



SPEC[®] CFP2006 Result

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ASUSTeK Computer Inc.
(Test Sponsor: Intel Corporation)

SPECfp[®]_rate2006 = 158

ASUS Q170M-C motherboard (Intel Core i5-6500)

SPECfp_rate_base2006 = 155

CPU2006 license: 13

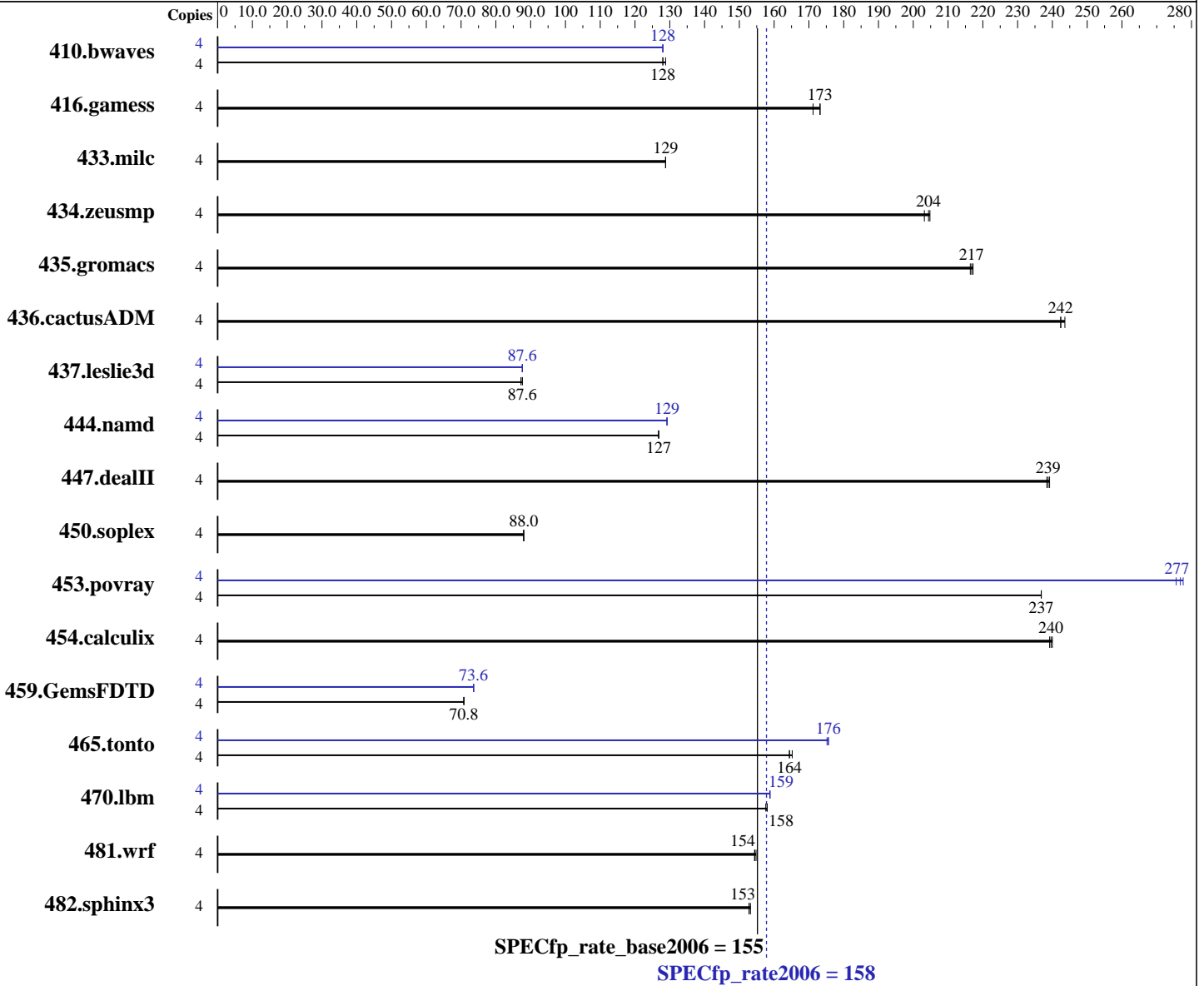
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Apr-2016

Hardware Availability: Sep-2015

Software Availability: Aug-2015



Hardware

CPU Name: Intel Core i5-6500
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
 CPU MHz: 3200
 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

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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;
 Fortran: Version 16.0.0.110 of Intel Fortran Studio XE for Windows;
 Libraries: Version 18.00.30723 of Microsoft Visual Studio 2013
 Auto Parallel: No

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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

File System: NTFS
System State: Default
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: SmartHeap Library Version 11.0 from <http://www.microquill.com/>

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	4	423	129	424	128	425	128	4	425	128	425	128	425	128
416.gamess	4	452	173	452	173	457	171	4	452	173	452	173	457	171
433.milc	4	285	129	285	129	285	129	4	285	129	285	129	285	129
434.zeusmp	4	179	203	178	205	178	204	4	179	203	178	205	178	204
435.gromacs	4	132	216	132	217	132	217	4	132	216	132	217	132	217
436.cactusADM	4	197	242	196	244	197	242	4	197	242	196	244	197	242
437.leslie3d	4	430	87.6	431	87.2	430	87.6	4	429	87.6	429	87.6	429	87.6
444.namd	4	253	127	253	127	253	127	4	249	129	248	129	248	129
447.dealII	4	192	239	191	239	192	238	4	192	239	191	239	192	238
450.soplex	4	379	88.0	379	88.0	379	88.0	4	379	88.0	379	88.0	379	88.0
453.povray	4	89.9	237	89.8	237	89.8	237	4	76.7	278	77.2	276	76.9	277
454.calculix	4	138	239	138	240	138	240	4	138	239	138	240	138	240
459.GemsFDTD	4	598	70.8	598	70.8	599	70.8	4	577	73.6	577	73.6	577	73.6
465.tonto	4	238	165	239	164	239	164	4	224	176	225	175	224	176
470.lbm	4	348	158	348	158	348	158	4	346	159	346	159	346	159
481.wrf	4	290	154	290	154	289	155	4	290	154	290	154	289	155
482.sphinx3	4	509	153	510	153	510	153	4	509	153	510	153	510	153

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 64-bit binaries with the command:
"psxevars.bat intel64" (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 CltF832E48859C5 Sat Apr 23 07:58:47 2016

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:
Continued on next page



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Platform Notes (Continued)

<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 ~3201 Mhz
BIOS Version  : American Megatrends Inc. 0704, 1/12/2016
Total Physical Memory: 8,070 MB
```

Trying 'wmic cpu get /value'

```
DeviceID      : CPU0
L2CacheSize   : 1024
L3CacheSize   : 6144
MaxClockSpeed : 3201
Name          : Intel(R) Core(TM) i5-6500 CPU @ 3.20GHz
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

```
450.soplex (base): "getline_test" src.alt was used.
447.dealII (base): "max_prototype" src.alt was used.
447.dealII (base): "cxx11_make_pair" src.alt was used.
450.soplex (base): "getline_test" src.alt was used.
447.dealII (base): "max_prototype" src.alt was used.
447.dealII (base): "cxx11_make_pair" src.alt was used.
```

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

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Base Compiler Invocation (Continued)

C++ benchmarks:
icl -Qvc12

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc12 -Qstd=c99 ifort

Base Portability Flags

410.bwaves: -DSPEC_CPU_P64
416.gamess: -DSPEC_CPU_P64
433.milc: -DSPEC_CPU_P64
434.zeusmp: -DSPEC_CPU_P64
435.gromacs: -DSPEC_CPU_P64
436.cactusADM: -DSPEC_CPU_P64 /names:lowercase /assume:underscore
437.leslie3d: -DSPEC_CPU_P64
444.namd: -DSPEC_CPU_P64 /TP
447.dealII: -DSPEC_CPU_P64 -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
-DSPEC_CPU_BOOST_CONFIG_MSC_VER -DSPEC_NEED_ALGORITHM
450.soplex: -DSPEC_CPU_P64 -DSPEC_GETLINE_TEST
453.povray: -DSPEC_CPU_P64
454.calculix: -DSPEC_CPU_P64 -DSPEC_CPU_NOZMODIFIER /names:lowercase
459.GemsFDTD: -DSPEC_CPU_P64
465.tonto: -DSPEC_CPU_P64
470.lbm: -DSPEC_CPU_P64
481.wrf: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
482.sphinx3: -DSPEC_CPU_P64

Base Optimization Flags

C benchmarks:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000 shlw64M.lib -link /FORCE:MULTIPLE

C++ benchmarks:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qcxx-features -Qauto-ilp32 /F1000000000 shlw64M.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
/F1000000000 shlw64M.lib -link /FORCE:MULTIPLE

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000 sh1W64M.lib -link /FORCE:MULTIPLE

Peak Compiler Invocation

C benchmarks:

icl -Qvc12 -Qstd=c99

C++ benchmarks:

icl -Qvc12

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icl -Qvc12 -Qstd=c99 ifort

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

470.lbm: -QxCORE-AVX2 -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo
-O3 -Qprec-div- -Qansi-alias -Qopt-prefetch -Qauto-ilp32
/F1000000000 sh1W64M.lib -link /FORCE:MULTIPLE

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Oa -Qauto-ilp32 /F1000000000
sh1W64M.lib -link /FORCE:MULTIPLE

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

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Peak Optimization Flags (Continued)

```
453.povray: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32
/F1000000000 sh1W64M.lib -link /FORCE:MULTIPLE
```

Fortran benchmarks:

```
410.bwaves: -QxCORE-AVX2 -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo
-O3 -Qprec-div- -Qansi-alias -Qopt-prefetch /F1000000000
sh1W64M.lib -link /FORCE:MULTIPLE
```

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: Same as 410.bwaves

459.GemsFDTD: Same as 410.bwaves

```
465.tonto: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000
sh1W64M.lib -link /FORCE:MULTIPLE
```

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: basepeak = yes

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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