



# SPEC® CINT2006 Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

ASUS A88X-PRO Motherboard (AMD A4-7300 with Radeon HD Graphics)

SPECint®\_rate2006 = 44.3

SPECint\_rate\_base2006 = 41.9

CPU2006 license: 13

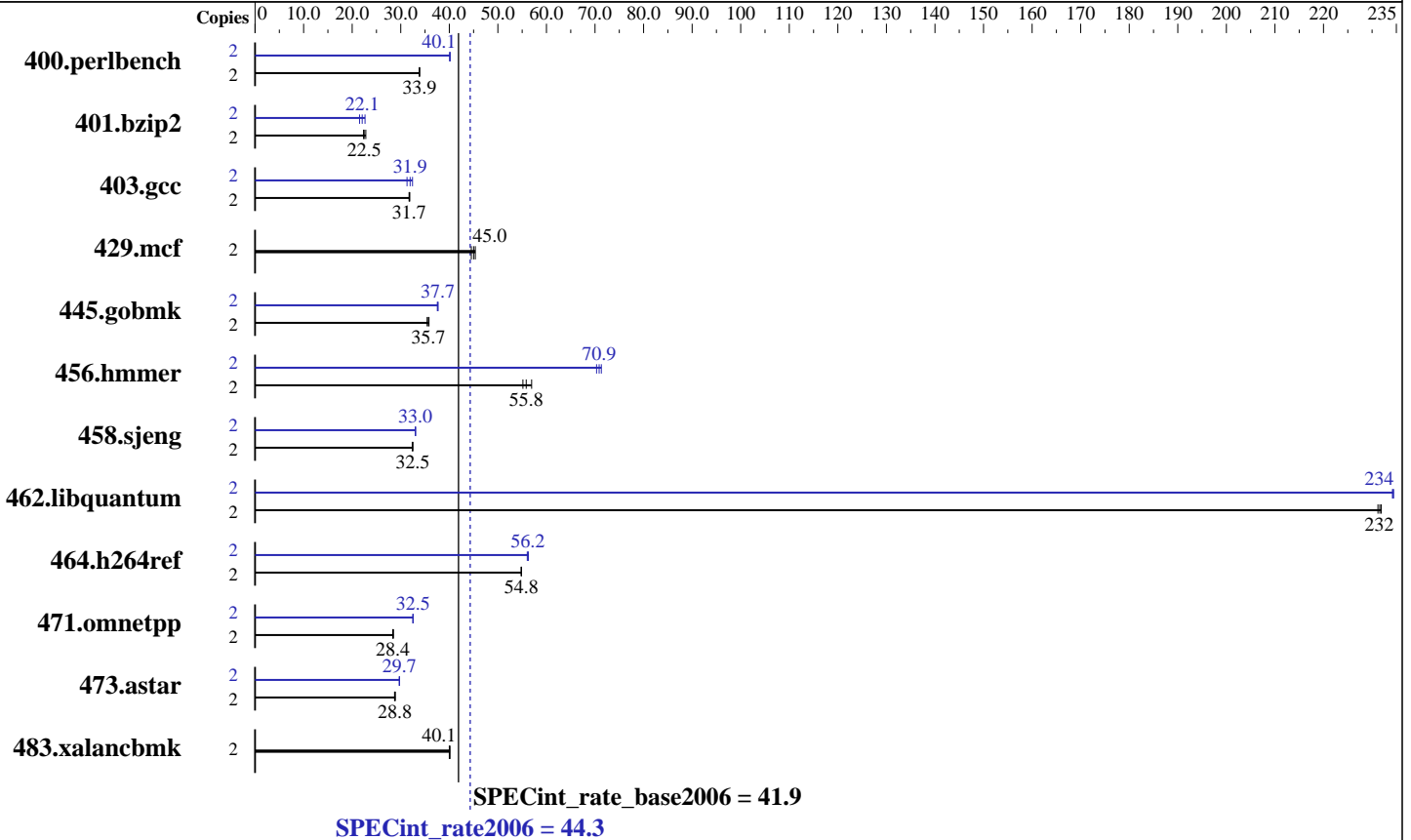
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Mar-2016

Hardware Availability: Jul-2014

Software Availability: Aug-2015



## Hardware

CPU Name: AMD A4-7300  
 CPU Characteristics: AMD Turbo CORE technology up to 4.00 GHz  
 CPU MHz: 3800  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 64 KB I on chip per chip; 16 KB D on chip per core  
 Secondary Cache: 1 MB I+D on chip per chip  
 L3 Cache: None  
 Other Cache: None  
 Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600U-11)  
 Disk Subsystem: Seagate Barracuda 250 GB SATA, 7200 RPM  
 Other Hardware: None

## Software

Operating System: Microsoft Windows 7 Enterprise 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  | 2      | <b>577</b> | <b>33.9</b> | 578        | 33.8        | 577        | 33.9        | 2      | 487        | 40.2        | <b>487</b> | <b>40.1</b> | 488        | 40.1        |
| 401.bzip2      | 2      | 846        | 22.8        | 864        | 22.3        | <b>859</b> | <b>22.5</b> | 2      | <b>875</b> | <b>22.1</b> | 897        | 21.5        | 852        | 22.6        |
| 403.gcc        | 2      | 507        | 31.7        | 505        | 31.9        | <b>507</b> | <b>31.7</b> | 2      | 514        | 31.3        | 497        | 32.4        | <b>504</b> | <b>31.9</b> |
| 429.mcf        | 2      | <b>405</b> | <b>45.0</b> | 402        | 45.4        | 410        | 44.5        | 2      | <b>405</b> | <b>45.0</b> | 402        | 45.4        | 410        | 44.5        |
| 445.gobmk      | 2      | 592        | 35.4        | 586        | 35.8        | <b>588</b> | <b>35.7</b> | 2      | 559        | 37.5        | <b>557</b> | <b>37.7</b> | 557        | 37.7        |
| 456.hammer     | 2      | 338        | 55.2        | 328        | 56.9        | <b>334</b> | <b>55.8</b> | 2      | 262        | 71.3        | 265        | 70.3        | <b>263</b> | <b>70.9</b> |
| 458.sjeng      | 2      | 745        | 32.5        | 748        | 32.4        | <b>745</b> | <b>32.5</b> | 2      | 732        | 33.1        | <b>733</b> | <b>33.0</b> | 733        | 33.0        |
| 462.libquantum | 2      | 179        | 231         | <b>179</b> | <b>232</b>  | 179        | 232         | 2      | <b>177</b> | <b>234</b>  | 177        | 234         | 177        | 234         |
| 464.h264ref    | 2      | <b>808</b> | <b>54.8</b> | 807        | 54.9        | 808        | 54.8        | 2      | 790        | 56.0        | <b>788</b> | <b>56.2</b> | 787        | 56.3        |
| 471.omnetpp    | 2      | <b>440</b> | <b>28.4</b> | 441        | 28.3        | 439        | 28.5        | 2      | 384        | 32.5        | 384        | 32.5        | <b>384</b> | <b>32.5</b> |
| 473.astar      | 2      | 489        | 28.7        | <b>488</b> | <b>28.8</b> | 486        | 28.9        | 2      | <b>472</b> | <b>29.7</b> | 472        | 29.8        | 473        | 29.7        |
| 483.xalancbmk  | 2      | 345        | 40.0        | <b>344</b> | <b>40.1</b> | 344        | 40.1        | 2      | 345        | 40.0        | <b>344</b> | <b>40.1</b> | 344        | 40.1        |

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 CltE03F49ACBFDE Wed Mar 23 08:55:49 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 Enterprise  
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]: AMD64 Family 21 Model 19 Stepping 1 AuthenticAMD ~3800 Mhz  
BIOS Version : American Megatrends Inc. 2502, 12/11/2015  
Total Physical Memory: 7,364 MB

Trying 'wmic cpu get /value'  
DeviceID : CPU0

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## Platform Notes (Continued)

L2CacheSize : 24847  
L3CacheSize : 0  
MaxClockSpeed : 3800  
Name : AMD A4-7300 APU with Radeon HD Graphics  
NumberOfCores : 1  
NumberOfLogicalProcessors: 2

(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:

/arch:AVX -Qipo -O3 -Qprec-div- -Qopt-prefetch /F256000000

C++ benchmarks:

/arch:AVX -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features  
/F256000000 shlw32M.lib -link /FORCE:MULTIPLE



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## Base Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

## Peak Compiler Invocation

C benchmarks (except as noted below):

icl -Qvc12 -Qstd=c99

456.hmmr: 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.hmmr: -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: /arch:AVX(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.bzp2: /arch:AVX(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qansi-alias  
/F256000000

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## Peak Optimization Flags (Continued)

403.gcc: /arch:AVX(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch /F256000000

429.mcf: basepeak = yes

445.gobmk: /arch:AVX(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O2 -Qprec-div- -Qansi-alias /F256000000

456.hmmer: -Qauto-ilp32 /arch:AVX(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 /arch:AVX(pass 2) -Qprof\_gen(pass 1)  
-Qprof\_use(pass 2) -Qipo(1) -O3(1) -Qprec-div-(1)  
-Qunroll4(1) /F256000000

462.libquantum: -Qauto-ilp32 /arch:AVX -Qipo -O3 -Qprec-div-  
-Qopt-prefetch /F256000000

464.h264ref: /arch:AVX(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias /F256000000

C++ benchmarks:

471.omnetpp: /arch:AVX(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 /arch:AVX -Qipo -O3 -Qprec-div-  
-Qopt-prefetch /F256000000 shlW64M.lib

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

456hmmer -link -LIBPATH:C:\Program Files (x86)\IntelSWTools\parallel\_studio\_xe\_2016.0.041\compilers\_and\_libraries\_2016\windows\compiler\lib\intel64

-link -LIBPATH:C:\Program Files (x86)\Microsoft Visual Studio 12.0\VC\lib\AMD64

458sjeng -link -LIBPATH:C:\Program Files (x86)\IntelSWTools\parallel\_studio\_xe\_2016.0.041\compilers\_and\_libraries\_2016\windows\compiler\lib\intel64

-link -LIBPATH:C:\Program Files (x86)\Microsoft Visual Studio 12.0\VC\lib\AMD64

462libquantum -link -LIBPATH:C:\Program Files (x86)\IntelSWTools\parallel\_studio\_xe\_2016.0.041\compilers\_and\_libraries\_2016\windows\compiler\lib\intel64

-link -LIBPATH:C:\Program Files (x86)\Microsoft Visual Studio 12.0\VC\lib\AMD64

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## Peak Other Flags (Continued)

C++ benchmarks:

```
473.exe -link /FORCE:MULTIPLE -link -LIBPATH:C:\Program Files (x86)\Intel\IntelTool\parallel_studio_w_2016.0.04\compiler_and_libraries_2016\windows\compiler\lib\intel64 -LIBPATH:C:\Program Files (x86)\Microsoft SDKs\Windows7.1A\lib
```

```
-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 12.0/VC/lib/AMD64
```

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](mailto:webmaster@spec.org).

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