# SPEC® CFP2006 Result

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## ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

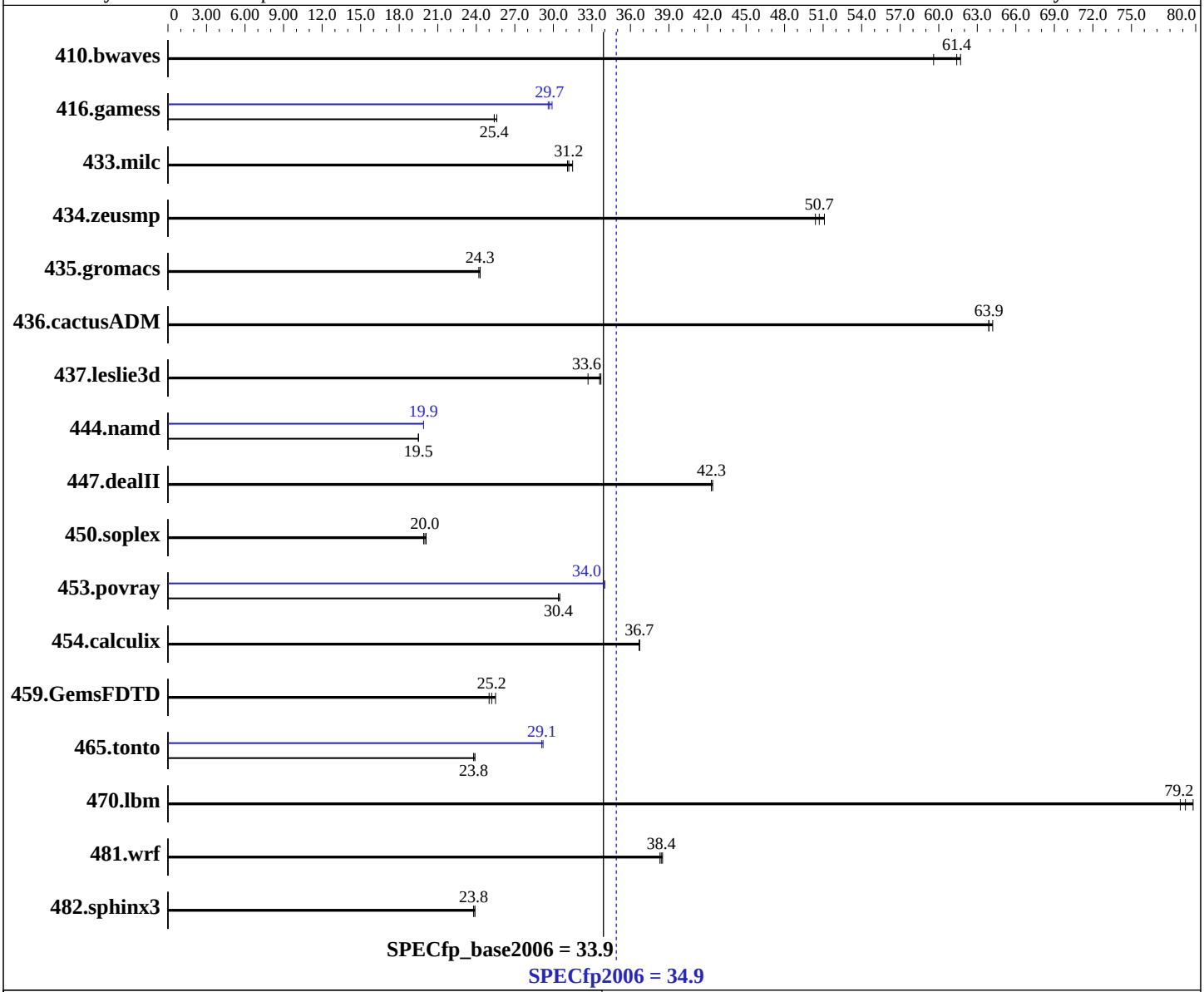
ASUS A88X-PRO motherboard (AMD A10-7850K APU with Radeon R7 Graphics)

SPECfp®2006 = 34.9

SPECfp_base2006 = 33.9

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

**Test date:** Jun-2014
**Hardware Availability:** Jan-2014
**Software Availability:** Oct-2013




## Hardware

| | |
|---|---|
| CPU Name: | AMD A10-7850K |
| CPU Characteristics: | AMD Turbo CORE technology up to 4.00 GHz |
| CPU MHz: | 3700 |
| 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 Enterprise 6.1.7601 Service Pack 1 Build 7601 |
| Compiler: | C/C++: Version 14.0.1.139 of Intel C++ Studio XE for Windows; Fortran: Version 14.0.1.139 of Intel Fortran Studio XE for Windows; Libraries: Version 16.00.30319.01 of Microsoft Visual Studio 2010 Professional SP1 |
| Auto Parallel: | Yes |

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| | |
|---|---|
| L3 Cache: | None |
| Other Cache: | None |
| Memory: | 4 GB (2 x 2 GB 1Rx8 PC3-12800U-11) |
| Disk Subsystem: | 250 GB 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 10.0 from http://www.microquill.com/ |

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 228 | 59.6 | 220 | 61.7 | **222** | **61.4** | 228 | 59.6 | 220 | 61.7 | **222** | **61.4** |
| 416.gamess | 770 | 25.4 | **770** | **25.4** | 765 | 25.6 | 660 | 29.6 | **658** | **29.7** | 656 | 29.9 |
| 433.milc | 295 | 31.1 | 291 | 31.5 | **294** | **31.2** | 295 | 31.1 | 291 | 31.5 | **294** | **31.2** |
| 434.zeusmp | **180** | **50.7** | 178 | 51.1 | 181 | 50.4 | **180** | **50.7** | 178 | 51.1 | 181 | 50.4 |
| 435.gromacs | 295 | 24.2 | **294** | **24.3** | 294 | 24.3 | 295 | 24.2 | **294** | **24.3** | 294 | 24.3 |
| 436.cactusADM | **187** | **63.9** | 186 | 64.2 | 187 | 63.9 | **187** | **63.9** | 186 | 64.2 | 187 | 63.9 |
| 437.leslie3d | 279 | 33.7 | **279** | **33.6** | 287 | 32.7 | 279 | 33.7 | **279** | **33.6** | 287 | 32.7 |
| 444.namd | 412 | 19.5 | **412** | **19.5** | 412 | 19.5 | 404 | 19.9 | **404** | **19.9** | 403 | 19.9 |
| 447.dealII | 270 | 42.4 | 270 | 42.3 | **270** | **42.3** | 270 | 42.4 | 270 | 42.3 | **270** | **42.3** |
| 450.soplex | 414 | 20.1 | **417** | **20.0** | 418 | 19.9 | 414 | 20.1 | **417** | **20.0** | 418 | 19.9 |
| 453.povray | 175 | 30.4 | **175** | **30.4** | 175 | 30.5 | 157 | 34.0 | **157** | **34.0** | 156 | 34.0 |
| 454.calculix | 225 | 36.7 | **225** | **36.7** | 225 | 36.7 | 225 | 36.7 | **225** | **36.7** | 225 | 36.7 |
| 459.GemsFDTD | 417 | 25.5 | 425 | 25.0 | **421** | **25.2** | 417 | 25.5 | 425 | 25.0 | **421** | **25.2** |
| 465.tonto | 414 | 23.8 | **413** | **23.8** | 412 | 23.9 | 339 | 29.1 | 337 | 29.2 | **338** | **29.1** |
| 470.lbm | **173** | **79.2** | 174 | 78.8 | 172 | 79.8 | **173** | **79.2** | 174 | 78.8 | 172 | 79.8 |
| 481.wrf | 292 | 38.3 | **291** | **38.4** | 290 | 38.5 | 292 | 38.3 | **291** | **38.4** | 290 | 38.5 |
| 482.sphinx3 | 816 | 23.9 | **819** | **23.8** | 820 | 23.8 | 816 | 23.9 | **819** | **23.8** | 820 | 23.8 |

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 14.0 was set up to
generate 64-bit binaries with the command:
"ipsxe-comp-vars.bat intel64 vs2010" (shortcut provided in the Intel(r)
Parallel Studio XE 2013 program folder)
```

## Platform Notes

```
Sysinfo program C:\SPEC14.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on A88XPRO-PC Sat Jun 28 10:03:49 2014

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 48 Stepping 1 AuthenticAMD ~3700 Mhz
BIOS Version   : American Megatrends Inc. 0703, 12/30/2013
Total Physical Memory: 3,522 MB

Trying 'wmic cpu get /value'
DeviceID       : CPU0
L2CacheSize    : 4096
L3CacheSize    : 0
MaxClockSpeed : 3700
Name           : AMD A10-7850K APU with Radeon(TM) R7 Graphics
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
Micron MT8JTF25664AZ-1G6 Series Memory DIMMs
```

## General Notes

```
OMP_NUM_THREADS set to number of processors cores
KMP_AFFINITY set to granularity=fine,scatter
Binaries compiled on a system with 1x Intel Core i7-860 CPU
+ 8GB memory using Windows 7 Enterprise 64-bit
```

# Base Compiler Invocation

C benchmarks:
```
icl -Qvc10 -Qstd=c99
```

C++ benchmarks:
```
icl -Qvc10
```

Fortran benchmarks:
```
ifort
```

Continued on next page

## Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
icl -Qvc10 -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
-Qoption,cpp,--ms_incompat_treatment_of_commas_in_macros
450.soplex: -DSPEC_CPU_P64
453.povray: -DSPEC_CPU_P64 -DSPEC_CPU_NEED_INVHYP -DNEED_INVHYP
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 -Qauto-ilp32 /F1000000000

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

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

Benchmarks using both Fortran and C:
/arch:AVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qauto-ilp32 /F1000000000

## Peak Compiler Invocation

C benchmarks:
icl -Qvc10 -Qstd=c99

C++ benchmarks:
icl -Qvc10

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc10 -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: basepeak = yes

453.povray: /arch:AVX(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias -Qauto-ilp32 /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

Continued on next page

## Peak Optimization Flags (Continued)

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-ic14.0-official-windows.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic14.0-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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