



# SPEC® CINT2006 Result

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## Intel Corporation

SPECint®\_rate2006 = 156

Intel DQ87PG motherboard (Intel Core i5-4570)

SPECint\_rate\_base2006 = 147

CPU2006 license: 13

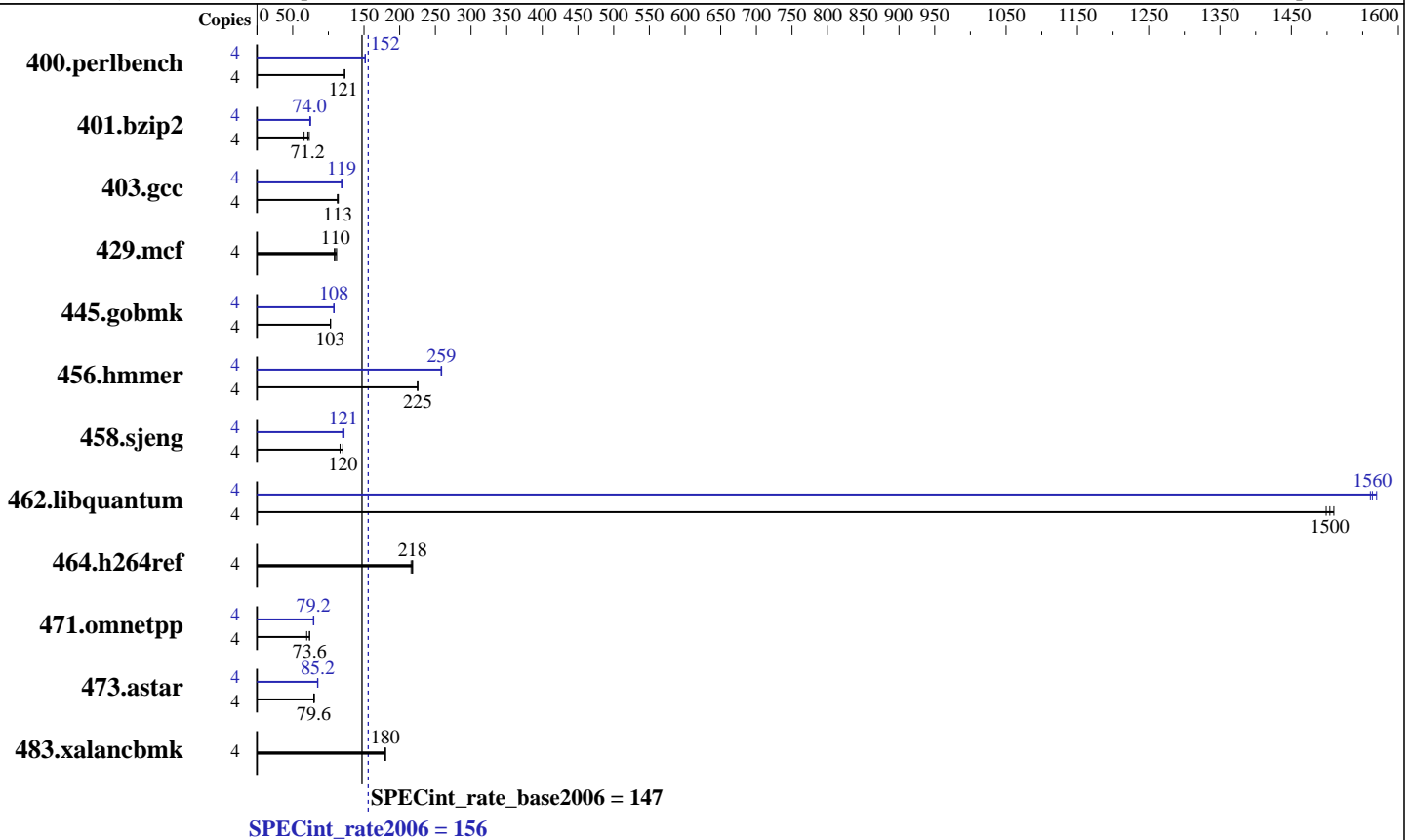
Test date: Oct-2013

Test sponsor: Intel Corporation

Hardware Availability: Jul-2013

Tested by: Intel Corporation

Software Availability: Apr-2013



### Hardware

CPU Name: Intel Core i5-4570  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3200  
 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	<u>322</u>	<u>121</u>	322	121	317	123	4	<u>258</u>	<u>152</u>	258	152	257	152
401.bzip2	4	586	66.0	<u>542</u>	<u>71.2</u>	529	73.2	4	<u>521</u>	<u>74.0</u>	512	75.2	521	74.0
403.gcc	4	<u>285</u>	<u>113</u>	283	114	286	113	4	<u>271</u>	<u>119</u>	270	119	272	118
429.mcf	4	<u>332</u>	<u>110</u>	337	108	327	112	4	<u>332</u>	<u>110</u>	337	108	327	112
445.gobmk	4	409	103	407	103	<u>408</u>	<u>103</u>	4	389	108	<u>389</u>	<u>108</u>	389	108
456.hammer	4	166	225	166	225	<u>166</u>	<u>225</u>	4	144	259	<u>144</u>	<u>259</u>	145	258
458.sjeng	4	402	120	415	116	<u>402</u>	<u>120</u>	4	397	122	403	120	<u>399</u>	<u>121</u>
462.libquantum	4	<u>55.1</u>	<u>1500</u>	54.9	1510	55.3	1500	4	52.8	1570	53.1	1560	<u>53.0</u>	<u>1560</u>
464.h264ref	4	<u>406</u>	<u>218</u>	410	216	406	218	4	<u>406</u>	<u>218</u>	410	216	406	218
471.omnetpp	4	360	69.6	<u>340</u>	<u>73.6</u>	340	73.6	4	314	79.6	315	79.2	<u>315</u>	<u>79.2</u>
473.astar	4	<u>352</u>	<u>79.6</u>	353	79.6	350	80.4	4	329	85.2	331	84.8	<u>330</u>	<u>85.2</u>
483.xalancbmk	4	153	180	<u>154</u>	<u>180</u>	154	179	4	153	180	<u>154</u>	<u>180</u>	154	179

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 Clt7C05070FB2B7 Tue Oct 1 17:50:59 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 ~3201 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 : 3201  
Name : Intel(R) Core(TM) i5-4570 CPU @ 3.20GHz  
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.hmmr: 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.hmmr: -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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