# SPEC® CFP2006 Result

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## ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

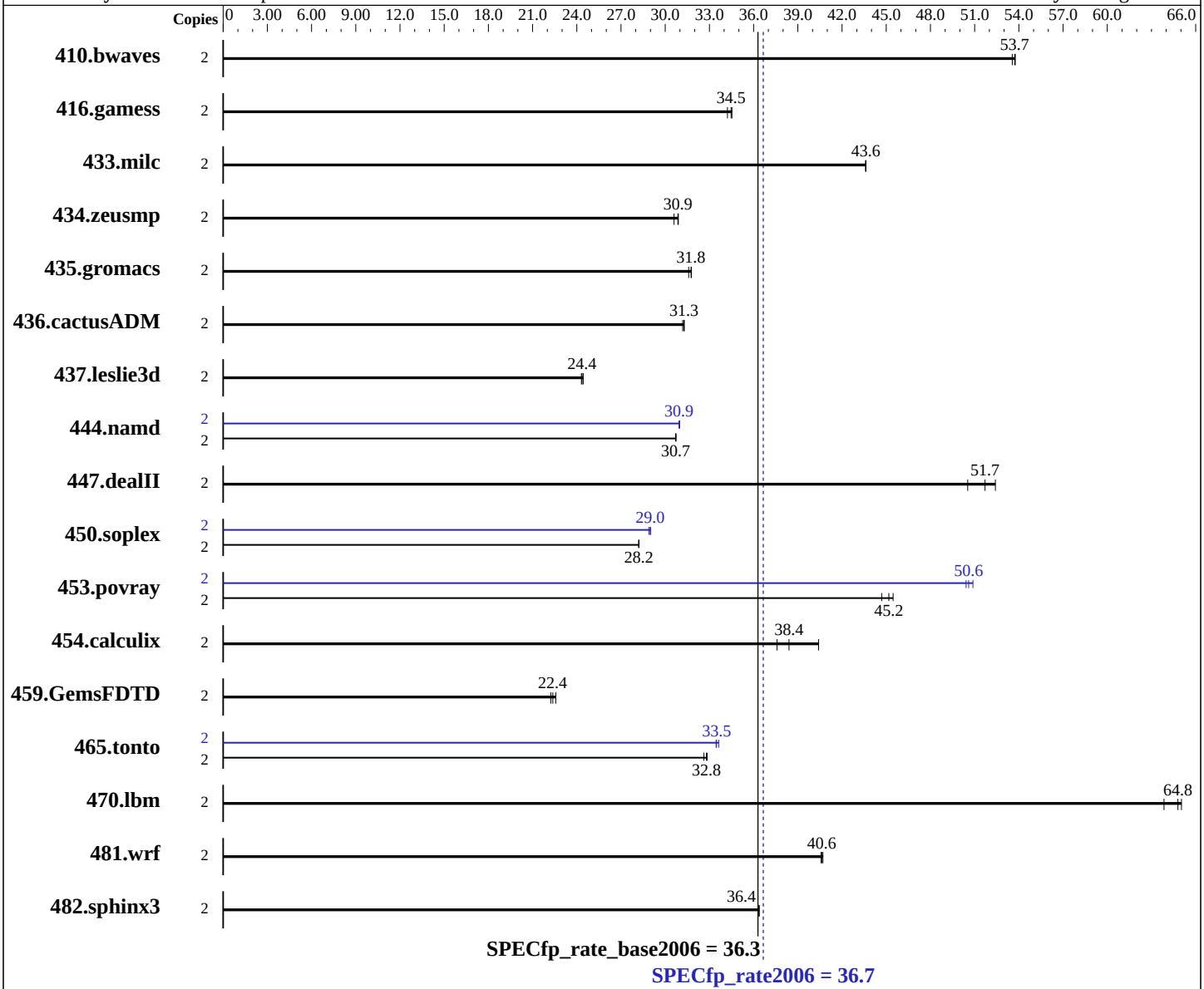
ASUS A88X-PRO Motherboard (AMD A4-7300 with Radeon HD Graphics)

**SPECfp®_rate2006 = 36.7**

**SPECfp_rate_base2006 = 36.3**

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

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




## Hardware

| | |
|---|---|
| CPU Name: | AMD A4-7300 |
| CPU Characteristics: | AMD Turbo CORE technology up to 4.00 GHz |
| CPU MHz: | 3800 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 64 KB I on chip per chip; 16 KB D on chip per core |
| Secondary Cache: | 1 MB I+D on chip per chip |

Continued on next page

## Software

| | |
|---|---|
| Operating System: | Microsoft Windows 7 Enterprise 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: | 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 | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 2 | 508 | 53.6 | **506** | **53.7** | 506 | 53.8 | 2 | 508 | 53.6 | **506** | **53.7** | 506 | 53.8 |
| 416.gamess | 2 | **1136** | **34.5** | 1144 | 34.2 | 1134 | 34.5 | 2 | **1136** | **34.5** | 1144 | 34.2 | 1134 | 34.5 |
| 433.milc | 2 | **421** | **43.6** | 421 | 43.6 | 421 | 43.6 | 2 | **421** | **43.6** | 421 | 43.6 | 421 | 43.6 |
| 434.zeusmp | 2 | **590** | **30.9** | 595 | 30.6 | 589 | 30.9 | 2 | **590** | **30.9** | 595 | 30.6 | 589 | 30.9 |
| 435.gromacs | 2 | **450** | **31.8** | 449 | 31.8 | 452 | 31.6 | 2 | **450** | **31.8** | 449 | 31.8 | 452 | 31.6 |
| 436.cactusADM | 2 | 766 | 31.2 | 764 | 31.3 | **764** | **31.3** | 2 | 766 | 31.2 | 764 | 31.3 | **764** | **31.3** |
| 437.leslie3d | 2 | 769 | 24.4 | **772** | **24.4** | 773 | 24.3 | 2 | 769 | 24.4 | **772** | **24.4** | 773 | 24.3 |
| 444.namd | 2 | **522** | **30.7** | 522 | 30.7 | 522 | 30.7 | 2 | 518 | 30.9 | **518** | **30.9** | 518 | 31.0 |
| 447.dealII | 2 | 437 | 52.4 | 453 | 50.5 | **443** | **51.7** | 2 | 437 | 52.4 | 453 | 50.5 | **443** | **51.7** |
| 450.soplex | 2 | **591** | **28.2** | 591 | 28.2 | 591 | 28.2 | 2 | **576** | **29.0** | 577 | 28.9 | 575 | 29.0 |
| 453.povray | 2 | 238 | 44.7 | 234 | 45.5 | **236** | **45.2** | 2 | 209 | 50.9 | **210** | **50.6** | 211 | 50.4 |
| 454.calculix | 2 | 439 | 37.6 | 408 | 40.4 | **430** | **38.4** | 2 | 439 | 37.6 | 408 | 40.4 | **430** | **38.4** |
| 459.GemsFDTD | 2 | 954 | 22.2 | **949** | **22.4** | 940 | 22.6 | 2 | 954 | 22.2 | **949** | **22.4** | 940 | 22.6 |
| 465.tonto | 2 | 603 | 32.6 | 599 | 32.8 | **600** | **32.8** | 2 | 588 | 33.5 | 585 | 33.6 | **588** | **33.5** |
| 470.lbm | 2 | 430 | 63.9 | **424** | **64.8** | 423 | 65.0 | 2 | 430 | 63.9 | **424** | **64.8** | 423 | 65.0 |
| 481.wrf | 2 | 551 | 40.6 | 549 | 40.7 | **550** | **40.6** | 2 | 551 | 40.6 | 549 | 40.7 | **550** | **40.6** |
| 482.sphinx3 | 2 | 1074 | 36.3 | **1072** | **36.4** | 1071 | 36.4 | 2 | 1074 | 36.3 | **1072** | **36.4** | 1071 | 36.4 |

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 CltE03F49ACBFDE Wed Mar 23 19:36:18 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

## Platform Notes (Continued)

```
    http://www.spec.org/cpu2006/Docs/config.html#sysinfo

  Trying 'systeminfo'
  OS Name       : Microsoft Windows 7 Enterprise
  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 19 Stepping 1 AuthenticAMD ~3800 Mhz
  BIOS Version  : American Megatrends Inc. 2502, 12/11/2015
  Total Physical Memory: 7,364 MB

  Trying 'wmic cpu get /value'
  DeviceID      : CPU0
  L2CacheSize   : 24847
  L3CacheSize   : 0
  MaxClockSpeed : 3800
  Name          : AMD A4-7300 APU with Radeon HD Graphics
  NumberOfCores : 1
  NumberOfLogicalProcessors: 2

  (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 (peak): "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
```

Continued on next page

## 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:
/arch:AVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch -Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

C++ benchmarks:
/arch:AVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch -Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

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

Continued on next page

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
/arch:AVX -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000 -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: 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 -Qauto-ilp32 /F1000000000
shlW64M.lib -link /FORCE:MULTIPLE

447.dealII: basepeak = yes

450.soplex: /arch:AVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qauto-ilp32 /F1000000000 shlW64M.lib
-link /FORCE:MULTIPLE

Continued on next page

## Peak Optimization Flags (Continued)

453.povray: `/arch:AVX`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

416.gamess: `basepeak = yes`

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 /F1000000000 -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.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Sep 20 15:06:20 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 20 September 2016.