SPEC® CFP2006 Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

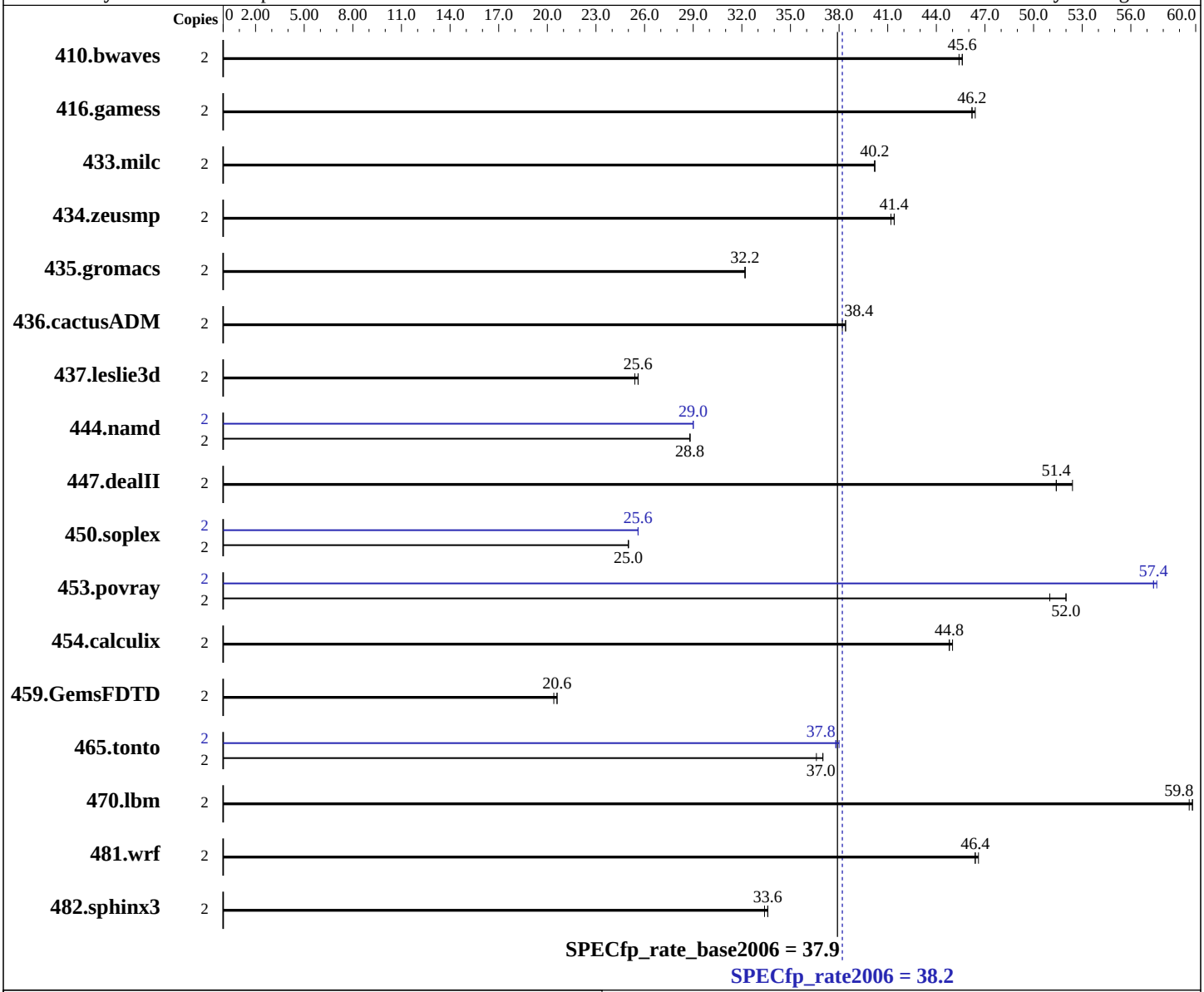
ASUS A88X-PRO Motherboard (AMD A6-7400K with Radeon R5 Graphics)

SPECfp®_rate2006 = 38.2

SPECfp_rate_base2006 = 37.9

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 A6-7400K
CPU Characteristics:	AMD Turbo CORE technology up to 3.90 GHz
CPU MHz:	3500
FPU:	Integrated
CPU(s) enabled:	2 cores, 1 chip, 2 cores/chip
CPU(s) orderable:	1 chip
Primary Cache:	96 KB I on chip per chip; 16 KB D on chip per core
Secondary Cache:	1 MB I+D on chip per chip

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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	598	45.4	597	45.6	**597**	**45.6**	2	598	45.4	597	45.6	**597**	**45.6**
416.gamess	2	843	46.4	847	46.2	**847**	**46.2**	2	843	46.4	847	46.2	**847**	**46.2**
433.milc	2	456	40.2	**456**	**40.2**	457	40.2	2	456	40.2	**456**	**40.2**	457	40.2
434.zeusmp	2	441	41.2	**440**	**41.4**	440	41.4	2	441	41.2	**440**	**41.4**	440	41.4
435.gromacs	2	445	32.2	**443**	**32.2**	443	32.2	2	445	32.2	**443**	**32.2**	443	32.2
436.cactusADM	2	**623**	**38.4**	623	38.4	626	38.2	2	**623**	**38.4**	623	38.4	626	38.2
437.leslie3d	2	**736**	**25.6**	735	25.6	737	25.4	2	**736**	**25.6**	735	25.6	737	25.4
444.namd	2	558	28.8	557	28.8	**557**	**28.8**	2	552	29.0	552	29.0	**552**	**29.0**
447.dealII	2	436	52.4	**445**	**51.4**	446	51.4	2	436	52.4	**445**	**51.4**	446	51.4
450.soplex	2	667	25.0	**667**	**25.0**	670	25.0	2	649	25.6	**650**	**25.6**	651	25.6
453.povray	2	209	51.0	204	52.0	**205**	**52.0**	2	**185**	**57.4**	185	57.4	185	57.6
454.calculix	2	**368**	**44.8**	366	45.0	368	44.8	2	**368**	**44.8**	366	45.0	368	44.8
459.GemsFDTD	2	1044	20.4	**1035**	**20.6**	1026	20.6	2	1044	20.4	**1035**	**20.6**	1026	20.6
465.tonto	2	**533**	**37.0**	537	36.6	533	37.0	2	518	38.0	**520**	**37.8**	521	37.8
470.lbm	2	461	59.6	**460**	**59.8**	460	59.8	2	461	59.6	**460**	**59.8**	460	59.8
481.wrf	2	**481**	**46.4**	482	46.4	480	46.6	2	**481**	**46.4**	482	46.4	480	46.6
482.sphinx3	2	1164	33.4	1161	33.6	**1161**	**33.6**	2	1164	33.4	1161	33.6	**1161**	**33.6**

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 Fri Mar 18 23:00:53 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 48 Stepping 1 AuthenticAMD ~3500 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 : 3500
  Name          : AMD A6-7400K Radeon R5, 6 Compute Cores 2C+4G
  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
```

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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

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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- -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.

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