135** | 408 | 135 |
| 481.wrf | 4 | 347 | 129 | **347** | **129** | 345 | 130 | 4 | 347 | 129 | **347** | **129** | 345 | 130 |
| 482.sphinx3 | 4 | 674 | 116 | **674** | **116** | 670 | 116 | 4 | 669 | 116 | **667** | **117** | 664 | 118 |

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)

## Submit Notes

Processes were bound to specific processors using the start command with the /affinity switch.
The config file option 'submit' was used to generate the affinity mask for each process.

## Platform Notes

```
Sysinfo program C:\CPU200~1.17A/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on CltE840F20A9E2F Wed May 16 10:24:26 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

Trying 'systeminfo'
OS Name       : Microsoft Windows 7 Ultimate
OS Version    : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: INTEL_
System Model  : DH77KC__
Processor(s)  : 1 Processor(s) Installed.
     [01]: Intel64 Family 6 Model 58 Stepping 9 GenuineIntel ~2901 Mhz
BIOS Version  : Intel Corp. KCH7710H.86A.0069.2012.0224.1825, 2/24/2012
Total Physical Memory: 8,090 MB

Trying 'wmic cpu get /value'
DeviceID      : CPU0
L2CacheSize   : 1024
L3CacheSize   : 6144
MaxClockSpeed : 2901
Name          : Intel(R) Core(TM) i5-3470S CPU @ 2.90GHz
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

```
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
```

Continued on next page

## 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- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

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

Fortran benchmarks:
-QxAVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
/F1000000000 -link /FORCE:MULTIPLE

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

## 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: -QxAVX -Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias -Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

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: -QxAVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

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

Fortran benchmarks:

Continued on next page

# Peak Optimization Flags (Continued)

410.bwaves: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

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

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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