SPEC® CINT2006 Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

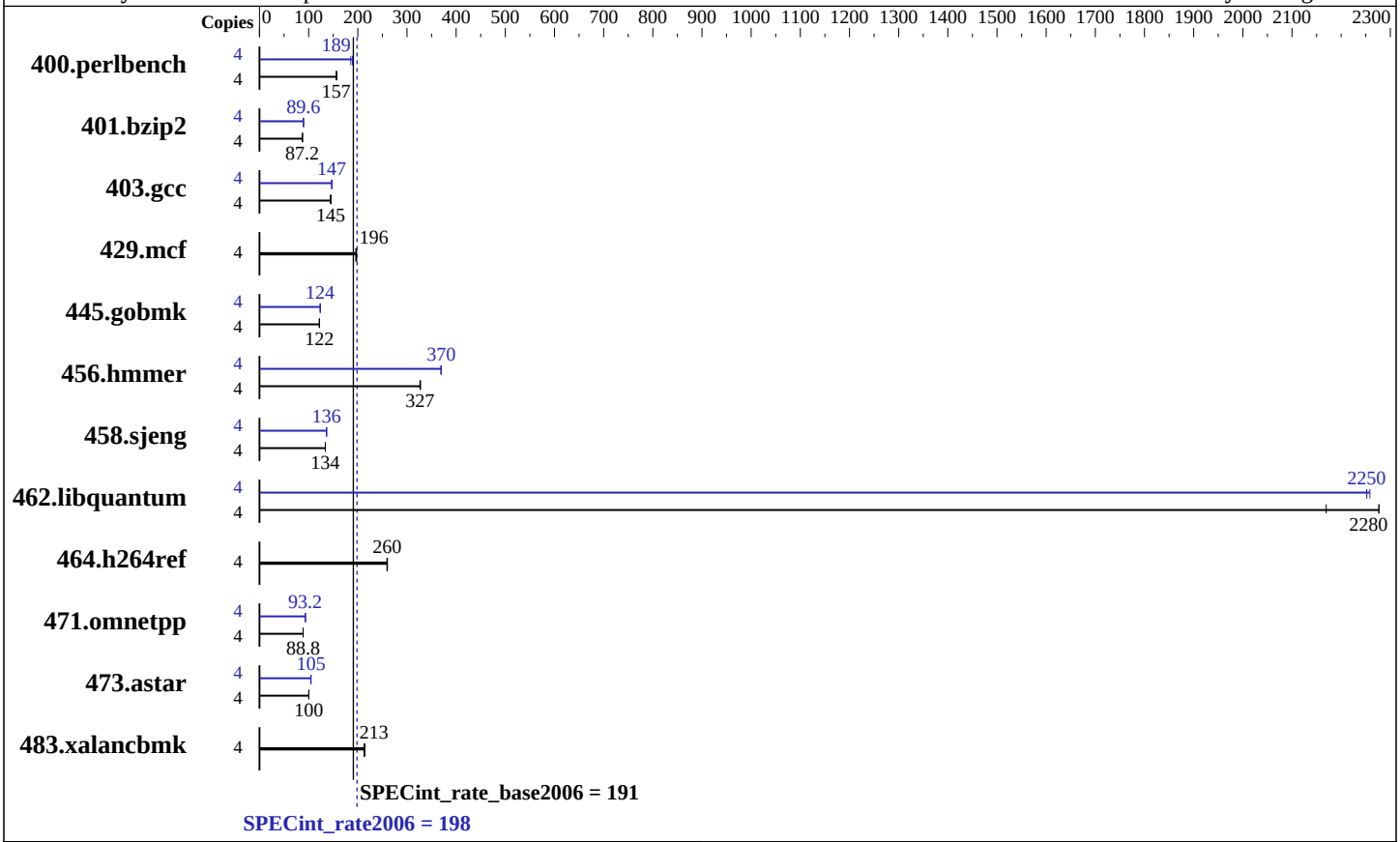
ASUS Q170M-C motherboard (Intel Core i5-6600)

SPECint®_rate2006 = 198

SPECint_rate_base2006 = 191

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 i5-6600
CPU Characteristics:	Intel Turbo Boost Technology up to 3.90 GHz
CPU MHz:	3300
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/

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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	250	156	249	157	**250**	**157**	4	211	186	**207**	**189**	206	189
401.bzip2	4	**443**	**87.2**	441	87.6	443	87.2	4	433	89.2	431	89.6	**432**	**89.6**
403.gcc	4	**222**	**145**	222	145	223	144	4	218	148	**219**	**147**	220	146
429.mcf	4	**186**	**196**	185	198	186	196	4	**186**	**196**	185	198	186	196
445.gobmk	4	345	122	**344**	**122**	344	122	4	339	124	**339**	**124**	339	124
456.hmmer	4	114	328	**114**	**327**	114	326	4	101	370	101	369	**101**	**370**
458.sjeng	4	362	134	361	134	**361**	**134**	4	**355**	**136**	355	136	355	136
462.libquantum	4	38.2	2170	36.4	2280	**36.4**	**2280**	4	36.7	2260	**36.8**	**2250**	36.8	2250
464.h264ref	4	341	259	**341**	**260**	340	260	4	341	259	**341**	**260**	340	260
471.omnetpp	4	281	88.8	281	88.8	**281**	**88.8**	4	**268**	**93.2**	268	93.2	268	93.6
473.astar	4	280	100	**280**	**100**	280	100	4	269	104	268	105	**268**	**105**
483.xalancbmk	4	129	214	**130**	**213**	130	213	4	129	214	**130**	**213**	130	213

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 CltF832E4885A95 Sat Mar 12 07:41:09 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 ~3301 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 : 3301
Name          : Intel(R) Core(TM) i5-6600 CPU @ 3.30GHz
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_2016.0.041compilers_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

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Sep 13 11:45:14 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 July 2016.