SPEC® CFP2006 Result
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ASUSTeK Computer Inc.
(Test Sponsor: Intel Corporation)

ASUS A88X-PRO Motherboard (AMD A10 PRO-7800B with Radeon R7 Graphics)

$SPECfp^{®}2006 =$ 34.5
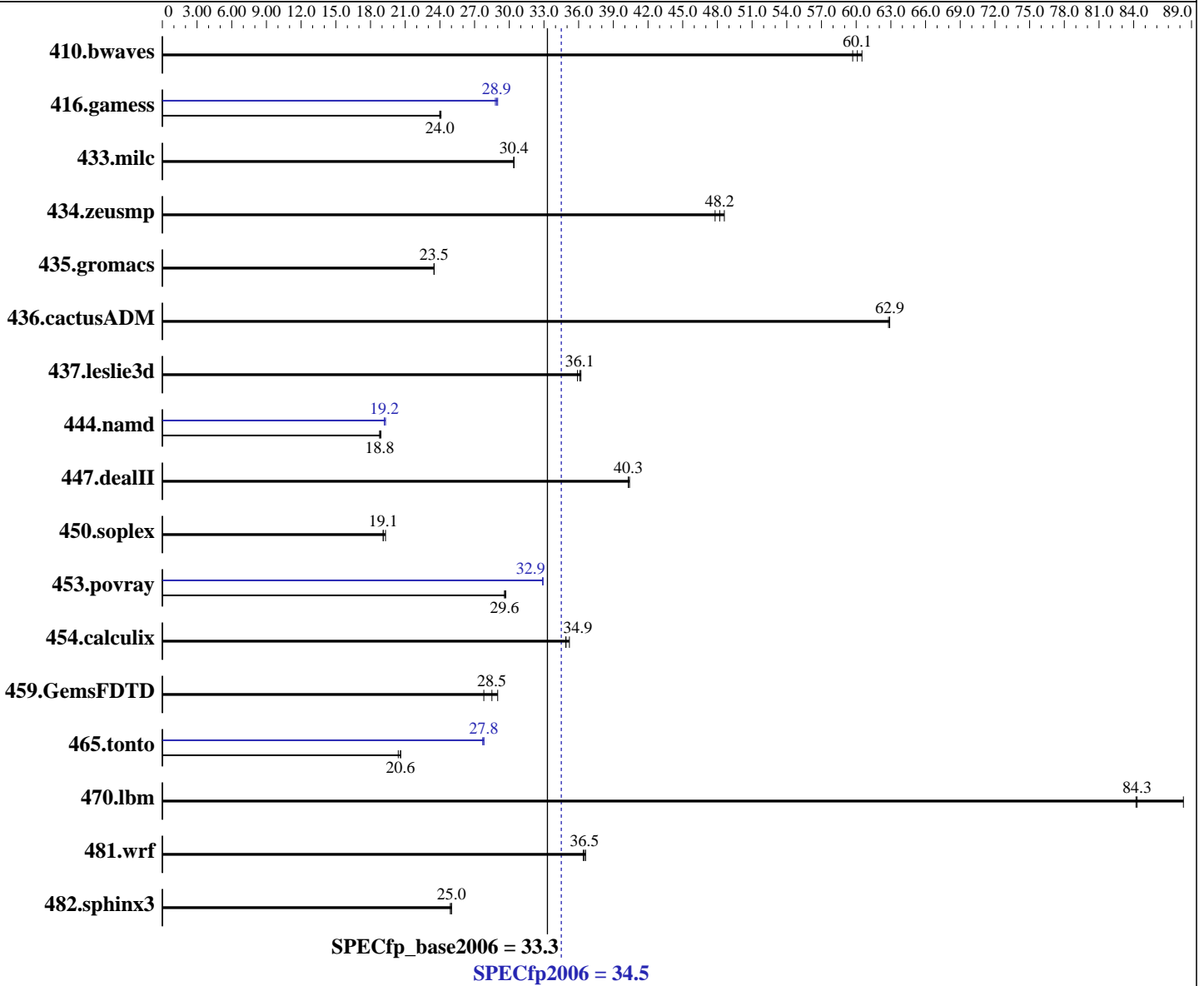
$SPECfp\_base2006 =$ 33.3

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

Test date: Nov-2014
Hardware Availability: Jul-2014
Software Availability: Oct-2013

Benchmark	Score
410.bwaves	60.1
416.gamess	28.9 / 24.0
433.milc	30.4
434.zeusmp	48.2
435.gromacs	23.5
436.cactusADM	62.9
437.leslie3d	36.1
444.namd	19.2 / 18.8
447.dealII	40.3
450.soplex	19.1
453.povray	32.9 / 29.6
454.calculix	34.9
459.GemsFDTD	28.5
465.tonto	27.8 / 20.6
470.lbm	84.3
481.wrf	36.5
482.sphinx3	25.0

SPECfp_base2006 = 33.3
SPECfp2006 = 34.5

Hardware
CPU Name: AMD A10 PRO-7800B
CPU Characteristics: AMD Turbo CORE technology up to 3.90 GHz
CPU MHz: 3500
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 8.1 Pro 6.3.9600 N/A Build 9600
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

Continued on next page

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L3 Cache:	None	File System:	NTFS
Other Cache:	None	System State:	Default
Memory:	8 GB (2 x 4 GB 2Rx4 PC3-17000U-14)	Base Pointers:	32/64-bit
Disk Subsystem:	160 GB Western Digital SATA HDD, 7200 RPM	Peak Pointers:	32/64-bit
Other Hardware:	None	Other Software:	Microquill SmartHeap V10.0

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	225	60.5	228	59.7	**226**	**60.1**	225	60.5	228	59.7	**226**	**60.1**
416.gamess	817	24.0	814	24.1	**816**	**24.0**	676	29.0	680	28.8	**678**	**28.9**
433.milc	302	30.4	**302**	**30.4**	302	30.4	302	30.4	**302**	**30.4**	302	30.4
434.zeusmp	187	48.6	**189**	**48.2**	191	47.8	187	48.6	**189**	**48.2**	191	47.8
435.gromacs	304	23.5	304	23.5	**304**	**23.5**	304	23.5	304	23.5	**304**	**23.5**
436.cactusADM	190	62.9	**190**	**62.9**	190	62.8	190	62.9	**190**	**62.9**	190	62.8
437.leslie3d	**261**	**36.1**	260	36.2	262	35.9	**261**	**36.1**	260	36.2	262	35.9
444.namd	425	18.9	**426**	**18.8**	426	18.8	417	19.3	418	19.2	**417**	**19.2**
447.dealII	**284**	**40.3**	283	40.4	284	40.3	**284**	**40.3**	283	40.4	284	40.3
450.soplex	437	19.1	**437**	**19.1**	433	19.3	437	19.1	**437**	**19.1**	433	19.3
453.povray	**180**	**29.6**	179	29.7	180	29.6	162	32.9	**162**	**32.9**	162	32.9
454.calculix	235	35.2	**237**	**34.9**	237	34.9	235	35.2	**237**	**34.9**	237	34.9
459.GemsFDTD	382	27.8	**372**	**28.5**	366	29.0	382	27.8	**372**	**28.5**	366	29.0
465.tonto	478	20.6	**478**	**20.6**	484	20.4	354	27.8	355	27.7	**354**	**27.8**
470.lbm	**163**	**84.3**	163	84.2	156	88.3	**163**	**84.3**	163	84.2	156	88.3
481.wrf	305	36.6	**306**	**36.5**	307	36.4	305	36.6	**306**	**36.5**	307	36.4
482.sphinx3	781	24.9	**781**	**25.0**	780	25.0	781	24.9	**781**	**25.0**	780	25.0

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 CltE03F49B01DC4 Thu Nov  6 06:32:17 2014

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
   http://www.spec.org/cpu2006/Docs/config.html#sysinfo
```

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Platform Notes (Continued)

```
Trying 'systeminfo'
OS Name         : Microsoft Windows 8.1 Pro
OS Version      : 6.3.9600 N/A Build 9600
System Manufacturer: System manufacturer
System Model    : System Product Name
Processor(s)    : 1 Processor(s) Installed.
    [01]: AMD64 Family 21 Model 48 Stepping 1 AuthenticAMD ~3500 Mhz
BIOS Version    : American Megatrends Inc. 1301, 6/24/2014
Total Physical Memory: 7,105 MB

Trying 'wmic cpu get /value'
DeviceID        : CPU0
L2CacheSize     : 25359
L3CacheSize     : 0
MaxClockSpeed   : 3500
Name            : AMD A10-7800 Radeon R7, 12 Compute Cores 4C+8G
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

```
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
```

Benchmarks using both Fortran and C:
```
icl -Qvc10 -Qstd=c99 ifort
```

spec

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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
```

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Peak Compiler Invocation (Continued)

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

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes
```

Continued on next page

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Peak Optimization Flags (Continued)

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 other inquiries, please contact webmaster@spec.org.

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