



# SPEC® CFP2006 Result

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ASUSTeK Computer Inc.  
(Test Sponsor: Intel Corporation)

SPECfp®2006 = 90.0

ASUS P9X79 PRO motherboard (Intel Core i7-4960X)

SPECfp\_base2006 = 87.5

CPU2006 license: 13

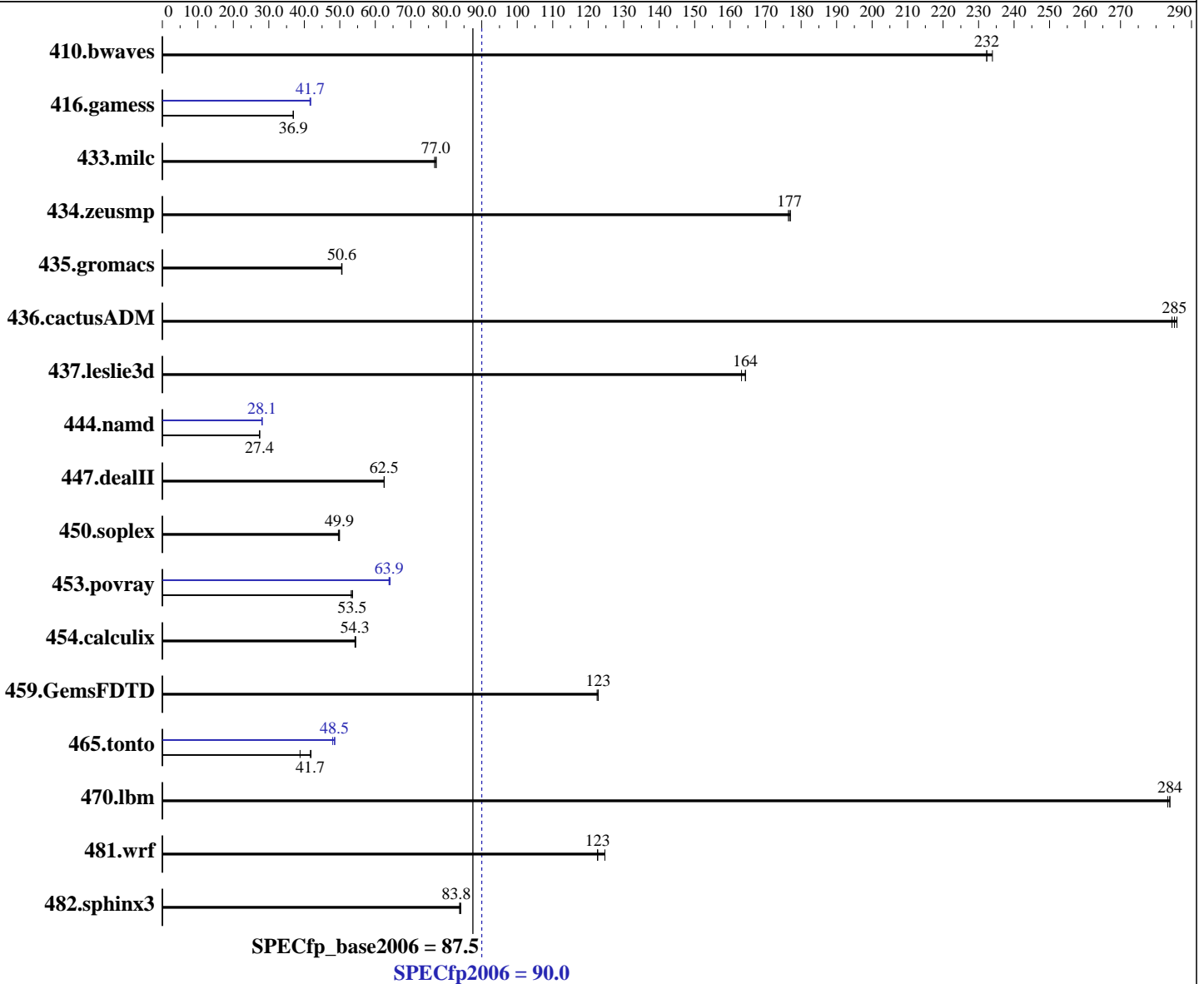
Test date: Sep-2014

Test sponsor: Intel Corporation

Hardware Availability: Sep-2013

Tested by: Intel Corporation

Software Availability: Oct-2013



### Hardware

CPU Name: Intel Core i7-4960X  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.00 GHz  
 CPU MHz: 3600  
 FPU: Integrated  
 CPU(s) enabled: 6 cores, 1 chip, 6 cores/chip, 2 threads/core  
 CPU(s) orderable: 1 chip  
 Primary Cache: 32 KB I + 32 KB D on chip per core  
 Secondary Cache: 256 KB I+D on chip per core

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### 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

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L3 Cache: 15 MB I+D on chip per chip	File System: NTFS
Other Cache: None	System State: Default
Memory: 16 GB (4 x 4 GB 2Rx4 PC3-14900U-13)	Base Pointers: 32/64-bit
Disk Subsystem: 480 GB Intel SSD 530 Series	Peak Pointers: 32/64-bit
Other Hardware: None	Other Software: SmartHeap Library Version 10.0 from <a href="http://www.microquill.com/">http://www.microquill.com/</a>

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	<b><u>58.5</u></b>	<b><u>232</u></b>	58.1	234	58.5	232	<b><u>58.5</u></b>	<b><u>232</u></b>	58.1	234	58.5	232
416.gamess	531	36.9	530	36.9	<b><u>531</u></b>	<b><u>36.9</u></b>	469	41.8	<b><u>470</u></b>	<b><u>41.7</u></b>	470	41.6
433.milc	119	77.2	120	76.7	<b><u>119</u></b>	<b><u>77.0</u></b>	119	77.2	120	76.7	<b><u>119</u></b>	<b><u>77.0</u></b>
434.zeusmp	51.6	176	51.4	177	<b><u>51.5</u></b>	<b><u>177</u></b>	51.6	176	51.4	177	<b><u>51.5</u></b>	<b><u>177</u></b>
435.gromacs	141	50.6	<b><u>141</u></b>	<b><u>50.6</u></b>	141	50.5	141	50.6	<b><u>141</u></b>	<b><u>50.6</u></b>	141	50.5
436.cactusADM	42.0	285	<b><u>41.9</u></b>	<b><u>285</u></b>	41.8	286	42.0	285	<b><u>41.9</u></b>	<b><u>285</u></b>	41.8	286
437.leslie3d	57.2	164	57.6	163	<b><u>57.2</u></b>	<b><u>164</u></b>	57.2	164	57.6	163	<b><u>57.2</u></b>	<b><u>164</u></b>
444.namd	292	27.4	293	27.4	<b><u>292</u></b>	<b><u>27.4</u></b>	285	28.1	<b><u>285</u></b>	<b><u>28.1</u></b>	285	28.1
447.dealII	183	62.5	<b><u>183</u></b>	<b><u>62.5</u></b>	183	62.5	183	62.5	<b><u>183</u></b>	<b><u>62.5</u></b>	183	62.5
450.soplex	168	49.6	167	49.9	<b><u>167</u></b>	<b><u>49.9</u></b>	168	49.6	167	49.9	<b><u>167</u></b>	<b><u>49.9</u></b>
453.povray	<b><u>99.4</u></b>	<b><u>53.5</u></b>	100	53.2	99.2	53.6	<b><u>83.2</u></b>	<b><u>63.9</u></b>	83.2	63.9	82.9	64.2
454.calculix	152	54.5	<b><u>152</u></b>	<b><u>54.3</u></b>	152	54.3	152	54.5	<b><u>152</u></b>	<b><u>54.3</u></b>	152	54.3
459.GemsFDTD	86.4	123	86.6	123	<b><u>86.4</u></b>	<b><u>123</u></b>	86.4	123	86.6	123	<b><u>86.4</u></b>	<b><u>123</u></b>
465.tonto	235	41.9	<b><u>236</u></b>	<b><u>41.7</u></b>	254	38.8	<b><u>203</u></b>	<b><u>48.5</u></b>	205	48.0	202	48.6
470.lbm	48.4	284	<b><u>48.4</u></b>	<b><u>284</u></b>	48.5	283	48.4	284	<b><u>48.4</u></b>	<b><u>284</u></b>	48.5	283
481.wrf	<b><u>91.0</u></b>	<b><u>123</u></b>	89.6	125	91.1	123	<b><u>91.0</u></b>	<b><u>123</u></b>	89.6	125	91.1	123
482.sphinx3	<b><u>233</u></b>	<b><u>83.8</u></b>	233	83.8	232	84.1	<b><u>233</u></b>	<b><u>83.8</u></b>	233	83.8	232	84.1

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 Clt74D02B2C81C9 Fri Sep 12 15:02:27 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 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]: Intel64 Family 6 Model 62 Stepping 4 GenuineIntel ~3601 Mhz
BIOS Version  : American Megatrends Inc. 4701, 5/7/2014
Total Physical Memory: 16,325 MB
```

Trying 'wmic cpu get /value'

```
DeviceID      : CPU0
L2CacheSize   : 256
L3CacheSize   : 15360
MaxClockSpeed : 3601
Name          : Intel(R) Core(TM) i7-4960X CPU @ 3.60GHz
NumberOfCores : 6
NumberOfLogicalProcessors: 12
```

(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
```



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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:

```

-QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F1000000000

```

C++ benchmarks:

```

-QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
-Qcxx-features -Qauto-ilp32 /F1000000000 shlw64M.lib
-link /FORCE:MULTIPLE

```

Fortran benchmarks:

```

-QxAVX -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias -Qopt-prefetch
/F1000000000

```

Benchmarks using both Fortran and C:

```

-QxAVX -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: -QxAVX(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -Qipo  
-O3 -Qprec-div- -Oa -Qauto-ilp32 /F1000000000 sh1w64M.lib  
-link /FORCE:MULTIPLE

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -QxAVX(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -Qipo  
-O3 -Qprec-div- -Qunroll4 -Qansi-alias -Qauto-ilp32  
/F1000000000 sh1w64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -QxAVX(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

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## Peak Optimization Flags (Continued)

459.GemsFDTD: basepeak = yes

465.tonto: -QxAVX(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](mailto:webmaster@spec.org).

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