



SPEC® CFP2006 Result

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ASUSTeK Computer Inc.
(Test Sponsor: Intel Corporation)

SPECfp®2006 = 96.6

ASUS Z170MPLUS motherboard (Intel Core i7-6700K)

SPECfp_base2006 = 94.8

CPU2006 license: 13

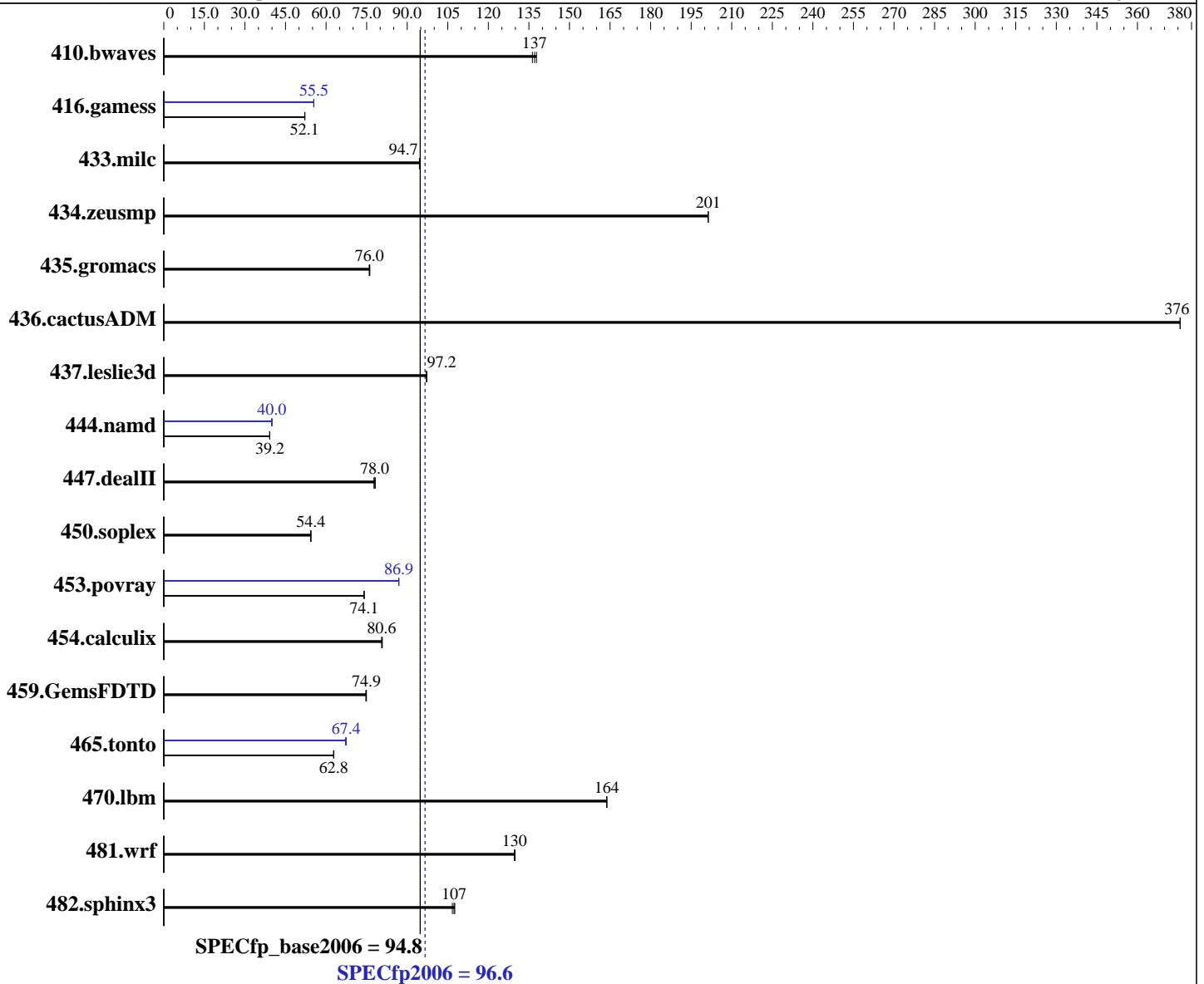
Test date: Oct-2015

Test sponsor: Intel Corporation

Hardware Availability: Sep-2015

Tested by: Intel Corporation

Software Availability: Aug-2015



Hardware

CPU Name: Intel Core i7-6700K
 CPU Characteristics: Intel Turbo Boost Technology up to 4.20 GHz
 CPU MHz: 4000
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 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 10 Pro
 10.0.10240 N/A Build 10240
 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: 8 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

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	99.7	136	98.6	138	99.1	137	99.7	136	98.6	138	99.1	137
416.gamess	376	52.1	376	52.1	375	52.2	353	55.5	353	55.4	353	55.5
433.milc	96.9	94.7	96.9	94.7	97.1	94.5	96.9	94.7	96.9	94.7	97.1	94.5
434.zeusmp	45.2	201	45.2	201	45.2	201	45.2	201	45.2	201	45.2	201
435.gromacs	93.7	76.2	94.0	76.0	93.9	76.0	93.7	76.2	94.0	76.0	93.9	76.0
436.cactusADM	31.8	376	31.8	376	31.8	376	31.8	376	31.8	376	31.8	376
437.leslie3d	96.7	97.2	96.7	97.2	96.8	97.1	96.7	97.2	96.7	97.2	96.8	97.1
444.namd	205	39.1	204	39.2	205	39.2	201	40.0	201	40.0	201	39.9
447.dealII	147	78.0	147	77.7	146	78.2	147	78.0	147	77.7	146	78.2
450.soplex	154	54.3	153	54.4	153	54.4	154	54.3	153	54.4	153	54.4
453.povray	71.8	74.1	71.8	74.1	71.9	74.0	61.2	86.9	61.2	86.9	61.2	86.9
454.calculix	102	80.6	102	80.8	102	80.6	102	80.6	102	80.8	102	80.6
459.GemsFDTD	142	74.9	142	74.7	142	74.9	142	74.9	142	74.7	142	74.9
465.tonto	156	62.9	157	62.8	157	62.8	147	67.2	146	67.4	146	67.4
470.lbm	83.9	164	83.9	164	83.9	164	83.9	164	83.9	164	83.9	164
481.wrf	86.0	130	86.2	130	86.1	130	86.0	130	86.2	130	86.1	130
482.sphinx3	183	107	181	108	182	107	183	107	181	108	182	107

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 Clt305A3A7B76F6 Wed Oct 7 19:37:38 2015

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 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 ~4001 Mhz
BIOS Version  : American Megatrends Inc. 0408, 8/28/2015
Total Physical Memory: 8,084 MB
```

Trying 'wmic cpu get /value'

```
DeviceID      : CPU0
L2CacheSize   : 1024
L3CacheSize   : 8192
MaxClockSpeed : 4001
Name          : Intel(R) Core(TM) i7-6700K CPU @ 4.00GHz
NumberOfCores : 4
NumberOfLogicalProcessors: 8
```

(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
```



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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

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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- -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-alloc
            /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 other inquiries, please contact webmaster@spec.org.

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