SPEC® CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.
(Test Sponsor: Intel Corporation)

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

$SPECfp®\_rate2006 = \quad 71.2$

$SPECfp\_rate\_base2006 = \quad 70.5$
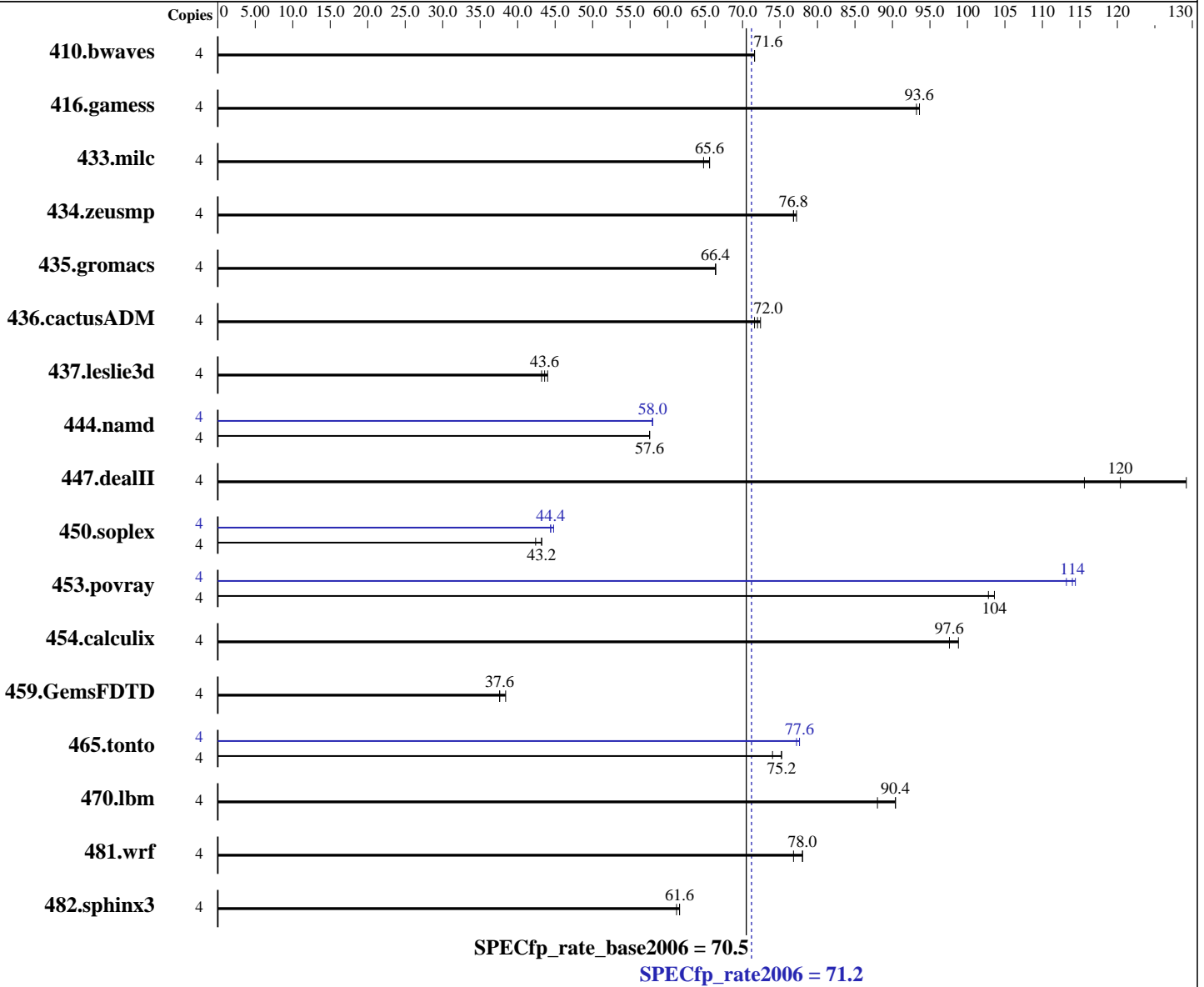
CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

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

Benchmark	Copies	Result
410.bwaves	4	71.6
416.gamess	4	93.6
433.milc	4	65.6
434.zeusmp	4	76.8
435.gromacs	4	66.4
436.cactusADM	4	72.0
437.leslie3d	4	43.6
444.namd	4	58.0
444.namd	4	57.6
447.dealII	4	120
450.soplex	4	44.4
450.soplex	4	43.2
453.povray	4	114
453.povray	4	104
454.calculix	4	97.6
459.GemsFDTD	4	37.6
465.tonto	4	77.6
465.tonto	4	75.2
470.lbm	4	90.4
481.wrf	4	78.0
482.sphinx3	4	61.6

SPECfp_rate_base2006 = 70.5

SPECfp_rate2006 = 71.2

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 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
Continued on next page

SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

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 date:** Mar-2016
Test sponsor: Intel Corporation	**Hardware Availability:** Jan-2014
Tested by: Intel Corporation	**Software Availability:** Aug-2015

L3 Cache:	None	File System:	NTFS
Other Cache:	None	System State:	Default
Memory:	8 GB (2 x 4 GB 2Rx8 PC3-10600U-11)	Base Pointers:	32/64-bit
Disk Subsystem:	Seagate Barracuda 250 GB SATA, 7200 RPM	Peak Pointers:	32/64-bit
Other Hardware:	None	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:
```

SPEC CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

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

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
```

SPEC CFP2006 Result

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

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

SPEC CFP2006 Result
Copyright 2006-2016 Standard Performance Evaluation Corporation

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

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
```

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 date:**	Mar-2016
Test sponsor: Intel Corporation	**Hardware Availability:**	Jan-2014
Tested by: Intel Corporation	**Software Availability:**	Aug-2015

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

For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Tue Sep 20 15:06:36 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 20 September 2016.