



# SPEC® CINT2006 Result

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Microsoft Corporation  
(Test Sponsor: Intel Corporation)

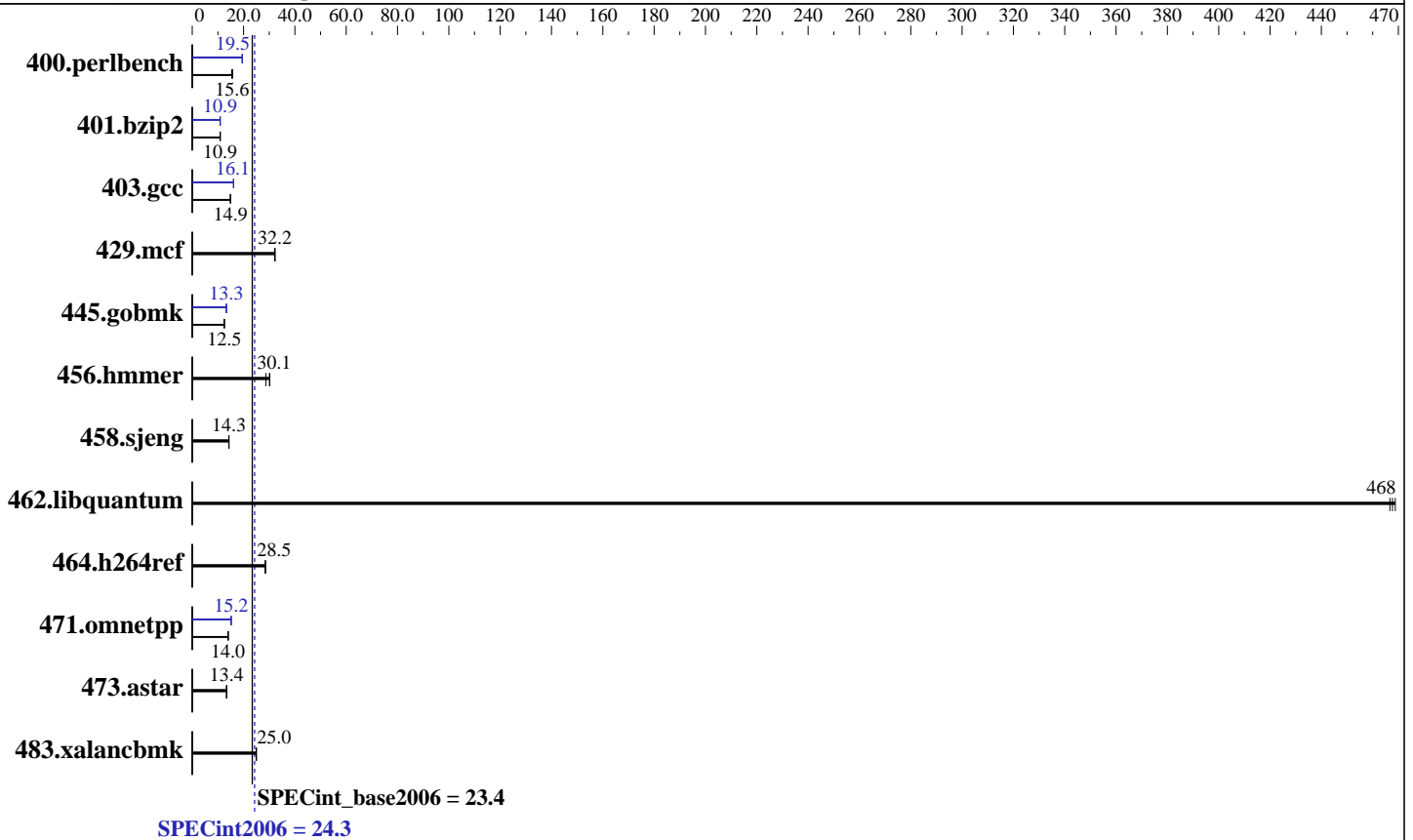
SPECint®2006 = 24.3

## Surface Pro 3

SPECint\_base2006 = 23.4

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

Test date: Sep-2014  
Hardware Availability: Jun-2014  
Software Availability: Oct-2013



### Hardware

CPU Name: Intel Core i3-4020Y  
 CPU Characteristics: 1500  
 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: Yes  
 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/>



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## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	635	15.4	624	15.7	<b><u>626</u></b>	<b><u>15.6</u></b>	500	19.5	501	19.5	<b><u>501</u></b>	<b><u>19.5</u></b>
401.bzip2	<b><u>886</u></b>	<b><u>10.9</u></b>	883	10.9	887	10.9	883	10.9	882	10.9	<b><u>882</u></b>	<b><u>10.9</u></b>
403.gcc	541	14.9	<b><u>539</u></b>	<b><u>14.9</u></b>	539	14.9	501	16.1	<b><u>501</u></b>	<b><u>16.1</u></b>	502	16.1
429.mcf	283	32.3	284	32.1	<b><u>283</u></b>	<b><u>32.2</u></b>	283	32.3	284	32.1	<b><u>283</u></b>	<b><u>32.2</u></b>
445.gobmk	837	12.5	836	12.5	<b><u>836</u></b>	<b><u>12.5</u></b>	<b><u>791</u></b>	<b><u>13.3</u></b>	791	13.3	791	13.3
456.hammer	309	30.2	<b><u>310</u></b>	<b><u>30.1</u></b>	325	28.7	309	30.2	<b><u>310</u></b>	<b><u>30.1</u></b>	325	28.7
458.sjeng	845	14.3	845	14.3	<b><u>845</u></b>	<b><u>14.3</u></b>	845	14.3	845	14.3	<b><u>845</u></b>	<b><u>14.3</u></b>
462.libquantum	44.4	467	<b><u>44.3</u></b>	<b><u>468</u></b>	44.2	469	44.4	467	<b><u>44.3</u></b>	<b><u>468</u></b>	44.2	469
464.h264ref	775	28.5	<b><u>776</u></b>	<b><u>28.5</u></b>	776	28.5	775	28.5	<b><u>776</u></b>	<b><u>28.5</u></b>	776	28.5
471.omnetpp	445	14.0	447	14.0	<b><u>447</u></b>	<b><u>14.0</u></b>	412	15.2	<b><u>412</u></b>	<b><u>15.2</u></b>	413	15.1
473.astar	524	13.4	<b><u>525</u></b>	<b><u>13.4</u></b>	525	13.4	524	13.4	<b><u>525</u></b>	<b><u>13.4</u></b>	525	13.4
483.xalancbmk	<b><u>276</u></b>	<b><u>25.0</u></b>	277	24.9	276	25.0	<b><u>276</u></b>	<b><u>25.0</u></b>	277	24.9	276	25.0

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)

## 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 Wed Sep 10 15:59:54 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
```

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### Platform Notes (Continued)

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

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 -Qvc10 -Qstd=c99

C++ benchmarks:

icl -Qvc10

### Base Portability Flags

400.perlbench: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_WIN64\_X64  
-DSPEC\_CPU\_NO\_NEED\_VA\_COPY  
401.bzip2: -DSPEC\_CPU\_P64  
403.gcc: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_WIN64  
429.mcf: -DSPEC\_CPU\_P64  
445.gobmk: -DSPEC\_CPU\_P64  
456.hmmmer: -DSPEC\_CPU\_P64  
458.sjeng: -DSPEC\_CPU\_P64  
462.libquantum: -DSPEC\_CPU\_P64  
464.h264ref: -DSPEC\_CPU\_P64 -DWIN32 -DSPEC\_CPU\_NO\_INTTYPES  
471.omnetpp: -DSPEC\_CPU\_P64 -DSPEC\_CPU\_WIN64  
473.astar: -DSPEC\_CPU\_P64  
483.xalancbmk: -DSPEC\_CPU\_P64 -Qoption,cpp,--no\_wchar\_t\_keyword



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## Base Optimization Flags

C benchmarks:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel  
-Qauto-ilp32 /F512000000

C++ benchmarks:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features  
-Qauto-ilp32 /F512000000 shlw64M.lib -link /FORCE:MULTIPLE

## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks:

icl -Qvc10 -Qstd=c99

C++ benchmarks:

icl -Qvc10

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

400.perlbench: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
-Qauto-ilp32 /F512000000 shlw64M.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  
-Qauto-ilp32 /F512000000

403.gcc: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qauto-ilp32 /F512000000

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## Peak Optimization Flags (Continued)

429.mcf: basepeak = yes

445.gobmk: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O2 -Qprec-div- -Qansi-alias -Qauto-ilp32  
/F512000000

456.hmmer: basepeak = yes

458.sjeng: basepeak = yes

462.libquantum: basepeak = yes

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 -Qauto-ilp32 /F512000000  
shlW64M.lib -link /FORCE:MULTIPLE

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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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