SPEC® CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

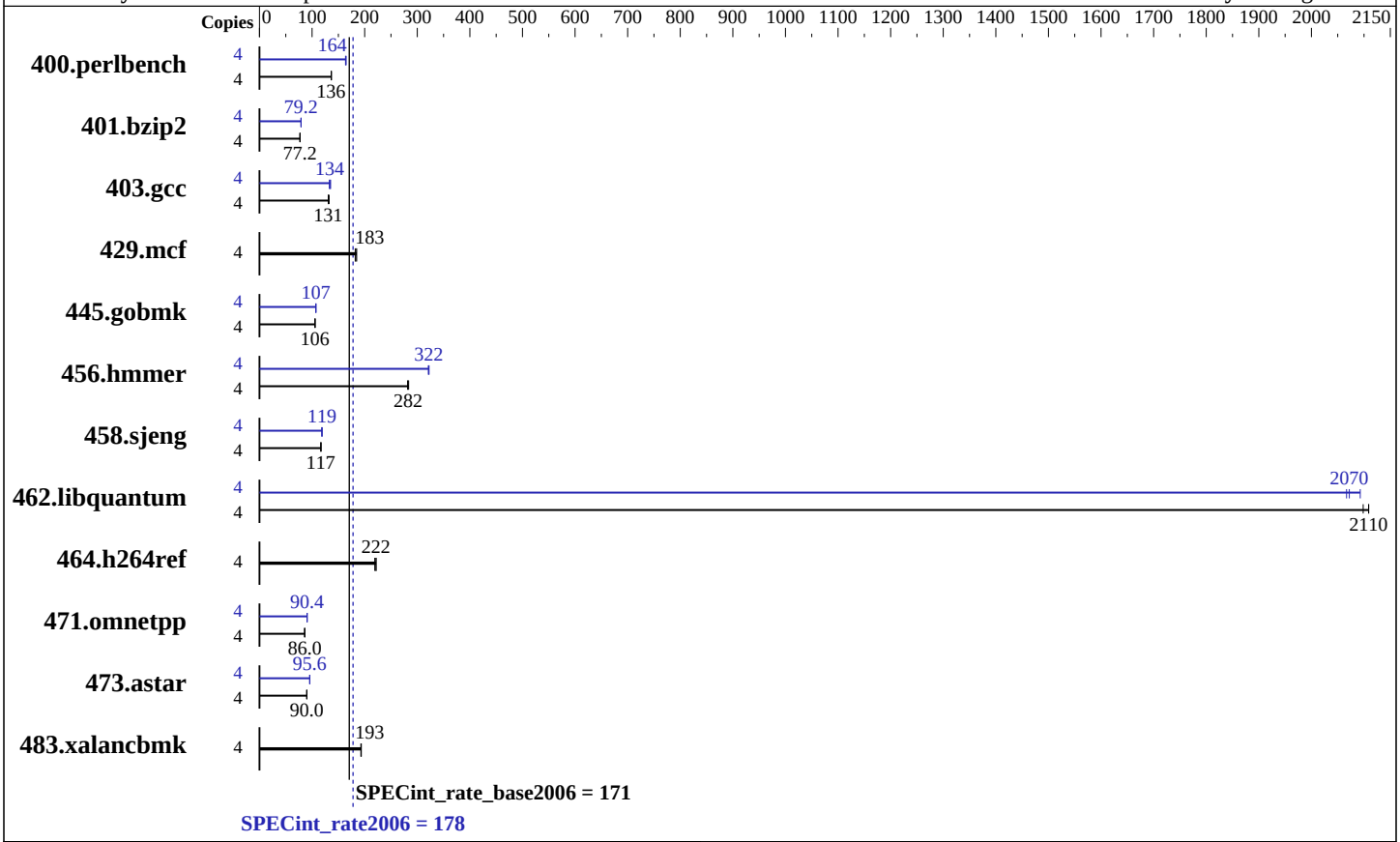
ASUS Q170M-C motherboard (Intel Core i5-6400)

SPECint®_rate2006 = 178

SPECint_rate_base2006 = 171

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

Test date: Mar-2016
Hardware Availability: Sep-2015
Software Availability: Aug-2015



Hardware

CPU Name:	Intel Core i5-6400
CPU Characteristics:	Intel Turbo Boost Technology up to 3.30 GHz
CPU MHz:	2700
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:	8 GB (2 x 4 GB 2Rx4 PC4-2133P-U)
Disk Subsystem:	1 TB Seagate Barracuda HDD, 7200 RPM
Other Hardware:	None

Software

Operating System:	Microsoft Windows 7 Professional 6.1.7601 Service Pack 1 Build 7601
Compiler:	C/C++: Version 16.0.0.110 of Intel C++ Studio XE for Windows; Libraries: Version 18.00.30723 of Microsoft Visual Studio 2013
Auto Parallel:	No
File System:	NTFS
System State:	Default
Base Pointers:	32-bit
Peak Pointers:	32/64-bit
Other Software:	SmartHeap Library Version 11.0 from http://www.microquill.com/

SPEC CINT2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.
(Test Sponsor: Intel Corporation)

ASUS Q170M-C motherboard (Intel Core i5-6400)

SPECint_rate2006 = 178

SPECint_rate_base2006 = 171

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

Test date: Mar-2016
Hardware Availability: Sep-2015
Software Availability: Aug-2015

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
400.perlbench	4	287	136	286	137	**287**	**136**	4	239	164	238	164	**238**	**164**
401.bzip2	4	501	77.2	502	76.8	**501**	**77.2**	4	**488**	**79.2**	488	79.2	489	78.8
403.gcc	4	**246**	**131**	244	132	246	131	4	238	135	**241**	**134**	243	133
429.mcf	4	200	182	**199**	**183**	198	185	4	200	182	**199**	**183**	198	185
445.gobmk	4	397	106	**397**	**106**	397	106	4	392	107	391	107	**391**	**107**
456.hmmer	4	**132**	**282**	133	282	132	284	4	116	322	**116**	**322**	116	321
458.sjeng	4	415	117	**415**	**117**	415	117	4	407	119	407	119	**407**	**119**
462.libquantum	4	39.3	2110	39.5	2100	**39.3**	**2110**	4	40.1	2070	39.6	2090	**40.0**	**2070**
464.h264ref	4	404	219	400	222	**400**	**222**	4	404	219	400	222	**400**	**222**
471.omnetpp	4	291	86.0	**291**	**86.0**	291	86.0	4	276	90.8	**276**	**90.4**	276	90.4
473.astar	4	**312**	**90.0**	311	90.0	312	90.0	4	**294**	**95.6**	294	95.6	294	95.6
483.xalancbmk	4	143	194	143	193	**143**	**193**	4	143	194	143	193	**143**	**193**

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 16.0 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 2016 program folder)
```

Platform Notes

```
Sysinfo program C:\SPEC16.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on CltF832E4885654 Wed Mar 16 00:18:25 2016

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 Professional
OS Version    : 6.1.7601 Service Pack 1 Build 7601
System Manufacturer: System manufacturer
System Model  : System Product Name
Processor(s)  : 1 Processor(s) Installed.
     [01]: Intel64 Family 6 Model 94 Stepping 3 GenuineIntel ~2701 Mhz
BIOS Version  : American Megatrends Inc. 0704, 1/12/2016
Total Physical Memory: 8,070 MB

Trying 'wmic cpu get /value'
DeviceID      : CPU0
```

Continued on next page

Platform Notes (Continued)

```
L2CacheSize   : 1024
L3CacheSize   : 6144
MaxClockSpeed : 2701
Name          : Intel(R) Core(TM) i5-6400 CPU @ 2.70GHz
NumberOfCores : 4
NumberOfLogicalProcessors: 4

(End of data from sysinfo program)
```

Component Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
```

General Notes

```
Binaries compiled on a system with 1x Intel Xeon E5-2699 v3 CPU
+ 64GB memory using Windows 8.1 Enterprise 64-bit
```

Base Compiler Invocation

C benchmarks:
```
icl -Qvc12 -Qstd=c99
```

C++ benchmarks:
```
icl -Qvc12
```

Base Portability Flags

403.gcc: `-DSPEC_CPU_WIN32`
464.h264ref: `-DWIN32`
483.xalancbmk: `-Qoption,cpp,--no_wchar_t_keyword`

Base Optimization Flags

C benchmarks:
```
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F256000000
```

C++ benchmarks:
```
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features
/F256000000 shlW32M.lib            -link /FORCE:MULTIPLE
```

Base Other Flags

C benchmarks:

403.gcc: `-Dalloca=_alloca`

Peak Compiler Invocation

C benchmarks (except as noted below):
`icl -Qvc12 -Qstd=c99`

456.hmmer: `C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/bin/intel64/icl.exe`

458.sjeng: `C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/bin/intel64/icl.exe`

462.libquantum: `C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/bin/intel64/icl.exe -Qstd=c99`

C++ benchmarks (except as noted below):
`icl -Qvc12`

473.astar: `C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/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`
473.astar: `-DSPEC_CPU_P64`
483.xalancbmk: `-Qoption,cpp,--no_wchar_t_keyword`

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 /F256000000 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 /F256000000`

Continued on next page

Peak Optimization Flags (Continued)

403.gcc: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch /F256000000

429.mcf: basepeak = yes

445.gobmk: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O2 -Qprec-div- -Qansi-alias /F256000000

456.hmmer: -Qauto-ilp32 -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo(1) -O3(1) -Qprec-div-(1) -Qopt-prefetch(1) /F256000000

458.sjeng: -Qauto-ilp32 -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo(1) -O3(1) -Qprec-div-(1) -Qunroll4(1) /F256000000

462.libquantum: -Qauto-ilp32 -QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F256000000

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 /F256000000 shlW32M.lib -link /FORCE:MULTIPLE

473.astar: -Qauto-ilp32 -QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F256000000 shlW64M.lib

483.xalancbmk: basepeak = yes

Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=_alloca

456.hmmer: -link -LIBPATH:C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/compiler/lib/intel64 -link -LIBPATH:C:\Program Files (x86)\Microsoft SDKs\Windows77.1A\Libd

-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 12.0/VC/lib/AMD6

458.sjeng: -link -LIBPATH:C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/compiler/lib/intel64 -link -LIBPATH:C:\Program Files (x86)\Microsoft SDKs\Windows77.1A\Libd

-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 12.0/VC/lib/AMD6

462.libquantum: -link -LIBPATH:C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/compiler/lib/intel64 -link -LIBPATH:C:\Program Files (x86)\Microsoft SDKs\Windows77.1A\Libd

-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 12.0/VC/lib/AMD6

Continued on next page

Peak Other Flags (Continued)

C++ benchmarks:

473.astar: -link /FORCE:MULTIPLE -link -LIBPATH:C:\Program Files (x86)\IntelSWTools\parallel_studio_xe_2016.0.041ompilers_and_libraries_2016\windows/compiler/lib/intel64 -link -LIBPATH:C:\Program Files (x86)\Microsoft SDKs\Windows77.1A\Lib

-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 12.0/VC/lib/AMD6

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-windows.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-windows.xml

SPEC and SPECint are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Sep 13 11:44:13 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 July 2016.