



# SPEC<sup>®</sup> CINT2006 Result

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## Intel Corporation

SPECint<sup>®</sup>\_rate2006 = 153

Intel DQ87PG motherboard (Intel Core i5-4670S)

SPECint\_rate\_base2006 = 145

CPU2006 license: 13

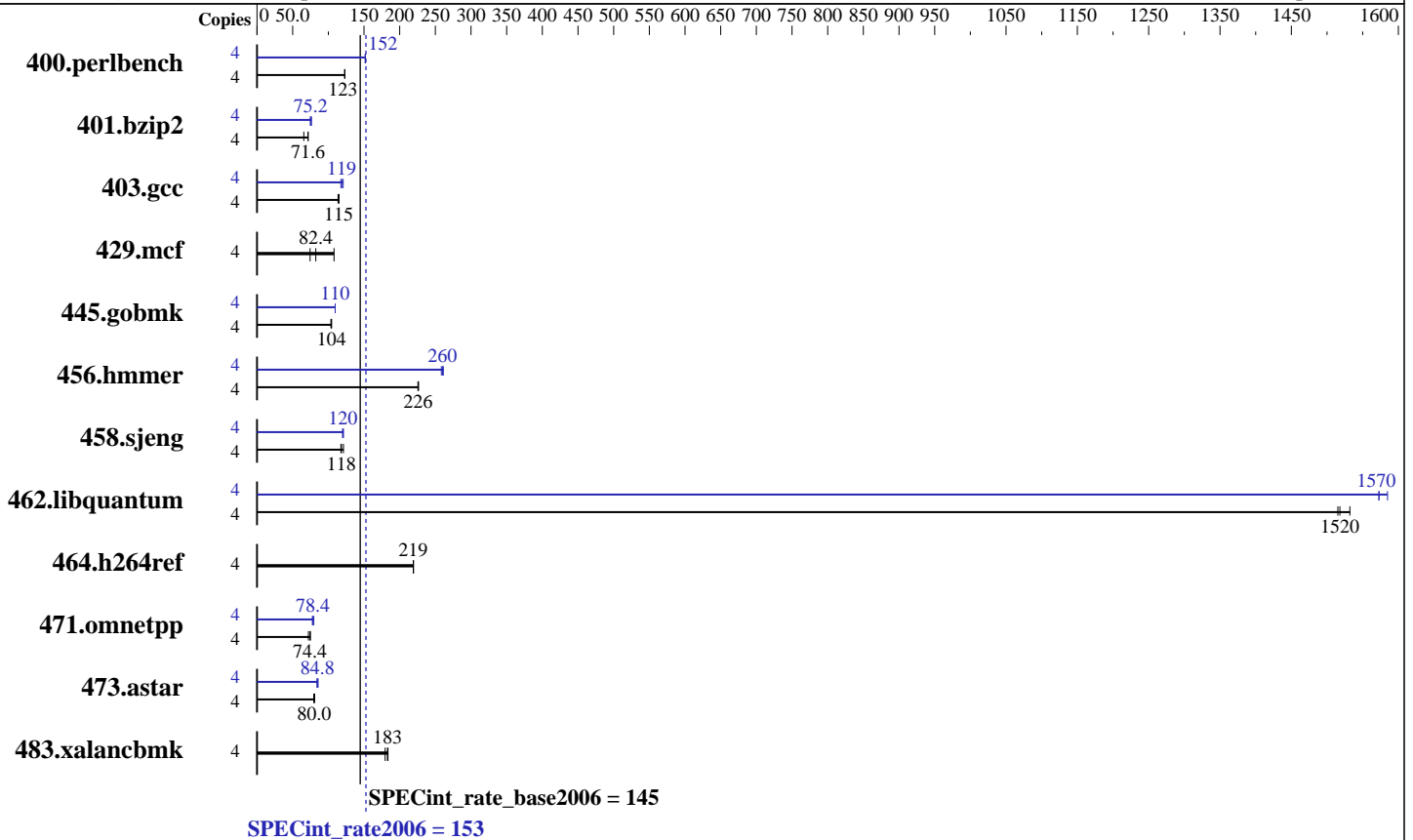
Test date: Sep-2013

Test sponsor: Intel Corporation

Hardware Availability: Jul-2013

Tested by: Intel Corporation

Software Availability: Apr-2013



### Hardware

CPU Name: Intel Core i5-4670S  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz  
 CPU MHz: 3100  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 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: 6 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 4 GB (2 x 2 GB 1Rx8 PC3-12800U-11)  
 Disk Subsystem: 250 GB Seagate SATA HDD, 7200 RPM  
 Other Hardware: None

### Software

Operating System: Microsoft Windows 7 Enterprise  
 6.1.7601 Service Pack 1 Build 7601  
 Compiler: C/C++: Version 13.1.1.171 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	317	123	<b><u>318</u></b>	<b><u>123</u></b>	318	123	4	258	152	<b><u>257</u></b>	<b><u>152</u></b>	257	152
401.bzip2	4	588	65.6	538	71.6	<b><u>540</u></b>	<b><u>71.6</u></b>	4	506	76.4	517	74.8	<b><u>514</u></b>	<b><u>75.2</u></b>
403.gcc	4	284	114	280	115	<b><u>281</u></b>	<b><u>115</u></b>	4	273	118	<b><u>271</u></b>	<b><u>119</u></b>	267	121
429.mcf	4	338	108	489	74.4	<b><u>443</u></b>	<b><u>82.4</u></b>	4	338	108	489	74.4	<b><u>443</u></b>	<b><u>82.4</u></b>
445.gobmk	4	<b><u>403</u></b>	<b><u>104</u></b>	401	104	405	104	4	383	110	<b><u>383</u></b>	<b><u>110</u></b>	383	110
456.hammer	4	<b><u>165</u></b>	<b><u>226</u></b>	165	226	165	226	4	<b><u>144</u></b>	<b><u>260</u></b>	143	261	145	258
458.sjeng	4	411	118	<b><u>408</u></b>	<b><u>118</u></b>	400	121	4	<b><u>402</u></b>	<b><u>120</u></b>	403	120	399	121
462.libquantum	4	54.7	1520	54.1	1530	<b><u>54.6</u></b>	<b><u>1520</u></b>	4	<b><u>52.7</u></b>	<b><u>1570</u></b>	52.3	1580	52.7	1570
464.h264ref	4	404	219	<b><u>404</u></b>	<b><u>219</u></b>	404	219	4	404	219	<b><u>404</u></b>	<b><u>219</u></b>	404	219
471.omnetpp	4	<b><u>335</u></b>	<b><u>74.4</u></b>	347	72.0	335	74.8	4	<b><u>318</u></b>	<b><u>78.4</u></b>	314	79.6	322	77.6
473.astar	4	347	80.8	352	79.6	<b><u>351</u></b>	<b><u>80.0</u></b>	4	328	85.6	335	84.0	<b><u>331</u></b>	<b><u>84.8</u></b>
483.xalancbmk	4	154	180	<b><u>151</u></b>	<b><u>183</u></b>	150	184	4	154	180	<b><u>151</u></b>	<b><u>183</u></b>	150	184

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 13.1 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:\SPEC13.1\Docs\sysinfo  
\$Rev: 6775 \$ \$Date:: 2011-08-16 # \$ \8787f7622badcf24e01c368b1db4377c  
running on Clt7C05070FB382 Sat Sep 28 18:17:49 2013

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 Enterprise  
OS Version : 6.1.7601 Service Pack 1 Build 7601  
System Manufacturer: INTEL\_  
System Model : DQ87PG\_  
Processor(s) : 1 Processor(s) Installed.

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## Platform Notes (Continued)

[01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~3101 Mhz  
BIOS Version : Intel(R) Corp. PGQ8710H.86A.0036.2013.0702.1908, 7/2/2013  
Total Physical Memory: 3,749 MB

Trying 'wmic cpu get /value'

DeviceID : CPU0  
L2CacheSize : 1024  
L3CacheSize : 6144  
MaxClockSpeed : 3101  
Name : Intel(R) Core(TM) i5-4670S CPU @ 3.10GHz  
NumberOfCores : 4  
NumberOfLogicalProcessors: 4

(End of data from sysinfo program)

BIOS: SATA mode set to RAID

Windows Disk Driver: Intel Rapid Storage Technology 12.5.0.1066

Windows Chipset Driver: Intel Chipset Driver 9.4.0.1027

## Component Notes

Tested systems can be used with Shin-G ATX case,  
PC Power and Cooling 1200W power supply  
Micron MT8JTF25664AZ-1G6 Series Memory DIMMs

## 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



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## Base Optimization Flags

C benchmarks:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F512000000

C++ benchmarks:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features /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 2013.171\bin\intel64\icl.exe

458.sjeng: C:\Program Files (x86)\Intel\Composer XE 2013.171\bin\intel64\icl.exe

462.libquantum: C:\Program Files (x86)\Intel\Composer XE 2013.171\bin\intel64\icl.exe -Qstd=c99

C++ benchmarks (except as noted below):

icl -Qvc10

473.astar: C:\Program Files (x86)\Intel\Composer XE 2013.171\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



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## 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  
/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  
/F512000000

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

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

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

462.libquantum: -Qauto-ilp32 -QxCORE-AVX2 -Qipo -O3 -Qprec-div-  
-Qopt-prefetch /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 /F512000000 shlw32M.lib  
-link /FORCE:MULTIPLE

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

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

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## Peak Other Flags (Continued)

403.gcc: -Dalloca=\_alloca

456.hmmr: -link -LIBPATH:C:\Program Files (x86)\Intel\Composer XE 2013.171/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 2013.171/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 2013.171/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 2013.171/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-ic13.1-official-windows.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic13.1-official-windows.xml>

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

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