SPEC® CINT2006 Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

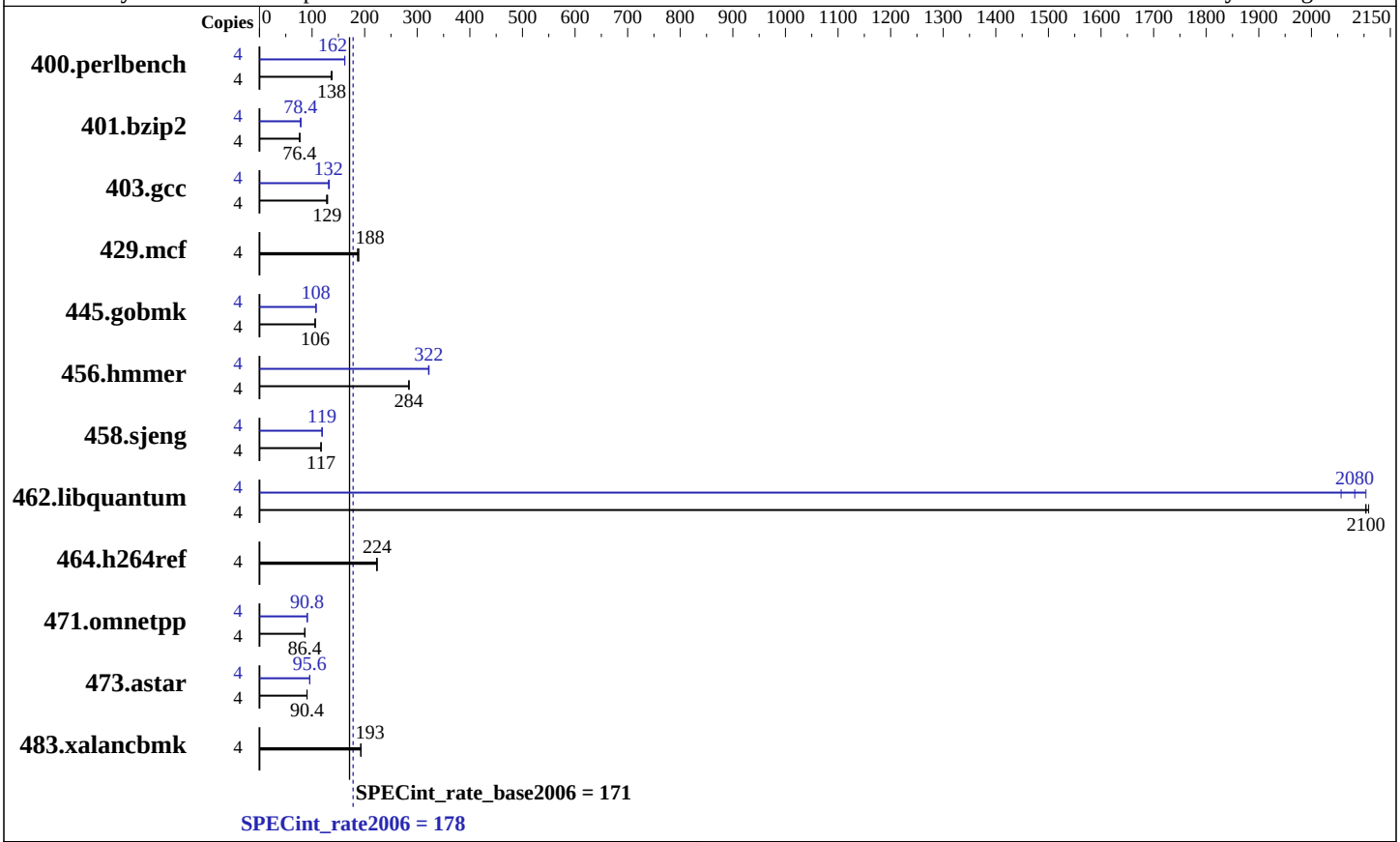
ASUS Z170MPLUS motherboard (Intel Core i5-6400)

SPECint®_rate2006 = 178

SPECint_rate_base2006 = 171

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

Test date: Oct-2015
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 SATA HDD, 7200 RPM
Other Hardware:	None

Software

Operating System:	Microsoft Windows 10 Pro 10.0.10240 N/A Build 10240
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	284	138	**284**	**138**	287	136	4	**241**	**162**	241	162	241	162
401.bzip2	4	**504**	**76.4**	501	76.8	505	76.4	4	**492**	**78.4**	490	78.8	494	78.0
403.gcc	4	252	128	**250**	**129**	248	130	4	**245**	**132**	242	133	245	132
429.mcf	4	**194**	**188**	196	186	193	189	4	**194**	**188**	196	186	193	189
445.gobmk	4	397	106	**396**	**106**	396	106	4	391	107	390	108	**390**	**108**
456.hmmer	4	**131**	**284**	132	284	131	284	4	**116**	**322**	116	322	116	322
458.sjeng	4	413	117	414	117	**414**	**117**	4	406	119	**406**	**119**	407	119
462.libquantum	4	39.3	2110	**39.4**	**2100**	39.4	2100	4	39.4	2100	**39.8**	**2080**	40.3	2060
464.h264ref	4	398	223	396	224	**396**	**224**	4	398	223	396	224	**396**	**224**
471.omnetpp	4	290	86.0	**290**	**86.4**	290	86.4	4	275	90.8	**275**	**90.8**	275	90.8
473.astar	4	**311**	**90.4**	311	90.4	311	90.4	4	294	95.6	**294**	**95.6**	293	95.6
483.xalancbmk	4	143	193	**143**	**193**	143	193	4	143	193	**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 DESKTOP-C8BQEO8 Sat Oct 10 01:29:13 2015

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 10 Pro
OS Version     : 10.0.10240 N/A Build 10240
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. 0408, 8/28/2015
Total Physical Memory: 8,084 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`

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

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`

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`

464.h264ref: `basepeak = yes`

Continued on next page

Peak Optimization Flags (Continued)

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`

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-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.

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