SPEC® CINT2006 Result
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ASUSTeK Computer Inc.
(Test Sponsor: Intel Corporation)

ASUS A88X-PRO Motherboard (AMD A10-7700K with Radeon R7 Graphics)

$SPECint^®\_rate2006 =$ 90.8

$SPECint\_rate\_base2006 =$ 86.3

CPU2006 license: 13	**Test date:**	Jun-2016
Test sponsor: Intel Corporation	**Hardware Availability:**	Jan-2014
Tested by: Intel Corporation	**Software Availability:**	Aug-2015

Benchmark	Copies	Peak	Base
400.perlbench	4	94.0	76.4
401.bzip2	4	49.2	48.0
403.gcc	4	65.2	64.8
429.mcf	4	90.8	
445.gobmk	4	78.4	75.6
456.hmmer	4	152	124
458.sjeng	4	70.0	69.6
462.libquantum	4	337	330
464.h264ref	4	139	130
471.omnetpp	4	56.8	52.8
473.astar	4	56.8	58.8
483.xalancbmk	4	90.8	

SPECint_rate_base2006 = 86.3

SPECint_rate2006 = 90.8

Hardware

CPU Name:	AMD A10-7700K
CPU Characteristics:	AMD Turbo CORE technology up to 3.80 GHz
CPU MHz:	3400
FPU:	Integrated
CPU(s) enabled:	4 cores, 1 chip, 4 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	192 KB I on chip per chip, 96 KB I shared / 2 cores; 16 KB D on chip per core
Secondary Cache:	4 MB I+D on chip per chip, 2 MB shared / 2 cores
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 Ultimate 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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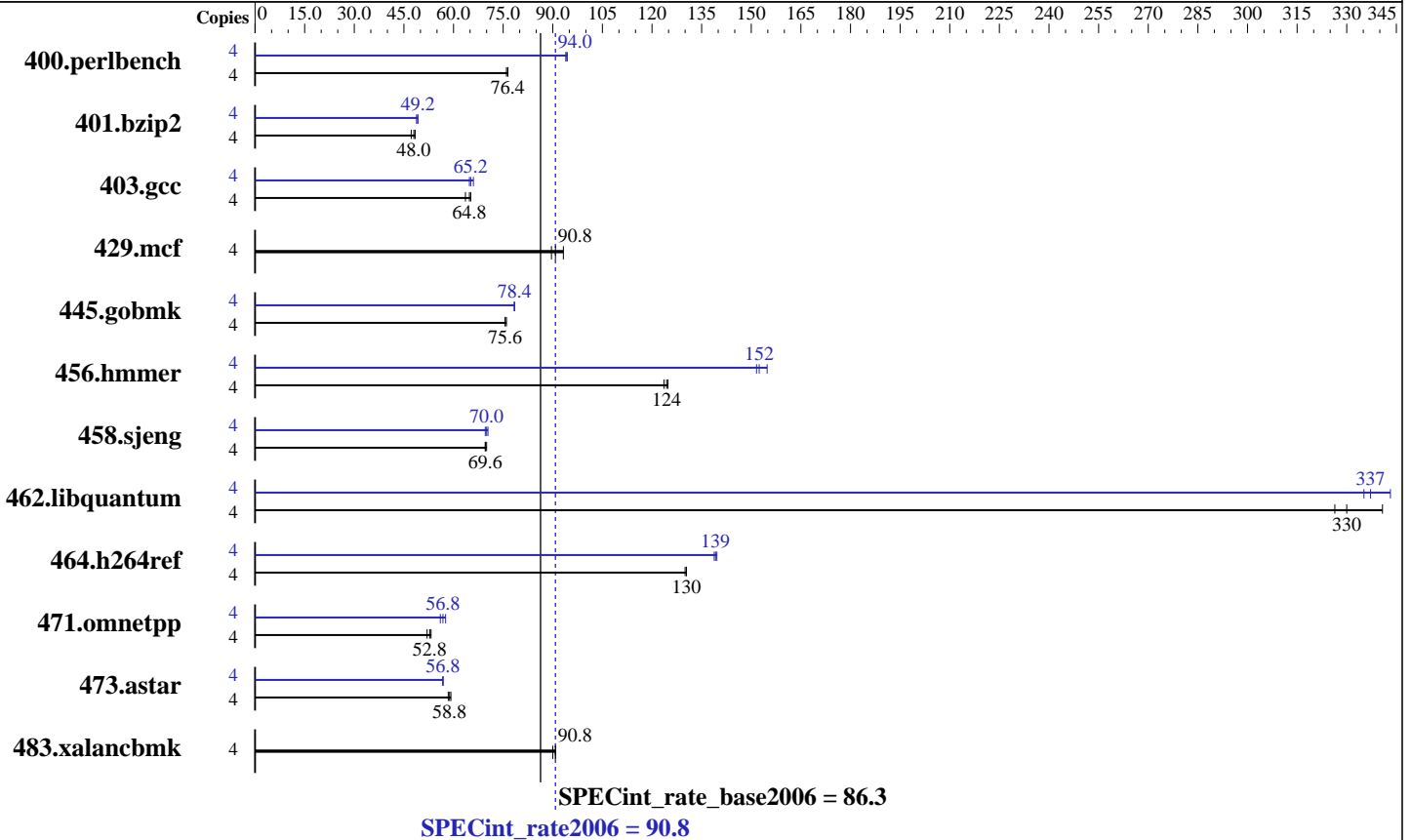
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Results Table

Benchmark	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
				Base							Peak			
400.perlbench	4	513	76.0	510	76.4	**513**	**76.4**	4	**415**	**94.0**	417	94.0	415	94.4
401.bzip2	4	**803**	**48.0**	817	47.2	794	48.4	4	783	49.2	**785**	**49.2**	791	48.8
403.gcc	4	494	65.2	507	63.6	**497**	**64.8**	4	487	66.0	**495**	**65.2**	496	64.8
429.mcf	4	392	93.2	407	89.6	**402**	**90.8**	4	392	93.2	407	89.6	**402**	**90.8**
445.gobmk	4	556	75.6	**555**	**75.6**	553	76.0	4	536	78.4	536	78.4	**536**	**78.4**
456.hmmer	4	300	125	302	124	**300**	**124**	4	241	155	**245**	**152**	246	152
458.sjeng	4	696	69.6	**694**	**69.6**	692	70.0	4	688	70.4	**693**	**70.0**	694	69.6
462.libquantum	4	**251**	**330**	254	326	243	341	4	**246**	**337**	242	343	247	335
464.h264ref	4	**679**	**130**	681	130	679	130	4	635	140	**636**	**139**	639	139
471.omnetpp	4	472	53.2	480	52.0	**473**	**52.8**	4	433	57.6	**439**	**56.8**	445	56.0
473.astar	4	481	58.4	**478**	**58.8**	475	59.2	4	494	56.8	495	56.8	**494**	**56.8**
483.xalancbmk	4	**304**	**90.8**	304	90.8	306	90.0	4	**304**	**90.8**	304	90.8	306	90.0

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 Clt1C872C5C6B24 Thu Jun 2 06:33:03 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 Ultimate
    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 48 Stepping 1 AuthenticAMD ~3400 Mhz
    BIOS Version   : American Megatrends Inc. 2502, 12/11/2015
    Total Physical Memory: 7,108 MB

    Trying 'wmic cpu get /value'
    DeviceID   : CPU0

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Platform Notes (Continued)

```
    L2CacheSize    : 25359
    L3CacheSize    : 0
    MaxClockSpeed : 3400
    Name           : AMD A10-7700K Radeon R7, 10 Compute Cores 4C+6G
    NumberOfCores : 2
    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:
```
    /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.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: `/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.bzip2: `/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`

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\Windows?7.1A\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\Windows?7.1A\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\Windows?7.1A\Libd`
`-link -LIBPATH:C:/Program Files (x86)/Microsoft Visual Studio 12.0/VC/lib/AMD6`

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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 -LIBPATH:C:\Program Files (x86)\Microsoft SDKs\Windows7.1A\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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