



# SPEC® CINT2006 Result

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Microsoft Corporation  
(Test Sponsor: Intel Corporation)

SPECint®\_rate2006 = 50.0

## Surface Pro 3

SPECint\_rate\_base2006 = 46.6

CPU2006 license: 13

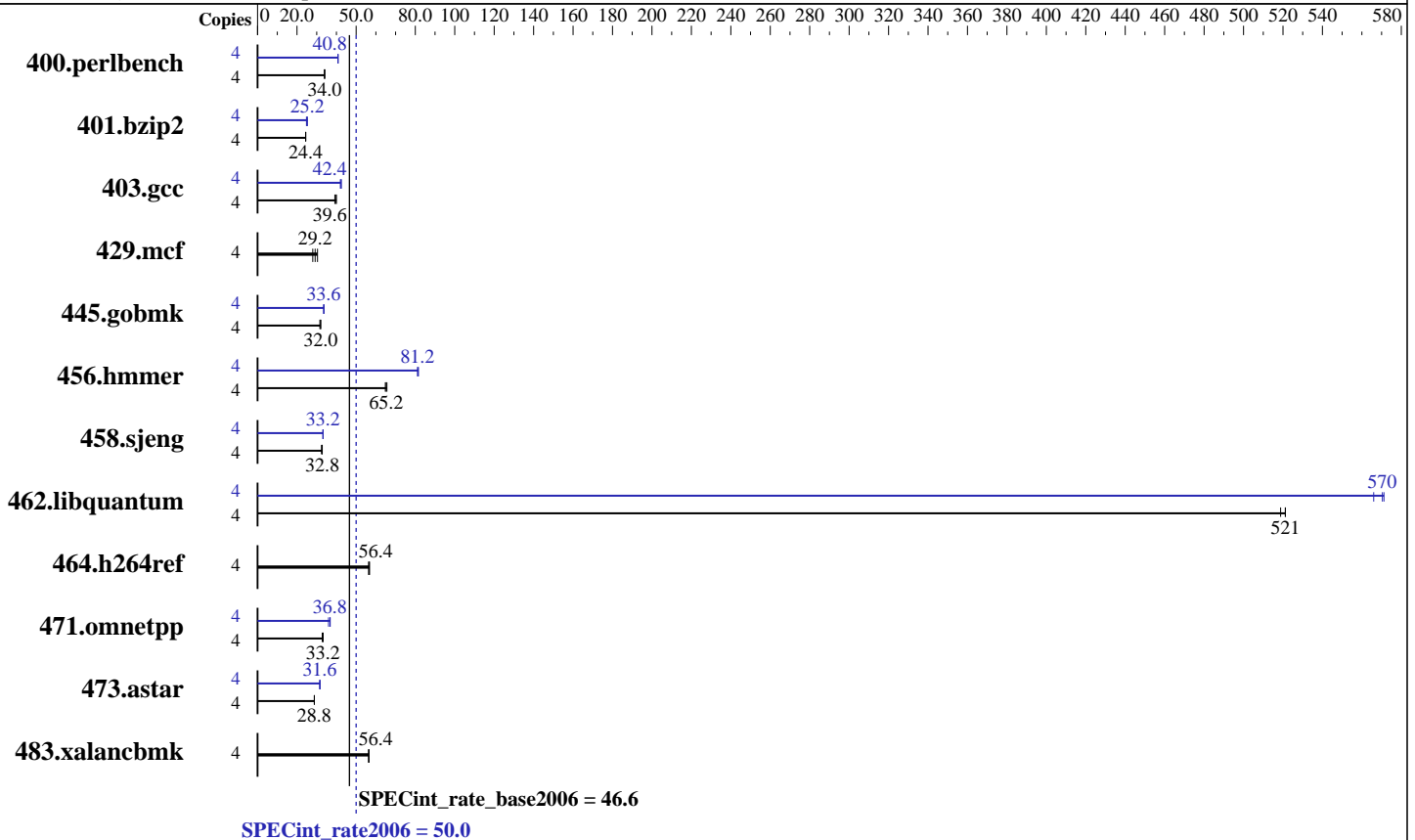
Test date: Sep-2014

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  
 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

### Software

Operating System: Microsoft Windows 8.1 Pro  
 6.3.9600 N/A Build 9600  
 Compiler: C/C++: Version 14.0.1.139 of Intel C++  
 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-bit  
 Peak Pointers: 32/64-bit  
 Other Software: SmartHeap Library Version 10.0 from  
<http://www.microquill.com/>



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	<u>1147</u>	<u>34.0</u>	1148	34.0	1146	34.0	4	957	40.8	<u>958</u>	<u>40.8</u>	958	40.8
401.bzip2	4	1581	24.4	<u>1577</u>	<u>24.4</u>	1577	24.4	4	1554	24.8	<u>1541</u>	<u>25.2</u>	1540	25.2
403.gcc	4	806	40.0	821	39.2	<u>811</u>	<u>39.6</u>	4	759	42.4	768	42.0	<u>760</u>	<u>42.4</u>
429.mcf	4	1307	28.0	1206	30.4	<u>1245</u>	<u>29.2</u>	4	1307	28.0	1206	30.4	<u>1245</u>	<u>29.2</u>
445.gobmk	4	1319	32.0	<u>1319</u>	<u>32.0</u>	1326	31.6	4	<u>1248</u>	<u>33.6</u>	1245	33.6	1250	33.6
456.hammer	4	<u>571</u>	<u>65.2</u>	575	64.8	570	65.6	4	<u>460</u>	<u>81.2</u>	458	81.6	460	81.2
458.sjeng	4	1472	32.8	1486	32.4	<u>1484</u>	<u>32.8</u>	4	1463	33.2	1461	33.2	<u>1462</u>	<u>33.2</u>
462.libquantum	4	159	521	160	519	<u>159</u>	<u>521</u>	4	145	571	146	566	<u>145</u>	<u>570</u>
464.h264ref	4	1571	56.4	<u>1565</u>	<u>56.4</u>	1562	56.8	4	1571	56.4	<u>1565</u>	<u>56.4</u>	1562	56.8
471.omnetpp	4	752	33.2	761	32.8	<u>756</u>	<u>33.2</u>	4	682	36.8	<u>682</u>	<u>36.8</u>	698	36.0
473.astar	4	<u>975</u>	<u>28.8</u>	980	28.8	975	28.8	4	<u>887</u>	<u>31.6</u>	888	31.6	884	31.6
483.xalancbmk	4	491	56.4	<u>489</u>	<u>56.4</u>	488	56.4	4	491	56.4	<u>489</u>	<u>56.4</u>	488	56.4

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 32-bit binaries with the command:  
"ipsxe-comp-vars.bat ia32 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.

## 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 Thu Sep 11 15:01:15 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.

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### Platform Notes (Continued)

[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

### Base Compiler Invocation

C benchmarks:

icl -Qvc10 -Qstd=c99

C++ benchmarks:

icl -Qvc10

### Base Portability Flags

403.gcc: -DSPEC\_CPU\_WIN32

464.h264ref: -DWIN32 -DSPEC\_CPU\_NO\_INTTYPES

483.xalancbmk: -Qoption,cpp,--no\_wchar\_t\_keyword

### Base Optimization Flags

C benchmarks:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch

-Qopt-mem-layout-trans:3 /F512000000

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## Base Optimization Flags (Continued)

C++ benchmarks:  
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features  
-Qopt-mem-layout-trans:3 /F512000000 shlw32M.lib  
-link /FORCE:MULTIPLE

## Base Other Flags

C benchmarks:  
403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):  
icl -Qvc10 -Qstd=c99  
456.hmmer: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe  
458.sjeng: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe  
462.libquantum: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe  
-Qstd=c99  
C++ benchmarks (except as noted below):  
icl -Qvc10  
473.astar: C:\Program Files (x86)\Intel\Composer XE 2013 SP1/bin/intel64/icl.exe

## Peak Portability Flags

403.gcc: -DSPEC\_CPU\_WIN32  
456.hmmer: -DSPEC\_CPU\_P64  
458.sjeng: -DSPEC\_CPU\_P64  
462.libquantum: -DSPEC\_CPU\_P64  
464.h264ref: -DWIN32 -DSPEC\_CPU\_NO\_INTTYPES  
473.astar: -DSPEC\_CPU\_P64  
483.xalancbmk: -Qoption,cpp,--no\_wchar\_t\_keyword

## Peak Optimization Flags

C benchmarks:

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## Peak Optimization Flags (Continued)

400.perlbench: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
-Qopt-mem-layout-trans:3 /F512000000 shlw32M.lib  
-link /FORCE:MULTIPLE

401.bzip2: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qansi-alias  
-Qopt-mem-layout-trans:3 /F512000000

403.gcc: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch  
-Qopt-mem-layout-trans:3 /F512000000

429.mcf: basepeak = yes

445.gobmk: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O2 -Qprec-div- -Qansi-alias  
-Qopt-mem-layout-trans:3 /F512000000

456.hmmer: -Qauto-ilp32 -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1)  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch  
-Qopt-mem-layout-trans:3 /F512000000

458.sjeng: -Qauto-ilp32 -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1)  
-Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4  
-Qopt-mem-layout-trans:3 /F512000000

462.libquantum: -Qauto-ilp32 -QxCORE-AVX2 -Qipo -O3 -Qprec-div-  
-Qopt-prefetch -Qopt-mem-layout-trans:3 /F512000000

464.h264ref: basepeak = yes

C++ benchmarks:

471.omnetpp: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qansi-alias  
-Qopt-ra-region-strategy=block -Qopt-mem-layout-trans:3  
/F512000000 shlw32M.lib -link /FORCE:MULTIPLE

473.astar: -Qauto-ilp32 -QxCORE-AVX2 -Qipo -O3 -Qprec-div-  
-Qopt-prefetch -Qopt-mem-layout-trans:3 /F512000000  
shlw64M.lib -link /FORCE:MULTIPLE

483.xalancbmk: basepeak = yes



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## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

456.hammer: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib  
-link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64

458.sjeng: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib  
-link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64

462.libquantum: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib  
-link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64

C++ benchmarks:

473.astar: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013 SP1/compiler/lib/intel64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib/AMD64  
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 10.0/VC/lib  
-link -LIBPATH:C:/Program Files (x86)/Microsoft SDKs/Windows/v7.0A/lib/x64

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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