



SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

Microsoft Corporation
(Test Sponsor: Intel Corporation)

SPECfp®2006 = 48.0

Surface Pro 3

SPECfp_base2006 = 46.8

CPU2006 license: 13

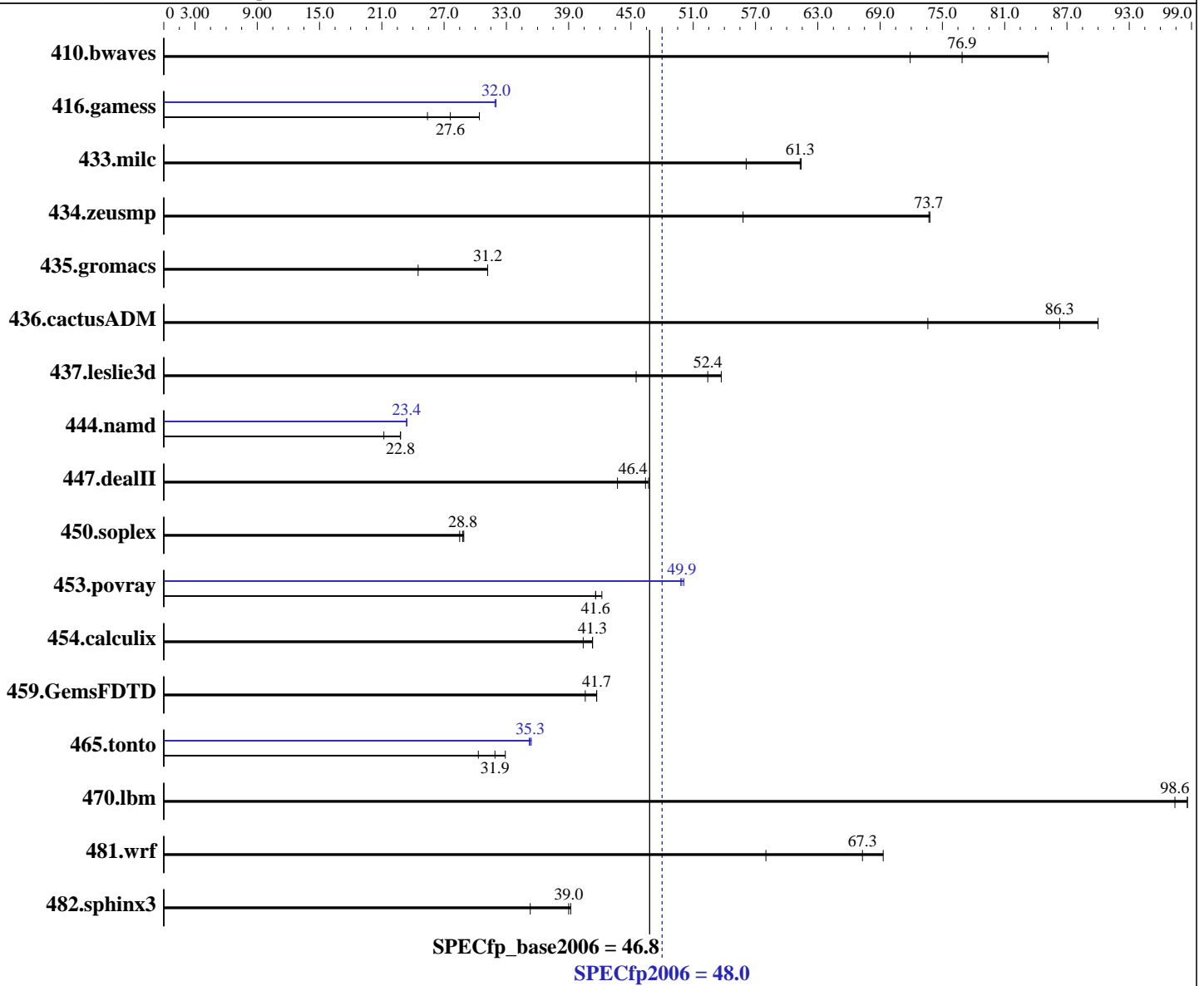
Test date: Sep-2014

Test sponsor: Intel Corporation

Hardware Availability: Jun-2014

Tested by: Intel Corporation

Software Availability: Oct-2013



Hardware

CPU Name: Intel Core i5-4300U
 CPU Characteristics: Intel Turbo Boost Technology up to 2.90 GHz
 CPU MHz: 1900
 FPU: Integrated
 CPU(s) enabled: 2 cores, 1 chip, 2 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: 3 MB I+D on chip per chip
Other Cache: None
Memory: 4 GB (4 x 1 GB 2Rx32 PC3L-12800U-11)
Disk Subsystem: 128 GB SSD
Other Hardware: None

File System: NTFS
System State: Default
Base Pointers: 32/64-bit
Peak Pointers: 32/64-bit
Other Software: SmartHeap Library Version 10.0 from <http://www.microquill.com/>

Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	189	71.9	<u>177</u>	<u>76.9</u>	160	85.2	189	71.9	<u>177</u>	<u>76.9</u>	160	85.2
416.gamess	771	25.4	<u>710</u>	<u>27.6</u>	645	30.4	614	31.9	612	32.0	<u>612</u>	<u>32.0</u>
433.milc	164	56.1	<u>150</u>	<u>61.3</u>	150	61.4	164	56.1	<u>150</u>	<u>61.3</u>	150	61.4
434.zeusmp	163	55.8	<u>124</u>	<u>73.7</u>	123	73.8	163	55.8	<u>124</u>	<u>73.7</u>	123	73.8
435.gromacs	292	24.5	229	31.2	<u>229</u>	<u>31.2</u>	292	24.5	229	31.2	<u>229</u>	<u>31.2</u>
436.cactusADM	162	73.6	<u>139</u>	<u>86.3</u>	133	90.0	162	73.6	<u>139</u>	<u>86.3</u>	133	90.0
437.leslie3d	207	45.5	<u>179</u>	<u>52.4</u>	175	53.7	207	45.5	<u>179</u>	<u>52.4</u>	175	53.7
444.namd	378	21.2	<u>352</u>	<u>22.8</u>	352	22.8	343	23.4	343	23.4	<u>343</u>	<u>23.4</u>
447.dealII	262	43.7	<u>247</u>	<u>46.4</u>	245	46.7	262	43.7	<u>247</u>	<u>46.4</u>	245	46.7
450.soplex	<u>290</u>	<u>28.8</u>	292	28.5	289	28.9	<u>290</u>	<u>28.8</u>	292	28.5	289	28.9
453.povray	<u>128</u>	<u>41.6</u>	126	42.2	128	41.6	<u>107</u>	<u>49.9</u>	106	50.1	107	49.8
454.calculix	200	41.3	204	40.4	<u>200</u>	<u>41.3</u>	200	41.3	204	40.4	<u>200</u>	<u>41.3</u>
459.GemsFDTD	261	40.6	<u>255</u>	<u>41.7</u>	255	41.7	261	40.6	<u>255</u>	<u>41.7</u>	255	41.7
465.tonto	325	30.3	299	32.9	<u>309</u>	<u>31.9</u>	<u>279</u>	<u>35.3</u>	279	35.2	278	35.4
470.lbm	141	97.4	<u>139</u>	<u>98.6</u>	139	98.6	141	97.4	<u>139</u>	<u>98.6</u>	139	98.6
481.wrf	193	58.0	161	69.3	<u>166</u>	<u>67.3</u>	193	58.0	161	69.3	<u>166</u>	<u>67.3</u>
482.sphinx3	552	35.3	<u>500</u>	<u>39.0</u>	497	39.2	552	35.3	<u>500</u>	<u>39.0</u>	497	39.2

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:\Users\peca\Desktop\SPEC14.0\SPEC14.0/Docs/sysinfo
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ \8787f7622badcf24e01c368b1db4377c
running on ea_i5 Fri Sep 12 14:44:21 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: Microsoft Corporation
System Model   : Surface Pro 3
Processor(s)  : 1 Processor(s) Installed.
               [01]: Intel64 Family 6 Model 69 Stepping 1 GenuineIntel ~2501 Mhz
BIOS Version  : American Megatrends Inc. 3.10.0250, 8/28/2014
Total Physical Memory: 4,001 MB
```

Trying 'wmic cpu get /value'

```
DeviceID      : CPU0
L2CacheSize   : 512
L3CacheSize   : 3072
MaxClockSpeed : 2501
Name          : Intel(R) Core(TM) i5-4300U CPU @ 1.90GHz
NumberOfCores : 2
NumberOfLogicalProcessors: 4
```

(End of data from sysinfo program)

Component Notes

Test ran with power supply connected
Power Supply: 12V, 2.58A

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:

```

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qauto-ilp32 /F1000000000

```

C++ benchmarks:

```

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qcxx-features -Qauto-ilp32 /F1000000000 shlw64M.lib
-link /FORCE:MULTIPLE

```

Fortran benchmarks:

```

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch /F1000000000

```

Benchmarks using both Fortran and C:

```

-QxCORE-AVX2 -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: -QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Oa -Qauto-ilp32 /F1000000000
sh1W64M.lib -link /FORCE:MULTIPLE

447.dealIII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -QxCORE-AVX2(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: -QxCORE-AVX2(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: -QxCORE-AVX2(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 other inquiries, please contact webmaster@spec.org.

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