# SPEC® CFP2006 Result

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## ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

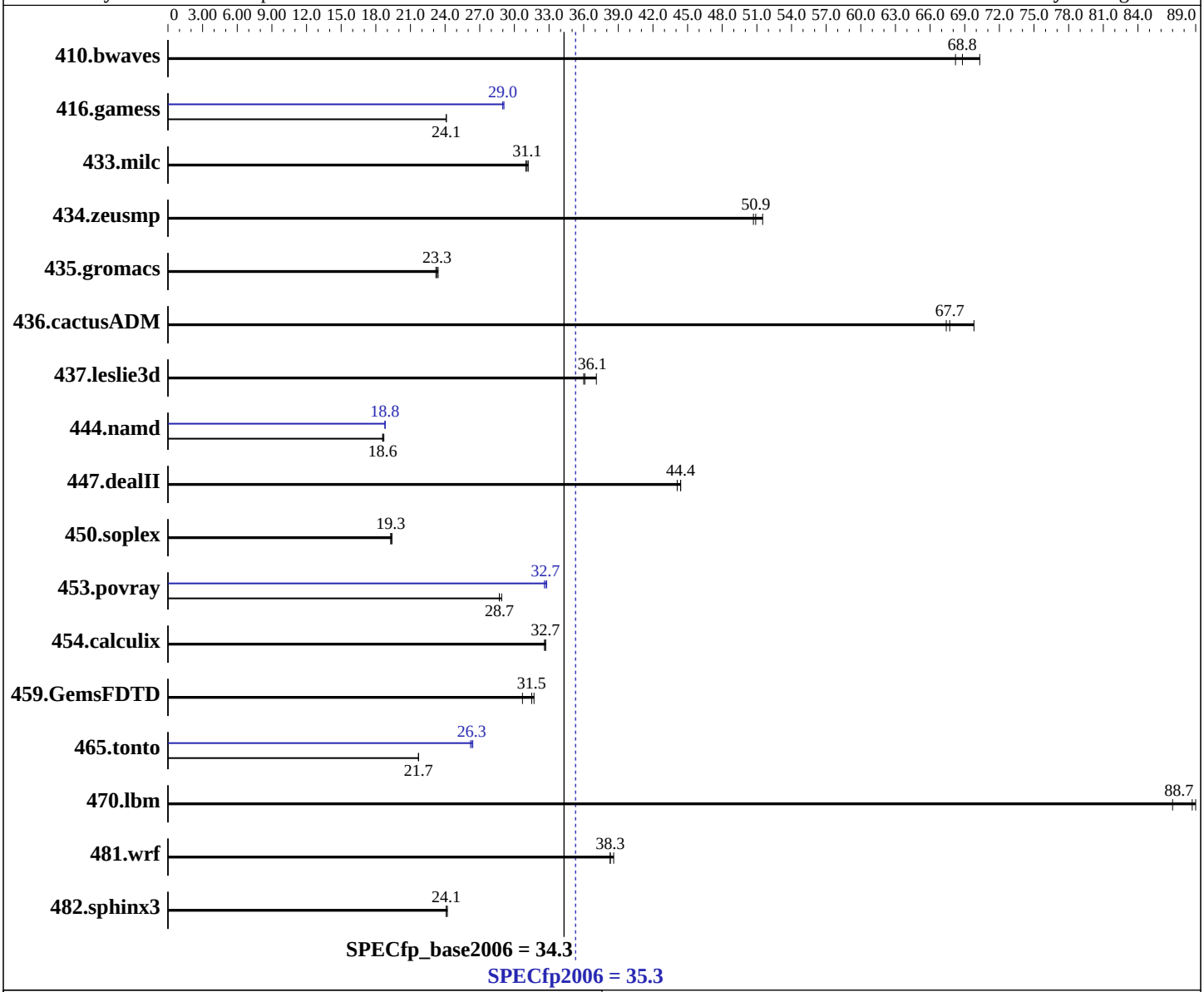
ASUS A88X-PRO Motherboard (AMD A8-7600 with Radeon R7 Graphics)

SPECfp®2006 = 35.3

SPECfp_base2006 = 34.3

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

**Test date:** May-2016
**Hardware Availability:** Jul-2014
**Software Availability:** Aug-2015




## Hardware

| | |
|---|---|
| CPU Name: | AMD A8-7600 |
| CPU Characteristics: | AMD Turbo CORE technology up to 3.80 GHz |
| CPU MHz: | 3100 |
| 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 |

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## 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; 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: | 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 |

| | |
|---|---|
| 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 | **198** | **68.8** | 193 | 70.3 | 199 | 68.2 | **198** | **68.8** | 193 | 70.3 | 199 | 68.2 |
| 416.gamess | 814 | 24.1 | **814** | **24.1** | 814 | 24.1 | **675** | **29.0** | 673 | 29.1 | 676 | 29.0 |
| 433.milc | 294 | 31.2 | **295** | **31.1** | 296 | 31.0 | 294 | 31.2 | **295** | **31.1** | 296 | 31.0 |
| 434.zeusmp | 177 | 51.5 | **179** | **50.9** | 180 | 50.7 | 177 | 51.5 | **179** | **50.9** | 180 | 50.7 |
| 435.gromacs | 305 | 23.4 | 307 | 23.2 | **306** | **23.3** | 305 | 23.4 | 307 | 23.2 | **306** | **23.3** |
| 436.cactusADM | 171 | 69.8 | 177 | 67.4 | **177** | **67.7** | 171 | 69.8 | 177 | 67.4 | **177** | **67.7** |
| 437.leslie3d | 253 | 37.1 | 261 | 36.0 | **260** | **36.1** | 253 | 37.1 | 261 | 36.0 | **260** | **36.1** |
| 444.namd | 429 | 18.7 | 431 | 18.6 | **431** | **18.6** | 426 | 18.8 | **427** | **18.8** | 427 | 18.8 |
| 447.dealII | 259 | 44.1 | 258 | 44.4 | **258** | **44.4** | 259 | 44.1 | 258 | 44.4 | **258** | **44.4** |
| 450.soplex | 429 | 19.4 | 432 | 19.3 | **431** | **19.3** | 429 | 19.4 | 432 | 19.3 | **431** | **19.3** |
| 453.povray | **185** | **28.7** | 184 | 28.9 | 186 | 28.7 | 163 | 32.6 | 162 | 32.8 | **163** | **32.7** |
| 454.calculix | **253** | **32.7** | 252 | 32.7 | 253 | 32.6 | **253** | **32.7** | 252 | 32.7 | 253 | 32.6 |
| 459.GemsFDTD | **337** | **31.5** | 346 | 30.7 | 335 | 31.7 | **337** | **31.5** | 346 | 30.7 | 335 | 31.7 |
| 465.tonto | **453** | **21.7** | 453 | 21.7 | 454 | 21.7 | 373 | 26.4 | **374** | **26.3** | 375 | 26.2 |
| 470.lbm | **155** | **88.7** | 158 | 87.0 | 154 | 89.0 | **155** | **88.7** | 158 | 87.0 | 154 | 89.0 |
| 481.wrf | 290 | 38.6 | **292** | **38.3** | 292 | 38.3 | 290 | 38.6 | **292** | **38.3** | 292 | 38.3 |
| 482.sphinx3 | **808** | **24.1** | 807 | 24.2 | 808 | 24.1 | **808** | **24.1** | 807 | 24.2 | 808 | 24.1 |

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 Clt1C872C5C6B24 Fri May 20 12:23:23 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 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 ~3100 Mhz
  BIOS Version   : American Megatrends Inc. 2502, 12/11/2015
  Total Physical Memory: 7,108 MB

  Trying 'wmic cpu get /value'
  DeviceID       : CPU0
  L2CacheSize    : 25359
  L3CacheSize    : 0
  MaxClockSpeed : 3100
  Name           : AMD A8-7600 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

```
 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:
/arch:AVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch /F1000000000

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

Fortran benchmarks:
/arch:AVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch /F1000000000

Continued on next page

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
`/arch:AVX -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: `/arch:AVX`(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: `/arch:AVX`(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: `/arch:AVX`(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: `/arch:AVX`(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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