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
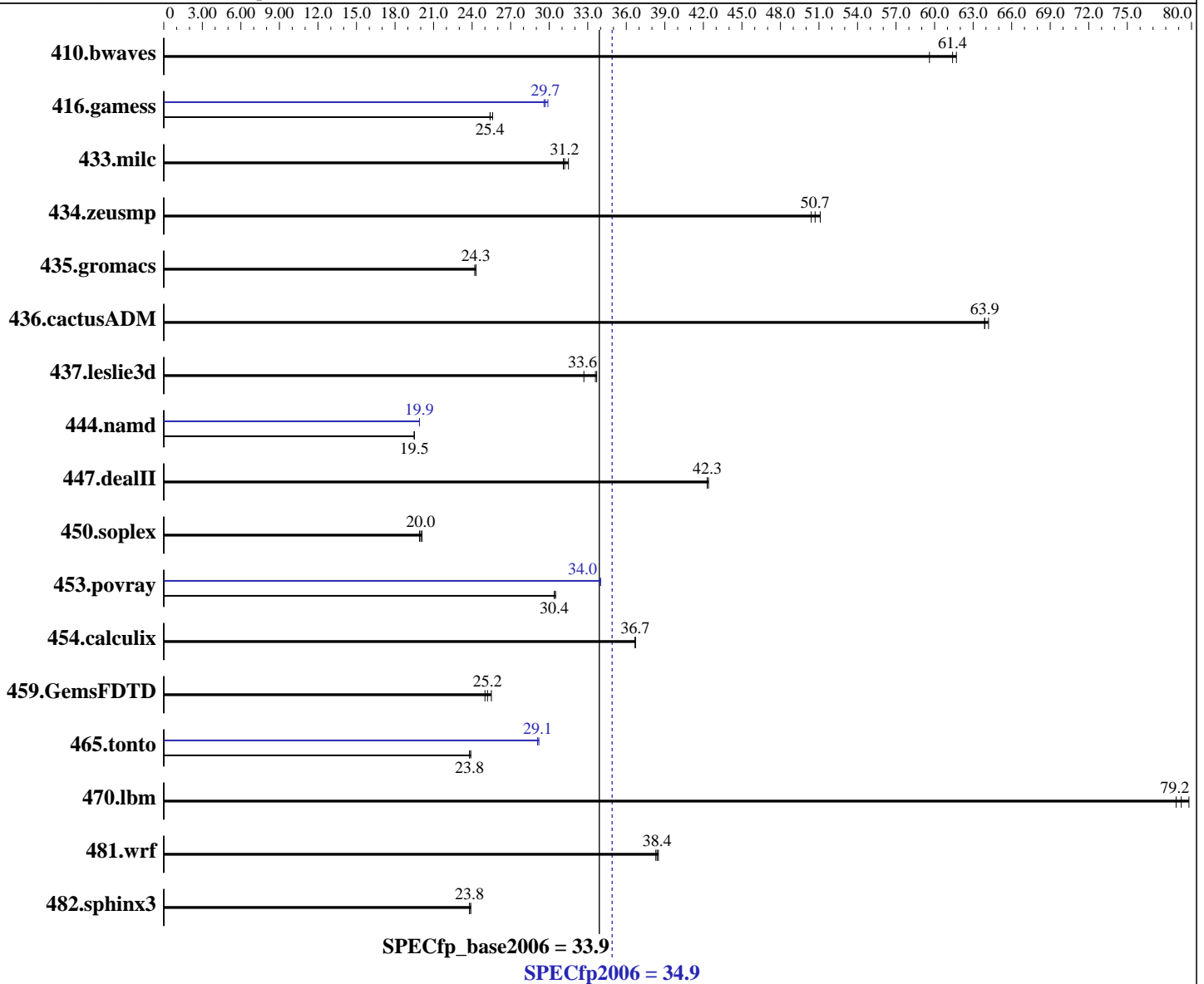
$SPECfp\_base2006 =$ 33.9

CPU2006 license: 13

Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Jun-2014

Hardware Availability: Jan-2014

Software Availability: Oct-2013

Benchmark scale 0 to 80.0

Benchmark	Result
410.bwaves	61.4
416.gamess	29.7 / 25.4
433.milc	31.2
434.zeusmp	50.7
435.gromacs	24.3
436.cactusADM	63.9
437.leslie3d	33.6
444.namd	19.9 / 19.5
447.dealII	42.3
450.soplex	20.0
453.povray	34.0 / 30.4
454.calculix	36.7
459.GemsFDTD	25.2
465.tonto	29.1 / 23.8
470.lbm	79.2
481.wrf	38.4
482.sphinx3	23.8

SPECfp_base2006 = 33.9

SPECfp2006 = 34.9

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

Continued on next page

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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CPU2006 license: 13	**Test date:** Jun-2014
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L3 Cache:	None	File System:	NTFS
Other Cache:	None	System State:	Default
Memory:	4 GB (2 x 2 GB 1Rx8 PC3-12800U-11)	Base Pointers:	32/64-bit
Disk Subsystem:	250 GB Seagate SATA HDD, 7200 RPM	Peak Pointers:	32/64-bit
Other Hardware:	None	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:
```

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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
```

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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
```

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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

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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.

Tested with SPEC CPU2006 v1.2.
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