



# SPEC® CFP2006 Result

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ASUSTeK Computer Inc.  
(Test Sponsor: Intel Corporation)

SPECfp®2006 = 70.6

ASUS Q170M-C motherboard (Intel Pentium G4500)

SPECfp\_base2006 = 69.6

CPU2006 license: 13

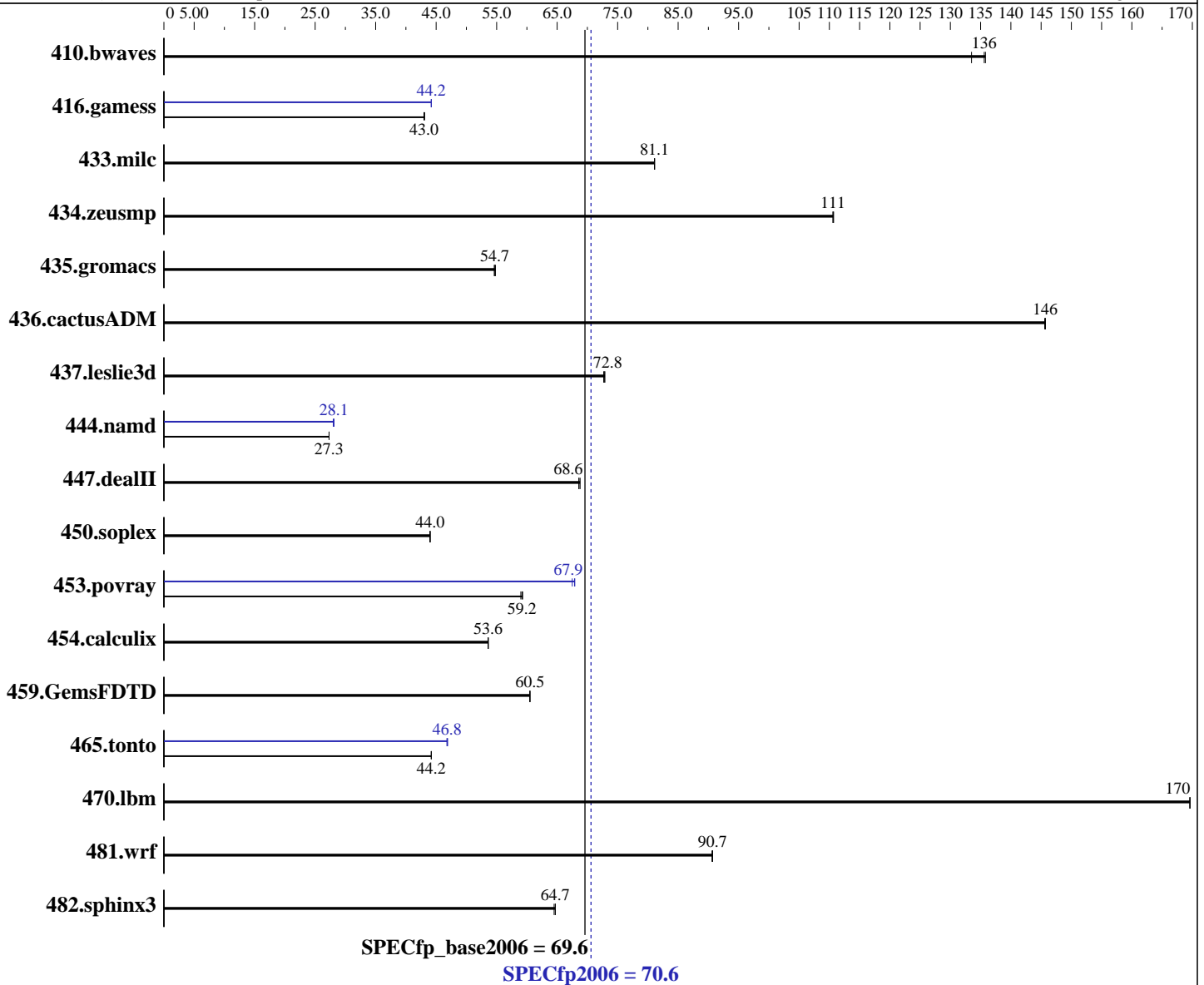
Test date: Mar-2016

Test sponsor: Intel Corporation

Hardware Availability: Sep-2015

Tested by: Intel Corporation

Software Availability: Aug-2015



### Hardware

CPU Name: Intel Pentium G4500  
 CPU Characteristics:  
 CPU MHz: 3500  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 cores/chip  
 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 7 Professional 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: Yes

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L3 Cache: 3 MB I+D on chip per chip  
Other Cache: None  
Memory: 8 GB (2 x 4 GB 2Rx4 PC4-2133P-U)  
Disk Subsystem: 1 TB Seagate Barracuda HDD, 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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	102	134	100	136	<b>100</b>	<b>136</b>	102	134	100	136	<b>100</b>	<b>136</b>
416.gamess	455	43.1	<b>455</b>	<b>43.0</b>	455	43.0	443	44.2	<b>443</b>	<b>44.2</b>	443	44.2
433.milc	113	81.1	<b>113</b>	<b>81.1</b>	113	81.1	113	81.1	<b>113</b>	<b>81.1</b>	113	81.1
434.zeusmp	<b>82.3</b>	<b>111</b>	82.2	111	82.3	111	<b>82.3</b>	<b>111</b>	82.2	111	82.3	111
435.gromacs	131	54.6	<b>131</b>	<b>54.7</b>	130	54.8	131	54.6	<b>131</b>	<b>54.7</b>	130	54.8
436.cactusADM	82.0	146	82.1	146	<b>82.0</b>	<b>146</b>	82.0	146	82.1	146	<b>82.0</b>	<b>146</b>
437.leslie3d	129	72.7	129	72.9	<b>129</b>	<b>72.8</b>	129	72.7	129	72.9	<b>129</b>	<b>72.8</b>
444.namd	<b>294</b>	<b>27.3</b>	294	27.3	293	27.3	286	28.0	286	28.1	<b>286</b>	<b>28.1</b>
447.dealII	<b>167</b>	<b>68.6</b>	167	68.6	166	68.8	<b>167</b>	<b>68.6</b>	167	68.6	166	68.8
450.soplex	190	44.0	<b>190</b>	<b>44.0</b>	190	44.0	190	44.0	<b>190</b>	<b>44.0</b>	190	44.0
453.povray	<b>89.8</b>	<b>59.2</b>	89.7	59.3	90.2	59.0	78.8	67.5	78.3	67.9	<b>78.3</b>	<b>67.9</b>
454.calculix	<b>154</b>	<b>53.6</b>	154	53.6	154	53.6	<b>154</b>	<b>53.6</b>	154	53.6	154	53.6
459.GemsFDTD	175	60.5	<b>175</b>	<b>60.5</b>	175	60.5	175	60.5	<b>175</b>	<b>60.5</b>	175	60.5
465.tonto	223	44.2	223	44.2	<b>223</b>	<b>44.2</b>	210	46.9	<b>210</b>	<b>46.8</b>	210	46.8
470.lbm	81.0	170	<b>81.0</b>	<b>170</b>	81.0	170	81.0	170	<b>81.0</b>	<b>170</b>	81.0	170
481.wrf	123	90.6	123	90.7	<b>123</b>	<b>90.7</b>	123	90.6	123	90.7	<b>123</b>	<b>90.7</b>
482.sphinx3	<b>301</b>	<b>64.7</b>	302	64.5	301	64.7	<b>301</b>	<b>64.7</b>	302	64.5	301	64.7

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 CltF832E4885654 Tue Mar 8 02:35:28 2016

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 7 Professional
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]: Intel64 Family 6 Model 94 Stepping 3 GenuineIntel ~3500 Mhz
BIOS Version  : American Megatrends Inc. 0704, 1/12/2016
Total Physical Memory: 8,070 MB
```

Trying 'wmic cpu get /value'

```
DeviceID      : CPU0
L2CacheSize   : 512
L3CacheSize   : 3072
MaxClockSpeed : 3500
Name          : Intel(R) Pentium(R) CPU G4500 @ 3.50GHz
NumberOfCores : 2
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 (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.
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.

OMP_NUM_THREADS set to number of processors cores
KMP_AFFINITY set to granularity=fine,scatter
Binaries compiled on a system with 1x Intel Xeon E5-2699 v3 CPU
+ 64GB memory using Windows 8.1 Enterprise 64-bit
```



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## Base 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

## 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:  
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias  
-Qopt-prefetch /F1000000000  
C++ benchmarks:  
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias  
-Qopt-prefetch -Qcxx-features /F1000000000 shlw64M.lib  
-link /FORCE:MULTIPLE  
Fortran benchmarks:  
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias  
-Qopt-prefetch /F1000000000

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias  
-Qopt-prefetch /F1000000000

## 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: -QxSSE4.2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Oa /F1000000000 shlw64M.lib  
-link /FORCE:MULTIPLE

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

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## Peak Optimization Flags (Continued)

```
453.povray: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias /F1000000000
            shlW64M.lib -link /FORCE:MULTIPLE
```

Fortran benchmarks:

410.bwaves: basepeak = yes

```
416.gamess: -QxSSE4.2(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

459.GemsFDTD: basepeak = yes

```
465.tonto: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
            -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto -Qinline-alloc
            /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-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 questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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