SPEC® CFP2006 Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

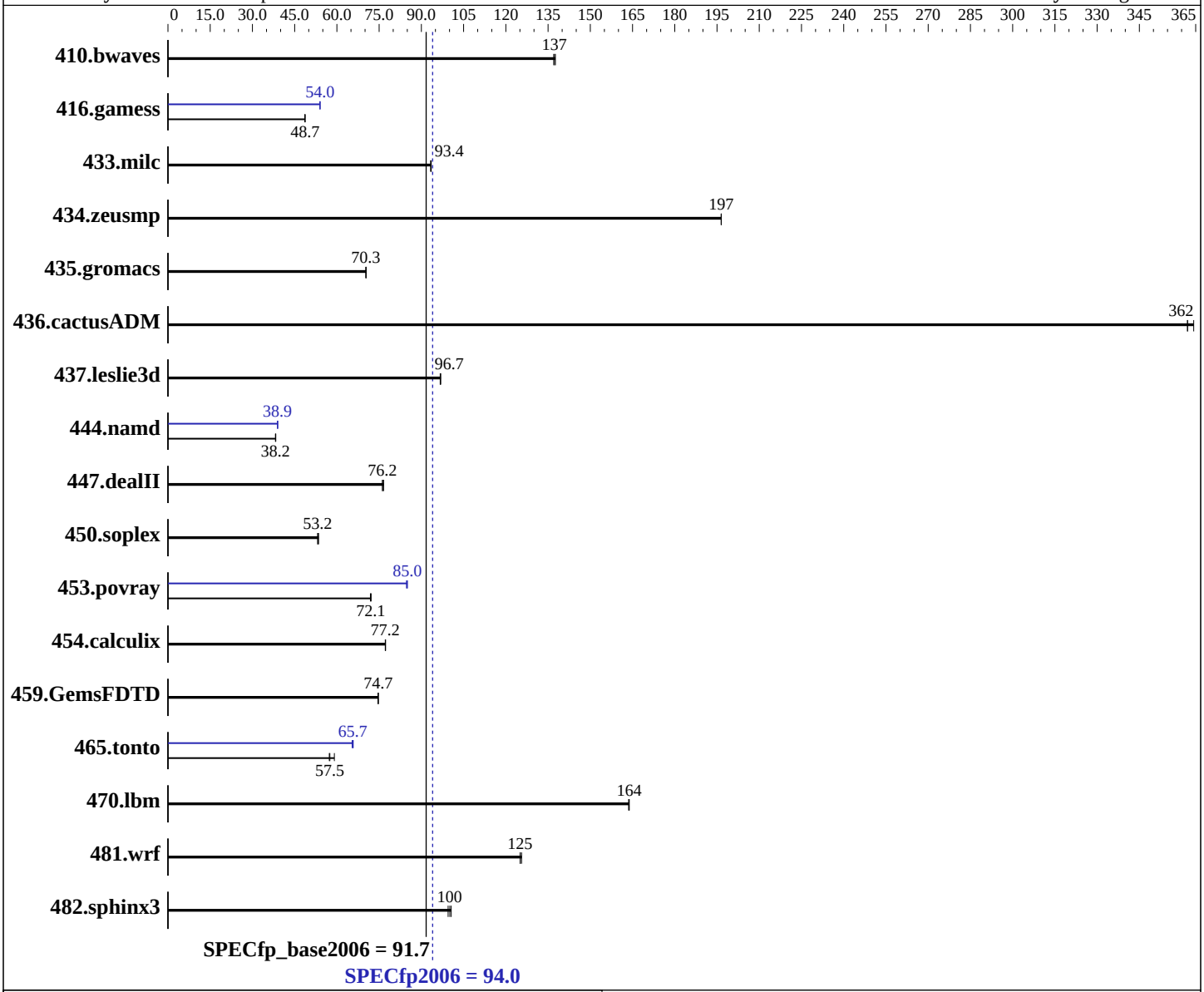
ASUS Z170MPLUS motherboard (Intel Core i7-6700)

SPECfp®2006 = 94.0

SPECfp_base2006 = 91.7

CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

Test date: Oct-2015
Hardware Availability: Sep-2015
Software Availability: Aug-2015



Hardware

CPU Name:	Intel Core i7-6700
CPU Characteristics:	Intel Turbo Boost Technology up to 4.00 GHz
CPU MHz:	3400
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	**99.0**	**137**	99.2	137	98.8	138	**99.0**	**137**	99.2	137	98.8	138
416.gamess	403	48.6	402	48.7	**402**	**48.7**	**363**	**54.0**	363	54.0	363	54.0
433.milc	**98.3**	**93.4**	98.4	93.3	98.2	93.5	**98.3**	**93.4**	98.4	93.3	98.2	93.5
434.zeusmp	46.3	197	**46.3**	**197**	46.3	197	46.3	197	**46.3**	**197**	46.3	197
435.gromacs	102	70.3	101	70.4	**102**	**70.3**	102	70.3	101	70.4	**102**	**70.3**
436.cactusADM	32.8	364	**33.0**	**362**	33.0	362	32.8	364	**33.0**	**362**	33.0	362
437.leslie3d	**97.2**	**96.7**	97.2	96.7	97.0	96.9	**97.2**	**96.7**	97.2	96.7	97.0	96.9
444.namd	**210**	**38.2**	210	38.2	210	38.3	206	39.0	**206**	**38.9**	206	38.9
447.dealII	**150**	**76.2**	150	76.2	149	76.6	**150**	**76.2**	150	76.2	149	76.6
450.soplex	**157**	**53.2**	156	53.5	157	53.2	**157**	**53.2**	156	53.5	157	53.2
453.povray	73.8	72.1	**73.8**	**72.1**	74.0	71.9	62.8	84.7	62.6	85.0	**62.6**	**85.0**
454.calculix	107	77.3	107	77.2	**107**	**77.2**	107	77.3	107	77.2	**107**	**77.2**
459.GemsFDTD	142	74.7	**142**	**74.7**	142	74.6	142	74.7	**142**	**74.7**	142	74.6
465.tonto	**171**	**57.5**	167	59.1	172	57.3	151	65.4	150	65.8	**150**	**65.7**
470.lbm	83.9	164	84.0	164	**83.9**	**164**	83.9	164	84.0	164	**83.9**	**164**
481.wrf	**89.3**	**125**	89.3	125	88.9	126	**89.3**	**125**	89.3	125	88.9	126
482.sphinx3	196	99.5	**195**	**100**	194	101	196	99.5	**195**	**100**	194	101

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 DESKTOP-C8BQEO8 Thu Oct 15 18:23:46 2015

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

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 ~3401 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 : 3401
    Name          : Intel(R) Core(TM) i7-6700 CPU @ 3.40GHz
    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
```

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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