



# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Microsoft Corporation  
(Test Sponsor: Intel Corporation)

SPECfp®\_rate2006 = 50.9

## Surface Pro 3

SPECfp\_rate\_base2006 = 50.6

CPU2006 license: 13

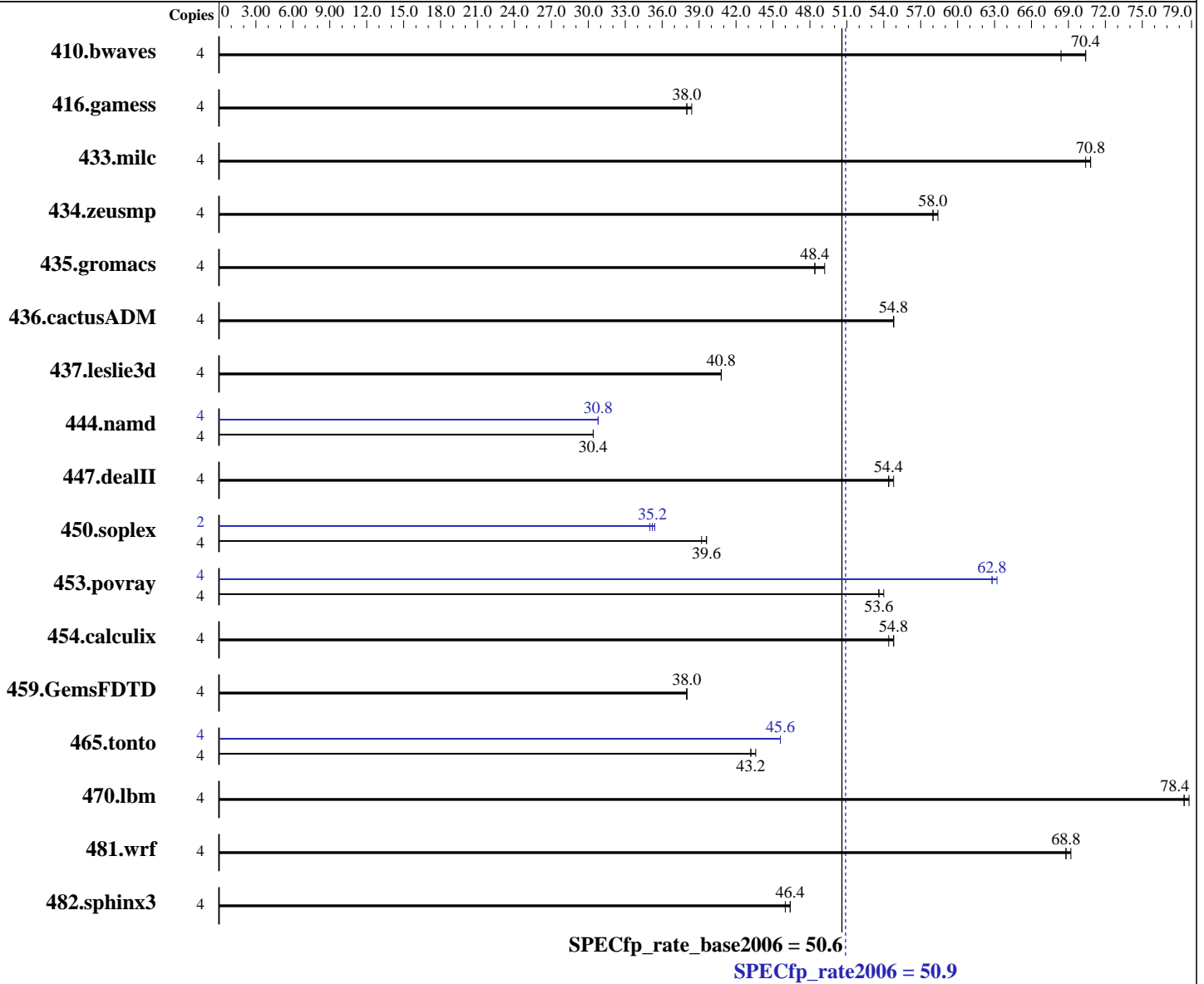
Test date: Sep-2014

Test sponsor: Intel Corporation

Hardware Availability: Jun-2014

Tested by: Intel Corporation

Software Availability: Oct-2013



### Hardware

CPU Name: Intel Core i3-4020Y  
 CPU Characteristics:  
 CPU MHz: 1500  
 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

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### Software

Operating System: Microsoft Windows 8.1 Pro  
 6.3.9600 N/A Build 9600

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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: 64 GB SSD  
Other Hardware: None

Compiler: C/C++: Version 14.0.1.139 of Intel C++ Studio XE for Windows;  
Fortran: Version 14.0.1.139 of Intel Fortran Studio XE for Windows;  
Libraries: Version 16.00.30319.01 of Microsoft Visual Studio 2010 Professional SP1  
Auto Parallel: No  
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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	795	68.4	<b>774</b>	<b>70.4</b>	774	70.4	4	795	68.4	<b>774</b>	<b>70.4</b>	774	70.4
416.gamess	4	2055	38.0	2047	38.4	<b>2054</b>	<b>38.0</b>	4	2055	38.0	2047	38.4	<b>2054</b>	<b>38.0</b>
433.milc	4	518	70.8	521	70.4	<b>519</b>	<b>70.8</b>	4	518	70.8	521	70.4	<b>519</b>	<b>70.8</b>
434.zeusmp	4	629	58.0	<b>626</b>	<b>58.0</b>	625	58.4	4	629	58.0	<b>626</b>	<b>58.0</b>	625	58.4
435.gromacs	4	<b>588</b>	<b>48.4</b>	580	49.2	588	48.4	4	<b>588</b>	<b>48.4</b>	580	49.2	588	48.4
436.cactusADM	4	<b>872</b>	<b>54.8</b>	872	54.8	872	54.8	4	<b>872</b>	<b>54.8</b>	872	54.8	872	54.8
437.leslie3d	4	<b>918</b>	<b>40.8</b>	918	40.8	919	40.8	4	<b>918</b>	<b>40.8</b>	918	40.8	919	40.8
444.namd	4	1052	30.4	<b>1053</b>	<b>30.4</b>	1053	30.4	4	<b>1036</b>	<b>30.8</b>	1039	30.8	1035	30.8
447.dealII	4	<b>843</b>	<b>54.4</b>	837	54.8	844	54.4	4	<b>843</b>	<b>54.4</b>	837	54.8	844	54.4
450.soplex	4	<b>843</b>	<b>39.6</b>	843	39.6	854	39.2	2	477	35.0	471	35.4	<b>475</b>	<b>35.2</b>
453.povray	4	397	53.6	395	54.0	<b>396</b>	<b>53.6</b>	4	337	63.2	339	62.8	<b>338</b>	<b>62.8</b>
454.calculix	4	601	54.8	<b>602</b>	<b>54.8</b>	606	54.4	4	601	54.8	<b>602</b>	<b>54.8</b>	606	54.4
459.GemsFDTD	4	1115	38.0	1113	38.0	<b>1114</b>	<b>38.0</b>	4	1115	38.0	1113	38.0	<b>1114</b>	<b>38.0</b>
465.tonto	4	905	43.6	<b>909</b>	<b>43.2</b>	912	43.2	4	861	45.6	863	45.6	<b>861</b>	<b>45.6</b>
470.lbm	4	696	78.8	<b>699</b>	<b>78.4</b>	702	78.4	4	696	78.8	<b>699</b>	<b>78.4</b>	702	78.4
481.wrf	4	647	69.2	649	68.8	<b>648</b>	<b>68.8</b>	4	647	69.2	649	68.8	<b>648</b>	<b>68.8</b>
482.sphinx3	4	<b>1687</b>	<b>46.4</b>	1680	46.4	1694	46.0	4	<b>1687</b>	<b>46.4</b>	1680	46.4	1694	46.0

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Compiler Invocation Notes

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)



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### 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.

### Platform Notes

Sysinfo program C:\Users\peca\Desktop\SPEC14.0\SPEC14.0/Docs/sysinfo  
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ \8787f7622badcf24e01c368b1db4377c  
running on peca\_i3 Fri Sep 12 11:21:52 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 ~1500 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 : 1501
Name          : Intel(R) Core(TM) i3-4020Y CPU @ 1.50GHz
NumberOfCores : 2
NumberOfLogicalProcessors: 4
```

(End of data from sysinfo program)

### Component Notes

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

### 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

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 -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
-Qauto-ilp32 -Qopt-mem-layout-trans:3 /F1000000000  
-link /FORCE:MULTIPLE

C++ benchmarks:  
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
-Qcxx-features -Qauto-ilp32 -Qopt-mem-layout-trans:3 /F1000000000  
shlw64M.lib -link /FORCE:MULTIPLE

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## Base Optimization Flags (Continued)

Fortran benchmarks:

```
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
/F1000000000 -link /FORCE:MULTIPLE
```

Benchmarks using both Fortran and C:

```
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
-Qauto-ilp32 -Qopt-mem-layout-trans:3 /F1000000000  
-link /FORCE:MULTIPLE
```

## 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

## 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  
-Qopt-mem-layout-trans:3 /F1000000000 shlW64M.lib  
-link /FORCE:MULTIPLE
```

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## Peak Optimization Flags (Continued)

447.dealIII: basepeak = yes

450.soplex: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qauto-ilp32 -Qopt-mem-layout-trans:3  
/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  
-Qopt-mem-layout-trans:3 /F1000000000 shlw64M.lib  
-link /FORCE:MULTIPLE

### Fortran benchmarks:

410.bwaves: basepeak = yes

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  
<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-windows.html>

You can also download the XML flags source by saving the following link:  
<http://www.spec.org/cpu2006/flags/Intel-ic14.0-official-windows.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).

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