SPEC® CFP2006 Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

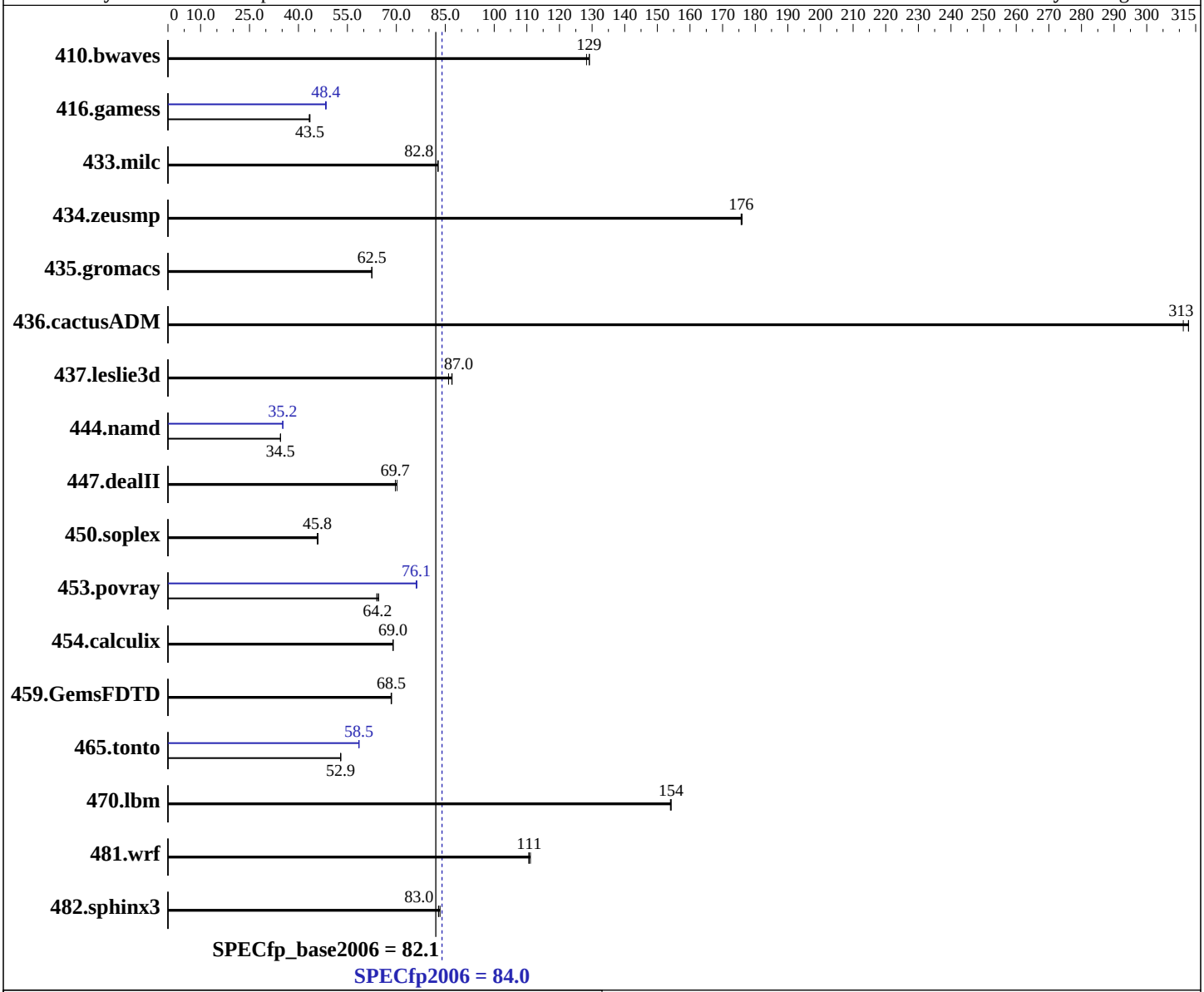
ASUS Q170M-C motherboard (Intel Core i5-6500)

SPECfp®2006 = 84.0

SPECfp_base2006 = 82.1

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:	Yes

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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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**105**	**129**	106	128	105	129	**105**	**129**	106	128	105	129
416.gamess	452	43.3	450	43.5	**450**	**43.5**	**404**	**48.4**	404	48.5	406	48.3
433.milc	111	82.8	**111**	**82.8**	111	82.7	111	82.8	**111**	**82.8**	111	82.7
434.zeusmp	**51.8**	**176**	51.7	176	51.8	176	**51.8**	**176**	51.7	176	51.8	176
435.gromacs	114	62.5	114	62.5	**114**	**62.5**	114	62.5	114	62.5	**114**	**62.5**
436.cactusADM	38.4	311	38.2	313	**38.2**	**313**	38.4	311	38.2	313	**38.2**	**313**
437.leslie3d	**108**	**87.0**	109	86.0	108	87.1	**108**	**87.0**	109	86.0	108	87.1
444.namd	232	34.5	**232**	**34.5**	232	34.5	228	35.2	228	35.2	**228**	**35.2**
447.dealII	**164**	**69.7**	164	69.7	163	70.2	**164**	**69.7**	164	69.7	163	70.2
450.soplex	**182**	**45.8**	182	45.8	181	46.0	**182**	**45.8**	182	45.8	181	46.0
453.povray	83.1	64.0	82.3	64.6	**82.9**	**64.2**	**69.9**	**76.1**	69.7	76.3	69.9	76.1
454.calculix	120	69.0	**120**	**69.0**	120	69.0	120	69.0	**120**	**69.0**	120	69.0
459.GemsFDTD	155	68.5	155	68.4	**155**	**68.5**	155	68.5	155	68.4	**155**	**68.5**
465.tonto	186	52.9	186	53.0	**186**	**52.9**	**168**	**58.5**	168	58.6	168	58.5
470.lbm	89.1	154	**89.1**	**154**	89.2	154	89.1	154	**89.1**	**154**	89.2	154
481.wrf	101	111	**101**	**111**	101	111	101	111	**101**	**111**	101	111
482.sphinx3	234	83.4	**235**	**83.0**	235	82.9	234	83.4	**235**	**83.0**	235	82.9

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 Fri Apr 22 21:50:36 2016

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

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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.

   OMP_NUM_THREADS set to number of processors cores
   KMP_AFFINITY set to granularity=fine,scatter
   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

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- -Qparallel -Qansi-alias
-Qopt-prefetch /F1000000000

C++ benchmarks:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qcxx-features /F1000000000 shlW64M.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch /F1000000000

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Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch /F1000000000`

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: `basepeak = yes`

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 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

447.dealII: `basepeak = yes`

450.soplex: `basepeak = yes`

Continued on next page

Peak Optimization Flags (Continued)

453.povray: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qansi-alias -Qscalar-rep- /F1000000000

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto -Qinline-calloc /F1000000000

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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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