SPEC® CFP2006 Result

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ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

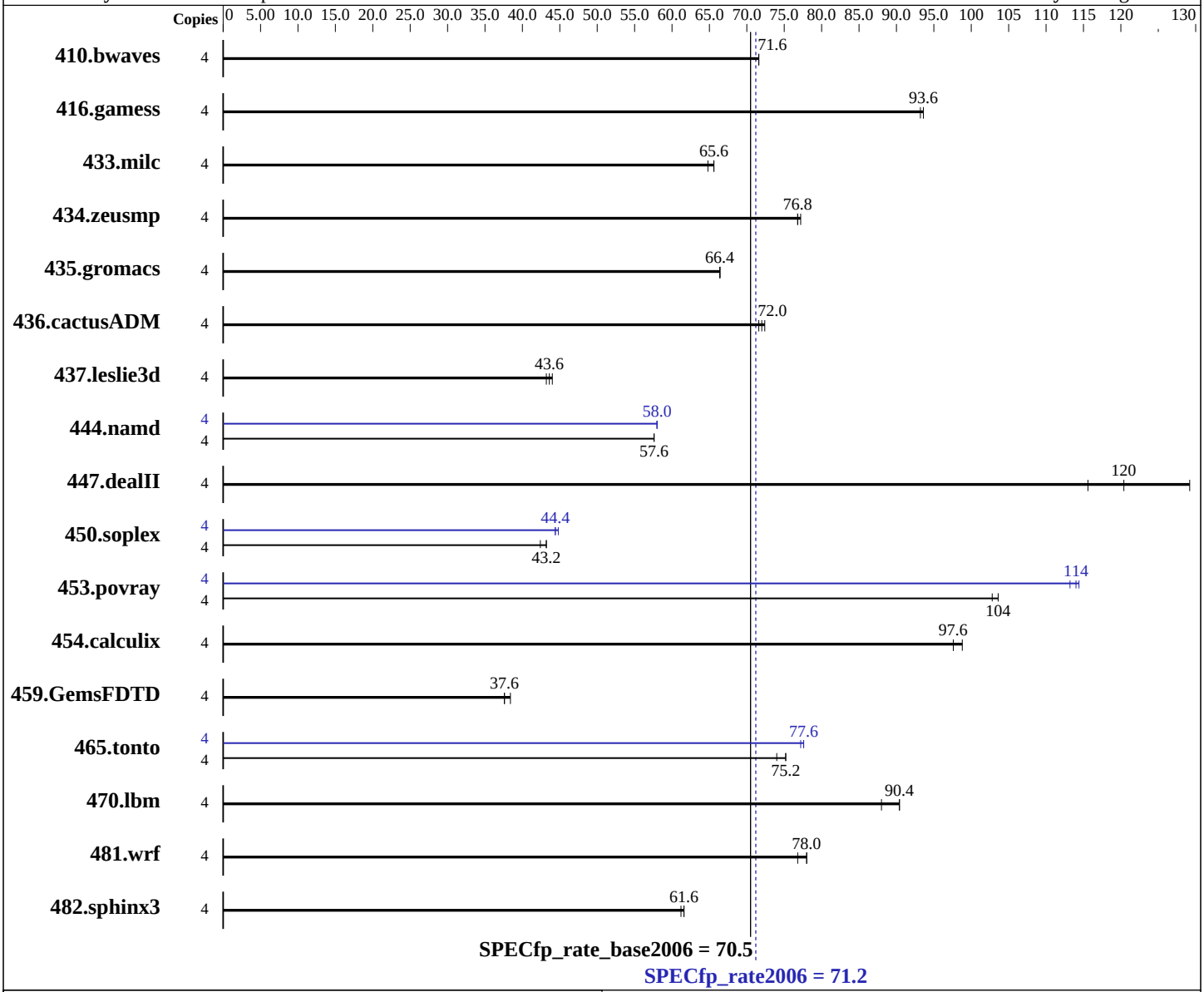
ASUS A88X-PRO Motherboard (AMD A10-7850K with Radeon R7 Graphics)

SPECfp®_rate2006 = 71.2

SPECfp_rate_base2006 = 70.5

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

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



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 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	4	**759**	**71.6**	758	71.6	761	71.6	4	**759**	**71.6**	758	71.6	761	71.6
416.gamess	4	840	93.2	835	93.6	**838**	**93.6**	4	840	93.2	835	93.6	**838**	**93.6**
433.milc	4	558	65.6	567	64.8	**559**	**65.6**	4	558	65.6	567	64.8	**559**	**65.6**
434.zeusmp	4	**474**	**76.8**	475	76.8	471	77.2	4	**474**	**76.8**	475	76.8	471	77.2
435.gromacs	4	431	66.4	431	66.4	**431**	**66.4**	4	431	66.4	431	66.4	**431**	**66.4**
436.cactusADM	4	**663**	**72.0**	669	71.6	659	72.4	4	**663**	**72.0**	669	71.6	659	72.4
437.leslie3d	4	870	43.2	**865**	**43.6**	852	44.0	4	870	43.2	**865**	**43.6**	852	44.0
444.namd	4	**558**	**57.6**	558	57.6	558	57.6	4	554	58.0	**554**	**58.0**	553	58.0
447.dealII	4	354	129	396	116	**380**	**120**	4	354	129	396	116	**380**	**120**
450.soplex	4	790	42.4	**776**	**43.2**	774	43.2	4	754	44.4	**748**	**44.4**	744	44.8
453.povray	4	205	104	207	103	**205**	**104**	4	188	113	**187**	**114**	186	114
454.calculix	4	**338**	**97.6**	338	97.6	334	98.8	4	**338**	**97.6**	338	97.6	334	98.8
459.GemsFDTD	4	1126	37.6	**1124**	**37.6**	1101	38.4	4	1126	37.6	**1124**	**37.6**	1101	38.4
465.tonto	4	524	75.2	533	74.0	**524**	**75.2**	4	508	77.6	509	77.2	**508**	**77.6**
470.lbm	4	608	90.4	624	88.0	**608**	**90.4**	4	608	90.4	624	88.0	**608**	**90.4**
481.wrf	4	572	78.0	582	76.8	**572**	**78.0**	4	572	78.0	582	76.8	**572**	**78.0**
482.sphinx3	4	1265	61.6	1278	61.2	**1267**	**61.6**	4	1265	61.6	1278	61.2	**1267**	**61.6**

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 Clt1C872C5DF572 Sat Mar 19 19:07:09 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 ~3700 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 : 3700
  Name          : AMD A10-7850K 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

```
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

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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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