



# SPEC® CFP2006 Result

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## Intel Corporation

SPECfp®2006 = **61.2**

Intel DH77KC motherboard (Intel Core i5-3450)

SPECfp\_base2006 = **59.6**

CPU2006 license: 13

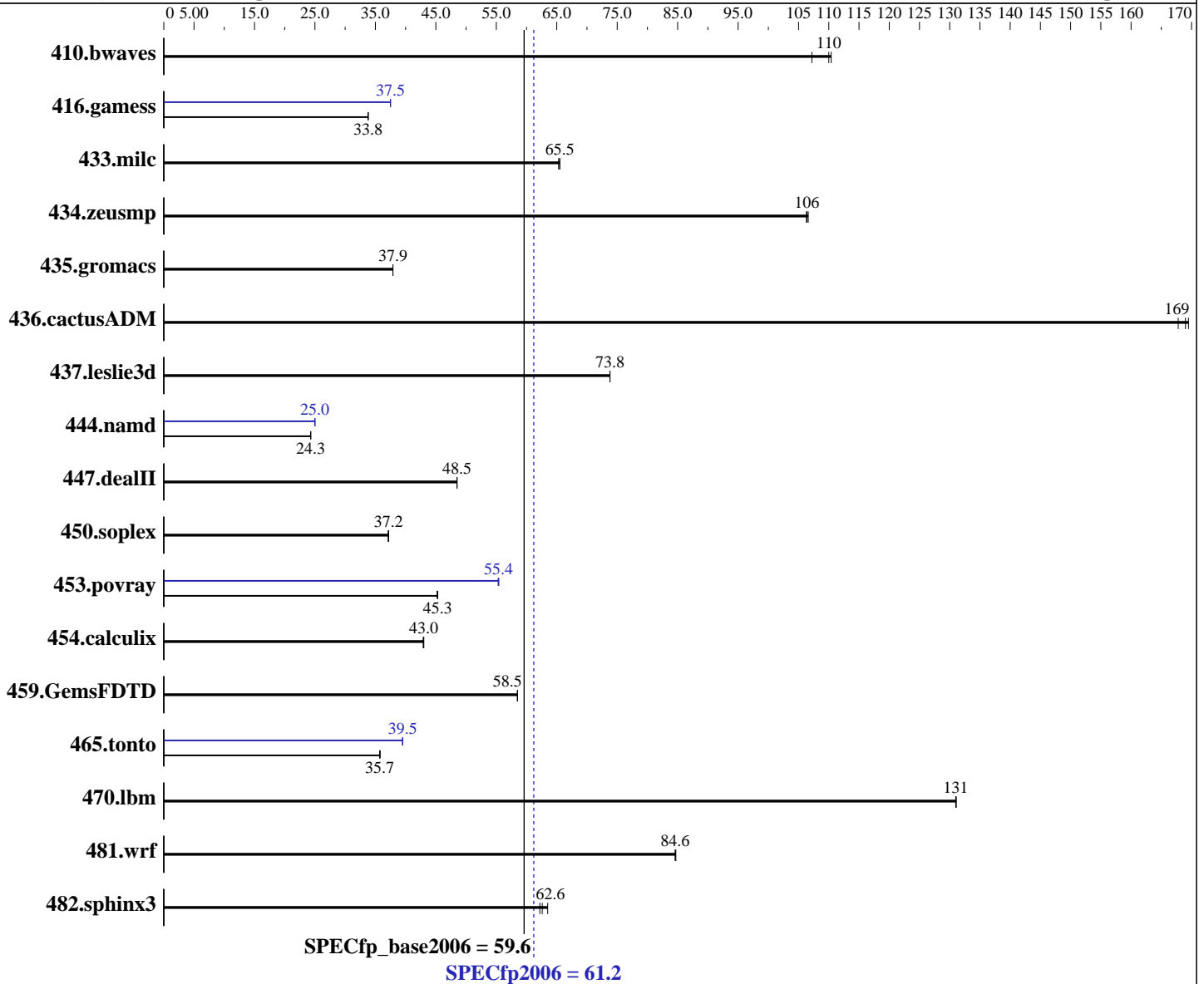
Test date: May-2012

Test sponsor: Intel Corporation

Hardware Availability: Apr-2012

Tested by: Intel Corporation

Software Availability: Apr-2011



### Hardware

CPU Name: Intel Core i5-3450  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.50 GHz  
 CPU MHz: 3100  
 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;  
 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	<b>124</b>	<b>110</b>	123	110	127	107	<b>124</b>	<b>110</b>	123	110	127	107
416.gamess	<b>579</b>	<b>33.8</b>	579	33.8	579	33.8	<b>523</b>	<b>37.5</b>	<b>523</b>	<b>37.5</b>	523	37.5
433.milc	141	65.3	<b>140</b>	<b>65.5</b>	140	65.5	141	65.3	<b>140</b>	<b>65.5</b>	140	65.5
434.zeusmp	<b>85.5</b>	<b>106</b>	85.6	106	85.4	107	<b>85.5</b>	<b>106</b>	85.6	106	85.4	107
435.gromacs	188	37.9	<b>188</b>	<b>37.9</b>	188	37.9	188	37.9	<b>188</b>	<b>37.9</b>	188	37.9
436.cactusADM	70.5	170	<b>70.7</b>	<b>169</b>	71.2	168	70.5	170	<b>70.7</b>	<b>169</b>	71.2	168
437.leslie3d	127	73.8	<b>127</b>	<b>73.8</b>	127	73.8	127	73.8	<b>127</b>	<b>73.8</b>	127	73.8
444.namd	330	24.3	<b>330</b>	<b>24.3</b>	330	24.3	320	25.0	<b>320</b>	<b>25.0</b>	320	25.0
447.dealII	236	48.5	236	48.5	<b>236</b>	<b>48.5</b>	236	48.5	236	48.5	<b>236</b>	<b>48.5</b>
450.soplex	<b>224</b>	<b>37.2</b>	225	37.1	224	37.2	<b>224</b>	<b>37.2</b>	225	37.1	224	37.2
453.povray	118	45.2	117	45.3	<b>118</b>	<b>45.3</b>	96.1	55.4	<b>96.1</b>	<b>55.4</b>	96.2	55.3
454.calculix	192	43.0	192	42.9	<b>192</b>	<b>43.0</b>	192	43.0	192	42.9	<b>192</b>	<b>43.0</b>
459.GemsFDTD	181	58.5	182	58.5	<b>181</b>	<b>58.5</b>	181	58.5	182	58.5	<b>181</b>	<b>58.5</b>
465.tonto	276	35.7	<b>275</b>	<b>35.7</b>	275	35.8	<b>249</b>	<b>39.5</b>	249	39.5	249	39.5
470.lbm	<b>105</b>	<b>131</b>	105	131	105	131	<b>105</b>	<b>131</b>	105	131	105	131
481.wrf	132	84.6	<b>132</b>	<b>84.6</b>	132	84.7	132	84.6	<b>132</b>	<b>84.6</b>	132	84.7
482.sphinx3	313	62.2	<b>311</b>	<b>62.6</b>	307	63.5	313	62.2	<b>311</b>	<b>62.6</b>	307	63.5

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 CltE840F20AA4A3 Tue May 15 21:57:59 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 ~3101 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 : 3101
Name : Intel(R) Core(TM) i5-3450 CPU @ 3.10GHz
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

```

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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

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

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