



# SPEC<sup>®</sup> CFP2006 Result

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## Intel Corporation

SPECfp<sup>®</sup>2006 = **67.9**

Intel DH87MC motherboard (Intel Core i5-4570)

SPECfp\_base2006 = **65.9**

CPU2006 license: 13

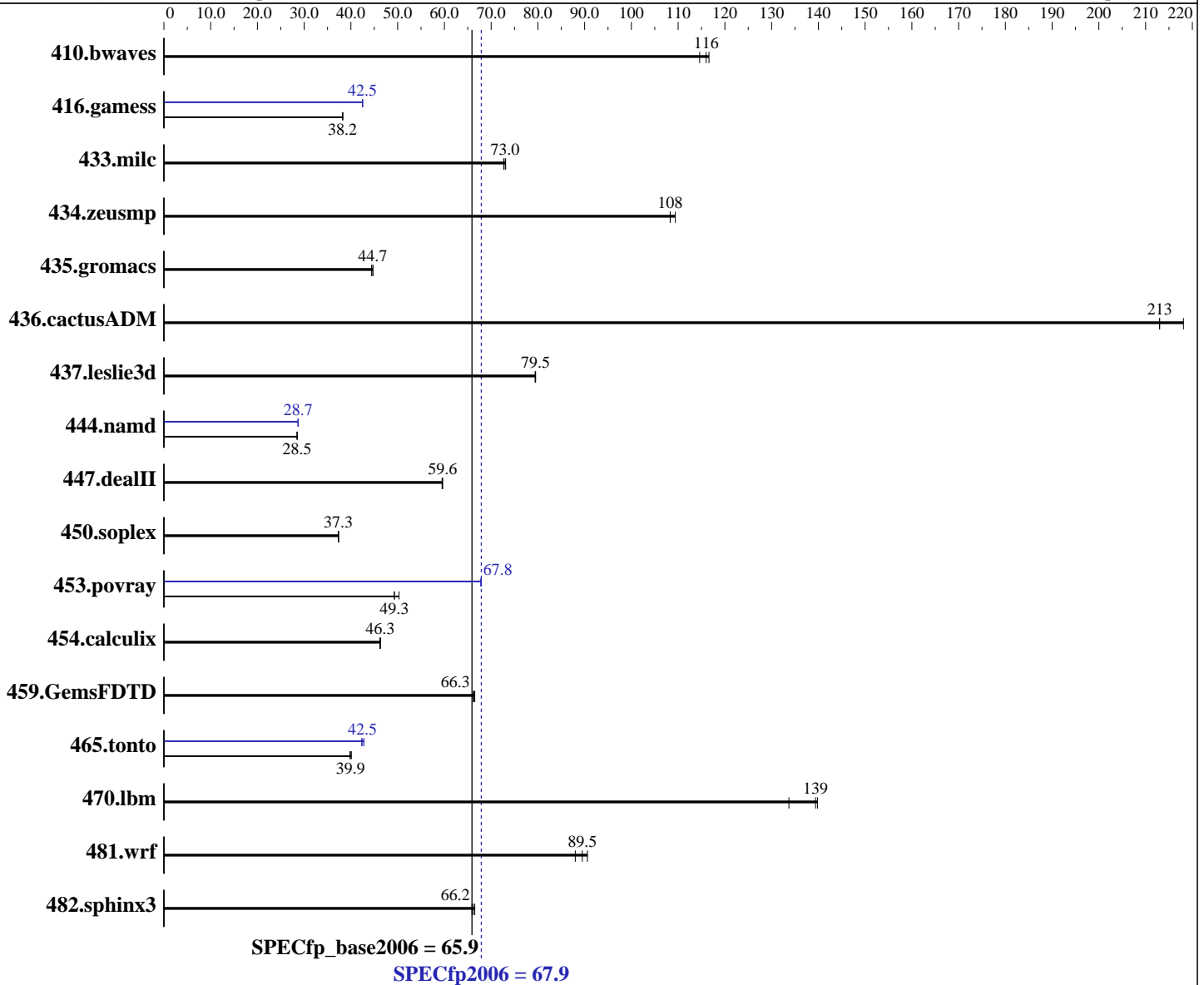
Test date: Jul-2013

Test sponsor: Intel Corporation

Hardware Availability: Jun-2013

Tested by: Intel Corporation

Software Availability: Apr-2013



### Hardware

CPU Name: Intel Core i5-4570  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.6 GHz  
 CPU MHz: 3200  
 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 8 Pro  
 6.2.9200 N/A Build 9200  
 Compiler: C/C++: Version 13.1.1.171 of Intel C++ Studio XE for Windows;  
 Fortran: Version 13.1.1.171 of Intel Fortran Studio XE for Windows;  
 Libraries: Version 16.00.30319.01 of Microsoft Visual Studio 2010 Professional SP1  
 Auto Parallel: Yes

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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 PC3-12800U-9)  
 Disk Subsystem: 1 TB Seagate SATA, 7200 RPM  
 Other Hardware: None

File System: NTFS  
 System State: Default  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: SmartHeap Library Version 10.0 from <http://www.microquill.com/>

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b>117</b>	<b>116</b>	119	115	117	117	<b>117</b>	<b>116</b>	119	115	117	117
416.gamess	512	38.2	<b>512</b>	<b>38.2</b>	512	38.3	<b>461</b>	<b>42.5</b>	460	42.5	461	42.5
433.milc	126	72.7	<b>126</b>	<b>73.0</b>	126	73.1	126	72.7	<b>126</b>	<b>73.0</b>	126	73.1
434.zeusmp	83.2	109	<b>84.0</b>	<b>108</b>	84.0	108	83.2	109	<b>84.0</b>	<b>108</b>	84.0	108
435.gromacs	160	44.7	<b>160</b>	<b>44.7</b>	161	44.4	160	44.7	<b>160</b>	<b>44.7</b>	161	44.4
436.cactusADM	<b>56.1</b>	<b>213</b>	54.8	218	56.1	213	<b>56.1</b>	<b>213</b>	54.8	218	56.1	213
437.leslie3d	118	79.5	118	79.4	<b>118</b>	<b>79.5</b>	118	79.5	118	79.4	<b>118</b>	<b>79.5</b>
444.namd	281	28.5	<b>281</b>	<b>28.5</b>	281	28.5	280	28.7	279	28.7	<b>280</b>	<b>28.7</b>
447.dealII	192	59.6	192	59.5	<b>192</b>	<b>59.6</b>	192	59.6	192	59.5	<b>192</b>	<b>59.6</b>
450.soplex	224	37.3	<b>223</b>	<b>37.3</b>	223	37.4	224	37.3	<b>223</b>	<b>37.3</b>	223	37.4
453.povray	<b>108</b>	<b>49.3</b>	106	50.3	108	49.3	<b>78.5</b>	<b>67.8</b>	78.4	67.9	78.5	67.8
454.calculix	179	46.2	178	46.3	<b>178</b>	<b>46.3</b>	179	46.2	178	46.3	<b>178</b>	<b>46.3</b>
459.GemsFDTD	160	66.2	<b>160</b>	<b>66.3</b>	160	66.5	160	66.2	<b>160</b>	<b>66.3</b>	160	66.5
465.tonto	247	39.8	245	40.1	<b>246</b>	<b>39.9</b>	233	42.3	230	42.8	<b>232</b>	<b>42.5</b>
470.lbm	98.3	140	<b>98.6</b>	<b>139</b>	103	134	98.3	140	<b>98.6</b>	<b>139</b>	103	134
481.wrf	127	88.0	<b>125</b>	<b>89.5</b>	123	90.6	127	88.0	<b>125</b>	<b>89.5</b>	123	90.6
482.sphinx3	293	66.5	<b>294</b>	<b>66.2</b>	296	65.9	293	66.5	<b>294</b>	<b>66.2</b>	296	65.9

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 13.1 was set up to generate 64-bit binaries with the command:  
 "ipsxe-comp-vars.bat intel64 vs2010" (shortcut provided in the Intel(r) Parallel Studio XE 2013 program folder)

## Platform Notes

Sysinfo program C:\Users\PECA\_W~1\Desktop\CPU200~1.APR/Docs/sysinfo  
 \$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ \8787f7622badcf24e01c368b1db4377c  
 running on HSW\_9200 Sat Jul 13 08:11:13 2013

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:

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## Platform Notes (Continued)

<http://www.spec.org/cpu2006/Docs/config.html#sysinfo>

Trying 'systeminfo'

```

OS Name       : Microsoft Windows 8 Pro
OS Version    : 6.2.9200 N/A Build 9200
System Manufacturer: INTEL_
System Model   : DH87MC__
Processor(s)  : 1 Processor(s) Installed.
               [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~3201 Mhz
BIOS Version  : Intel Corp. MCH8710H.86A.0043.2013.0412.2225, 4/12/2013
Total Physical Memory: 7,864 MB

```

Trying 'wmic cpu get /value'

```

DeviceID      : CPU0
L2CacheSize   : 1024
L3CacheSize   : 6144
MaxClockSpeed : 3201
Name          : Intel(R) Core(TM) i5-4570 CPU @ 3.20GHz
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 -Qvc10 -Qstd=c99
```

C++ benchmarks:

```
icl -Qvc10
```

Fortran benchmarks:

```
ifort
```

Benchmarks using both Fortran and C:

```
icl -Qvc10 -Qstd=c99 ifort
```



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## Base Portability Flags

```

410.bwaves: -DSPEC_CPU_P64
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
-Qoption,cpp,--ms_incompat_treatment_of_commas_in_macros
450.soplex: -DSPEC_CPU_P64
453.povray: -DSPEC_CPU_P64 -DSPEC_CPU_NEED_INVHYP -DNEED_INVHYP
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:

```

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qauto-ilp32 /F1000000000

```

C++ benchmarks:

```

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qcxx-features -Qauto-ilp32 /F1000000000 shlw64M.lib
-link /FORCE:MULTIPLE

```

Fortran benchmarks:

```

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch /F1000000000

```

Benchmarks using both Fortran and C:

```

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qauto-ilp32 /F1000000000

```

## Peak Compiler Invocation

C benchmarks:

```

icl -Qvc10 -Qstd=c99

```

C++ benchmarks:

```

icl -Qvc10

```

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Test sponsor: Intel Corporation

Hardware Availability: Jun-2013

Tested by: Intel Corporation

Software Availability: Apr-2013

## Peak Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icl -Qvc10 -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: -QxCORE-AVX2(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: -QxCORE-AVX2(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: -QxCORE-AVX2(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

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Software Availability: Apr-2013

## Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -QxCORE-AVX2(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-ic13.1-official-windows.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic13.1-official-windows.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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