## SPEC® CFP2006 Result

Microsoft Corporation  
(Test Sponsor: Intel Corporation)

**Surface Pro 3**

![SPEC logo](https://via.placeholder.com/150.png?text=SPEC)

### SPECfp®_rate2006 = 64.6

### SPECfp_rate_base2006 = 63.1

<table>
<thead>
<tr>
<th>CPU2006 license: 13</th>
<th>Test date: Sep-2014</th>
<th>Hardware Availability: Jun-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test sponsor: Intel Corporation</td>
<td>Tested by: Intel Corporation</td>
<td>Software Availability: Oct-2013</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Core i5-4300U  
  - CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz  
  - CPU MHz: 1900  
  - 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

### Software

- Operating System: Microsoft Windows 8.1 Pro  
  - 6.3.9600 N/A Build 9600  
- Auto Parallel: No

### Test Results

| Benchmark | Copies | 3.00 | 9.00 | 15.0 | 21.0 | 27.0 | 33.0 | 39.0 | 45.0 | 51.0 | 57.0 | 63.0 | 69.0 | 75.0 | 81.0 | 87.0 | 93.0 | 99.0 | 105.0 | 111.0 | 117.0 | 123.0 |
|-----------|--------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| bwaves    | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| gamess    | 4      | 50.8 |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| milc      | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| zeusmp    | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| gromacs   | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| cactusADM | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| leslie3d  | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| namd      | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| dealIII   | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| soplex    | 2      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| povray    | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| calculix  | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| GemsFDTD  | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| tonto     | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| lbm       | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| wrf       | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| sphinx3   | 4      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |

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(Test Sponsor: Intel Corporation)  
**Surface Pro 3**

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

- L3 Cache: 3 MB I+D on chip per chip
- Other Cache: None
- Memory: 4 GB (4 x 1 GB 2Rx32 PC3L-12800U-11)
- Disk Subsystem: 128 GB SSD
- Other Hardware: None

**Software Availability:** Oct-2013  
**Hardware Availability:** Jun-2014  
**Test date:** Sep-2014  
**Test sponsor:** Intel Corporation

**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/](http://www.microquill.com/)

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## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
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</tbody>
</table>

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 14.0 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)

## 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.
**Software Availability:** Oct-2013

**Hardware Availability:** Jun-2014

**Test Sponsor:** Intel Corporation

**Tested by:** Intel Corporation

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**Platform Notes**

Sysinfo program C:\Users\peca\Desktop\SPEC14.0\SPEC14.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on ea_i5 Thu Sep 11 14:30:42 2014

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 8.1 Pro
OS Version    : 6.3.9600 N/A Build 9600
System Manufacturer: Microsoft Corporation
System Model  : Surface Pro 3
Processor(s)  : 1 Processor(s) Installed.
[01]: Intel64 Family 6 Model 69 Stepping 1 GenuineIntel ~1900 Mhz
BIOS Version  : American Megatrends Inc. 3.10.0250, 8/28/2014
Total Physical Memory: 4,001 MB

Trying 'wmic cpu get /value'

DeviceID      : CPU0
L2CacheSize   : 512
L3CacheSize   : 3072
MaxClockSpeed : 2501
Name          : Intel(R) Core(TM) i5-4300U CPU @ 1.90GHz
NumberOfCores : 2
NumberOfLogicalProcessors: 4

(End of data from sysinfo program)

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**Component Notes**

Test ran with power supply connected
Power Supply: 12V, 2.58A

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**General Notes**

Binaries compiled on a system with 1x Intel Core i7-860 CPU
+ 8GB memory using Windows 7 Enterprise 64-bit

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**Base Compiler Invocation**

C benchmarks:

icl -Qvc10 -Qstd=c99

C++ benchmarks:

icl -Qvc10

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Microsoft Corporation
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SPECfp_rate2006 = 64.6
SPECfp_rate_base2006 = 63.1

CPU2006 license: 13
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Hardware Availability: Jun-2014
Software Availability: Oct-2013

Base Compiler Invocation (Continued)

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc10 -Qstd=c99 ifort

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 -03 -Qprec-div -Qansi-alias -Qopt-prefetch
-Qauto-1lp32 /F1000000000 -link /FORCE:MULTIPLE

C++ benchmarks:
-QxCORE-AVX2 -Qipo -03 -Qprec-div -Qansi-alias -Qopt-prefetch
-Qcxx-features -Qauto-1lp32 /F1000000000 shlw64M.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-QxCORE-AVX2 -Qipo -03 -Qprec-div -Qansi-alias -Qopt-prefetch
/F1000000000 -link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:
-QxCORE-AVX2 -Qipo -03 -Qprec-div -Qansi-alias -Qopt-prefetch
-Qauto-1lp32 /F1000000000 -link /FORCE:MULTIPLE
Microsoft Corporation  
(Test Sponsor: Intel Corporation)

Surface Pro 3

SPEC CFP2006 Result

**CPU2006 license:** 13  
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**Software Availability:** Oct-2013

**SPECfp_rate2006 = 64.6**  
**SPECfp_rate_base2006 = 63.1**

---

**Peak 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

---

**Peak Portability Flags**

Same as Base Portability Flags

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**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  
shlW64M.lib -link /FORCE:MULTIPLE
447.dealII: basepeak = yes
450.soplex: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)  
-Qipo -O3 -Qauto-ilp32 /F1000000000 shlW64M.lib  
-link /FORCE:MULTIPLE
453.povray: -QxCORE-AVX2(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:
410.bwaves: basepeak = yes

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Microsoft Corporation
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Surface Pro 3

SPEC CFP2006 Result

Microsoft Corporation
(Test Sponsor: Intel Corporation)

Surface Pro 3

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SPECfp_rate_base2006 = 63.1

CPU2006 license: 13
Test date: Sep-2014

Test sponsor: Intel Corporation
Hardware Availability: Jun-2014

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Software Availability: Oct-2013

Peak Optimization Flags (Continued)

416.gamess: basepeak = yes
434.zeusmp: basepeak = yes
437.leslie3d: basepeak = yes
459.GemsFDTD: basepeak = yes

465.tonto: -QxCORE-AVX2(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

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

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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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