



# SPEC<sup>®</sup> CFP2006 Result

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## Intel Corporation

### SPECfp<sup>®</sup>\_rate2006 = 79.6

### Intel DH77KC motherboard (Intel Core i5-3470T)

### SPECfp\_rate\_base2006 = 78.8

CPU2006 license: 13

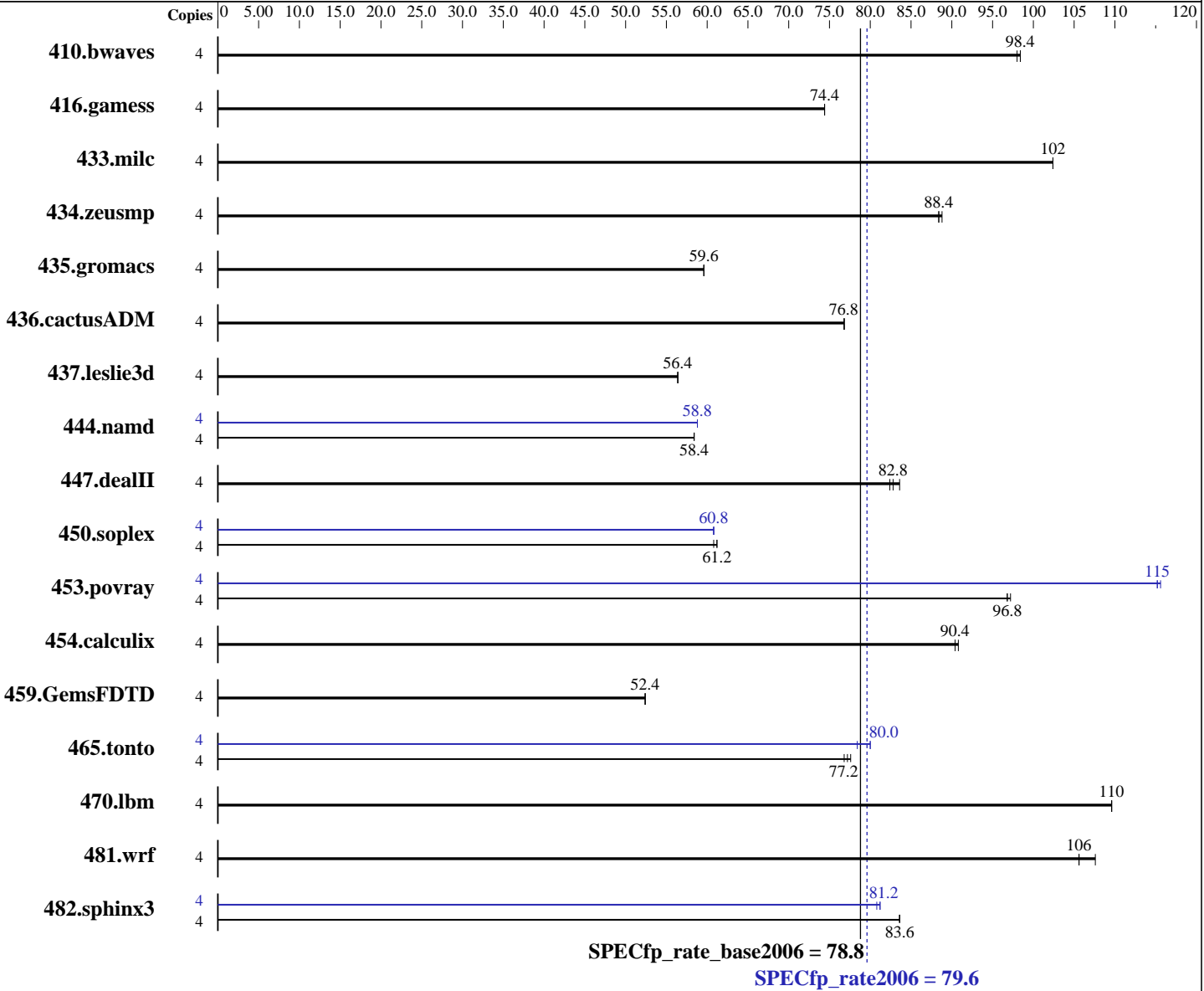
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: May-2012

Hardware Availability: Apr-2012

Software Availability: Apr-2011



### Hardware

CPU Name: Intel Core i5-3470T  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2900  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip, 2 threads/core  
 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: No  
 File System: NTFS

Continued on next page



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L3 Cache: 3 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      | <u>554</u> | <u>98.4</u> | 553         | 98.4        | 555        | 98.0        | 4      | <u>554</u> | <u>98.4</u> | 553         | 98.4        | 555        | 98.0        |
| 416.gamess    | 4      | 1055       | 74.4        | <u>1055</u> | <u>74.4</u> | 1054       | 74.4        | 4      | 1055       | 74.4        | <u>1055</u> | <u>74.4</u> | 1054       | 74.4        |
| 433.milc      | 4      | <u>359</u> | <u>102</u>  | 359         | 102         | 359        | 102         | 4      | <u>359</u> | <u>102</u>  | 359         | 102         | 359        | 102         |
| 434.zeusmp    | 4      | <u>412</u> | <u>88.4</u> | 412         | 88.4        | 410        | 88.8        | 4      | <u>412</u> | <u>88.4</u> | 412         | 88.4        | 410        | 88.8        |
| 435.gromacs   | 4      | 479        | 59.6        | <u>479</u>  | <u>59.6</u> | 479        | 59.6        | 4      | 479        | 59.6        | <u>479</u>  | <u>59.6</u> | 479        | 59.6        |
| 436.cactusADM | 4      | 623        | 76.8        | <u>623</u>  | <u>76.8</u> | 624        | 76.8        | 4      | 623        | 76.8        | <u>623</u>  | <u>76.8</u> | 624        | 76.8        |
| 437.leslie3d  | 4      | 667        | 56.4        | 669         | 56.4        | <u>667</u> | <u>56.4</u> | 4      | 667        | 56.4        | 669         | 56.4        | <u>667</u> | <u>56.4</u> |
| 444.namd      | 4      | <u>550</u> | <u>58.4</u> | 550         | 58.4        | 550        | 58.4        | 4      | 546        | 58.8        | <u>546</u>  | <u>58.8</u> | 546        | 58.8        |
| 447.dealII    | 4      | <u>552</u> | <u>82.8</u> | 546         | 83.6        | 556        | 82.4        | 4      | <u>552</u> | <u>82.8</u> | 546         | 83.6        | 556        | 82.4        |
| 450.soplex    | 4      | 547        | 60.8        | 547         | 61.2        | <u>547</u> | <u>61.2</u> | 4      | 550        | 60.8        | <u>550</u>  | <u>60.8</u> | 550        | 60.8        |
| 453.povray    | 4      | 220        | 96.8        | 219         | 97.2        | <u>220</u> | <u>96.8</u> | 4      | 184        | 116         | <u>185</u>  | <u>115</u>  | 185        | 115         |
| 454.calculix  | 4      | 366        | 90.4        | 364         | 90.8        | <u>364</u> | <u>90.4</u> | 4      | 366        | 90.4        | 364         | 90.8        | <u>364</u> | <u>90.4</u> |
| 459.GemsFDTD  | 4      | <u>808</u> | <u>52.4</u> | 811         | 52.4        | 808        | 52.4        | 4      | <u>808</u> | <u>52.4</u> | 811         | 52.4        | 808        | 52.4        |
| 465.tonto     | 4      | 508        | 77.6        | 512         | 76.8        | <u>509</u> | <u>77.2</u> | 4      | 503        | 78.4        | 492         | 80.0        | <u>492</u> | <u>80.0</u> |
| 470.lbm       | 4      | 501        | 110         | 501         | 110         | <u>501</u> | <u>110</u>  | 4      | 501        | 110         | 501         | 110         | <u>501</u> | <u>110</u>  |
| 481.wrf       | 4      | 424        | 106         | 415         | 108         | <u>422</u> | <u>106</u>  | 4      | 424        | 106         | 415         | 108         | <u>422</u> | <u>106</u>  |
| 482.sphinx3   | 4      | 933        | 83.6        | <u>932</u>  | <u>83.6</u> | 931        | 83.6        | 4      | 965        | 80.8        | <u>961</u>  | <u>81.2</u> | 960        | 81.2        |

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.



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CPU2006 license: 13

Test date: May-2012

Test sponsor: Intel Corporation

Hardware Availability: Apr-2012

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## Platform Notes

Sysinfo program C:\CPU200~1.17A\Docs\sysinfo  
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ \8787f7622badcf24e01c368b1db4377c  
running on CltE840F20AA0BD Wed May 16 17:09:59 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'

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 : 512  
L3CacheSize : 3072  
MaxClockSpeed : 2901  
Name : Intel(R) Core(TM) i5-3470T CPU @ 2.90GHz  
NumberOfCores : 2  
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

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## 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



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## 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 sh1w64M.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 sh1w64M.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  
sh1w64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

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

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