



# SPEC® CFP2006 Result

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## Intel Corporation

SPECfp®2006 = **64.5**

Intel DH77KC motherboard (Intel Core i5-3570K)

SPECfp\_base2006 = **62.9**

CPU2006 license: 13

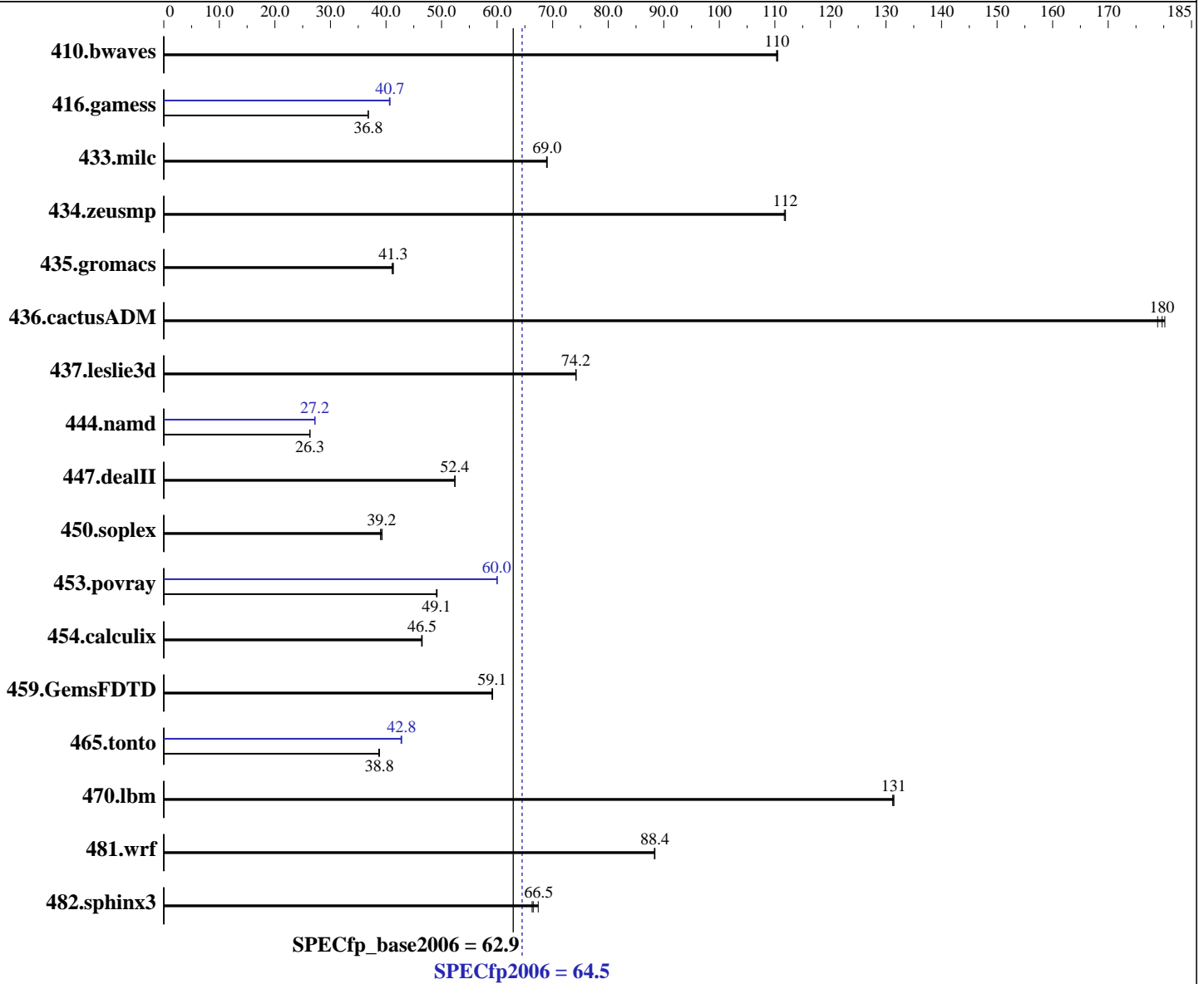
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: May-2012

Hardware Availability: Apr-2012

Software Availability: Apr-2011



**Hardware**

CPU Name: Intel Core i5-3570K  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 3400  
 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

Continued on next page

**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;  
 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  
 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              |                    |                    |                    |                    |                    |
|---------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|               | Seconds           | Ratio              | Seconds            | Ratio              | Seconds            | Ratio              | Seconds           | Ratio              | Seconds            | Ratio              | Seconds            | Ratio              |
| 410.bwaves    | 123               | 110                | 123                | 111                | <b><u>123</u></b>  | <b><u>110</u></b>  | 123               | 110                | 123                | 111                | <b><u>123</u></b>  | <b><u>110</u></b>  |
| 416.gamess    | <b><u>532</u></b> | <b><u>36.8</u></b> | 531                | 36.8               | 532                | 36.8               | 482               | 40.6               | 482                | 40.7               | <b><u>482</u></b>  | <b><u>40.7</u></b> |
| 433.milc      | 133               | 69.0               | <b><u>133</u></b>  | <b><u>69.0</u></b> | 133                | 68.9               | 133               | 69.0               | <b><u>133</u></b>  | <b><u>69.0</u></b> | 133                | 68.9               |
| 434.zeusmp    | 81.3              | 112                | <b><u>81.3</u></b> | <b><u>112</u></b>  | 81.5               | 112                | 81.3              | 112                | <b><u>81.3</u></b> | <b><u>112</u></b>  | 81.5               | 112                |
| 435.gromacs   | 173               | 41.3               | 174                | 41.1               | <b><u>173</u></b>  | <b><u>41.3</u></b> | 173               | 41.3               | 174                | 41.1               | <b><u>173</u></b>  | <b><u>41.3</u></b> |
| 436.cactusADM | 66.3              | 180                | 66.8               | 179                | <b><u>66.5</u></b> | <b><u>180</u></b>  | 66.3              | 180                | 66.8               | 179                | <b><u>66.5</u></b> | <b><u>180</u></b>  |
| 437.leslie3d  | <b><u>127</u></b> | <b><u>74.2</u></b> | 127                | 74.2               | 127                | 74.2               | <b><u>127</u></b> | <b><u>74.2</u></b> | 127                | 74.2               | 127                | 74.2               |
| 444.namd      | 304               | 26.3               | <b><u>304</u></b>  | <b><u>26.3</u></b> | 304                | 26.3               | 295               | 27.2               | <b><u>295</u></b>  | <b><u>27.2</u></b> | 295                | 27.2               |
| 447.dealII    | 218               | 52.4               | <b><u>218</u></b>  | <b><u>52.4</u></b> | 218                | 52.4               | 218               | 52.4               | <b><u>218</u></b>  | <b><u>52.4</u></b> | 218                | 52.4               |
| 450.soplex    | <b><u>213</u></b> | <b><u>39.2</u></b> | 214                | 39.0               | 212                | 39.3               | <b><u>213</u></b> | <b><u>39.2</u></b> | 214                | 39.0               | 212                | 39.3               |
| 453.povray    | 108               | 49.2               | <b><u>108</u></b>  | <b><u>49.1</u></b> | 108                | 49.1               | 88.7              | 60.0               | 88.6               | 60.0               | <b><u>88.6</u></b> | <b><u>60.0</u></b> |
| 454.calculix  | 178               | 46.4               | 178                | 46.5               | <b><u>178</u></b>  | <b><u>46.5</u></b> | 178               | 46.4               | 178                | 46.5               | <b><u>178</u></b>  | <b><u>46.5</u></b> |
| 459.GemsFDTD  | 179               | 59.2               | 180                | 59.1               | <b><u>180</u></b>  | <b><u>59.1</u></b> | 179               | 59.2               | 180                | 59.1               | <b><u>180</u></b>  | <b><u>59.1</u></b> |
| 465.tonto     | <b><u>254</u></b> | <b><u>38.8</u></b> | 254                | 38.7               | 254                | 38.8               | 230               | 42.8               | <b><u>230</u></b>  | <b><u>42.8</u></b> | 230                | 42.7               |
| 470.lbm       | 105               | 131                | 105                | 131                | <b><u>105</u></b>  | <b><u>131</u></b>  | 105               | 131                | 105                | 131                | <b><u>105</u></b>  | <b><u>131</u></b>  |
| 481.wrf       | 127               | 88.3               | <b><u>126</u></b>  | <b><u>88.4</u></b> | 126                | 88.4               | 127               | 88.3               | <b><u>126</u></b>  | <b><u>88.4</u></b> | 126                | 88.4               |
| 482.sphinx3   | <b><u>293</u></b> | <b><u>66.5</u></b> | 294                | 66.3               | 289                | 67.4               | <b><u>293</u></b> | <b><u>66.5</u></b> | 294                | 66.3               | 289                | 67.4               |

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 CltE840F20AA11B Thu May 17 03:44:07 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'

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## Platform Notes (Continued)

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 ~3401 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 : 3401
Name : Intel(R) Core(TM) i5-3570K CPU @ 3.40GHz
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



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## 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



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## 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 sh1w64M.lib  
-link /FORCE:MULTIPLE

447.dealIII: 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 sh1w64M.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



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CPU2006 license: 13

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Software Availability: Apr-2011

## 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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Thu Jul 24 09:25:18 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 18 July 2012.