



# SPEC<sup>®</sup> CFP2006 Result

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Dell Inc.

SPECfp<sup>®</sup>2006 = 102

Precision 7710 (Intel Xeon E3-1575M v5, 3.00 GHz)

SPECfp\_base2006 = 99.6

CPU2006 license: 55

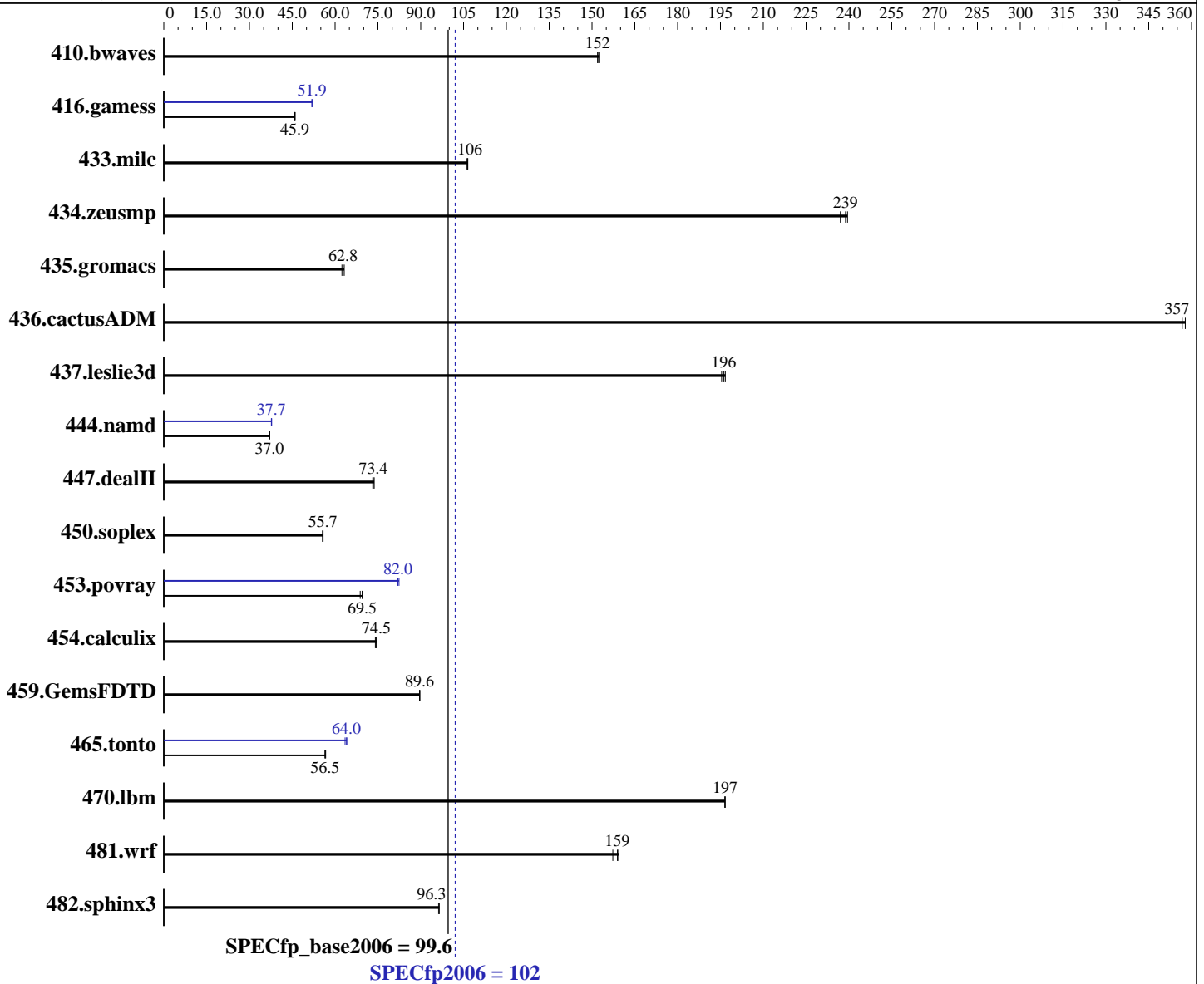
Test date: Aug-2016

Test sponsor: Dell Inc.

Hardware Availability: Aug-2016

Tested by: Dell Inc.

Software Availability: Aug-2016



### Hardware

CPU Name: Intel Xeon E3-1575M v5  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz  
 CPU MHz: 3000  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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 10 Pro  
 Build 10586  
 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: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 64 GB (4 x 16 GB 2Rx4 PC4-2133P-E)  
 Disk Subsystem: 512 GB Samsung NVMe 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 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	<b>89.4</b>	<b>152</b>	89.4	152	89.2	152	<b>89.4</b>	<b>152</b>	89.4	152	89.2	152
416.gamess	427	45.9	<b>427</b>	<b>45.9</b>	426	46.0	<b>375</b>	<b>52.2</b>	377	51.9	<b>377</b>	<b>51.9</b>
433.milc	<b>86.3</b>	<b>106</b>	86.2	107	86.5	106	<b>86.3</b>	<b>106</b>	86.2	107	86.5	106
434.zeusmp	38.4	237	38.0	240	<b>38.1</b>	<b>239</b>	38.4	237	38.0	240	<b>38.1</b>	<b>239</b>
435.gromacs	<b>114</b>	<b>62.8</b>	115	62.4	113	63.2	<b>114</b>	<b>62.8</b>	115	62.4	113	63.2
436.cactusADM	33.4	358	<b>33.5</b>	<b>357</b>	33.5	357	<b>33.4</b>	<b>358</b>	<b>33.5</b>	<b>357</b>	33.5	357
437.leslie3d	<b>47.9</b>	<b>196</b>	48.1	195	47.8	197	<b>47.9</b>	<b>196</b>	48.1	195	47.8	197
444.namd	216	37.1	217	37.0	<b>217</b>	<b>37.0</b>	<b>213</b>	<b>37.7</b>	212	37.8	213	37.7
447.dealII	155	73.7	156	73.2	<b>156</b>	<b>73.4</b>	155	73.7	156	73.2	<b>156</b>	<b>73.4</b>
450.soplex	150	55.6	149	55.8	<b>150</b>	<b>55.7</b>	150	55.6	149	55.8	<b>150</b>	<b>55.7</b>
453.povray	<b>76.5</b>	<b>69.5</b>	77.3	68.8	76.4	69.6	<b>64.9</b>	<b>82.0</b>	64.6	82.4	65.0	81.8
454.calculix	111	74.5	<b>111</b>	<b>74.5</b>	111	74.1	111	74.5	<b>111</b>	<b>74.5</b>	111	74.1
459.GemsFDTD	<b>118</b>	<b>89.6</b>	118	89.7	118	89.6	<b>118</b>	<b>89.6</b>	118	89.7	118	89.6
465.tonto	173	56.7	<b>174</b>	<b>56.5</b>	174	56.5	154	64.1	155	63.5	<b>154</b>	<b>64.0</b>
470.lbm	69.9	197	<b>69.9</b>	<b>197</b>	69.9	197	69.9	197	<b>69.9</b>	<b>197</b>	69.9	197
481.wrf	<b>70.3</b>	<b>159</b>	71.0	157	70.1	159	<b>70.3</b>	<b>159</b>	71.0	157	70.1	159
482.sphinx3	<b>202</b>	<b>96.3</b>	202	96.5	204	95.7	<b>202</b>	<b>96.3</b>	202	96.5	204	95.7

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:\CPU200~1.0-2\Docs/sysinfo  
 \$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ \8787f7622badcf24e01c368b1db4377c  
 running on DESKTOP-DQ7JMF0 Thu Aug 11 21:01:28 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 10 Pro
OS Version    : 10.0.10586 N/A Build 10586
System Manufacturer: Dell Inc.
System Model   : Precision 7710
Processor(s)   : 1 Processor(s) Installed.
                [01]: Intel64 Family 6 Model 94 Stepping 3 GenuineIntel ~3000 Mhz
BIOS Version   : Dell Inc. 01.06.06, 7/27/2016
Total Physical Memory: 65,420 MB

```

Trying 'wmic cpu get /value'

```

DeviceID      : CPU0
L2CacheSize   : 1024
L3CacheSize   : 8192
MaxClockSpeed : 3000
Name          : Intel(R) Xeon(R) CPU E3-1575M v5 @ 3.00GHz
NumberOfCores : 4
NumberOfLogicalProcessors: 8

```

(End of data from sysinfo program)

## 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

```

## Base Compiler Invocation

C benchmarks:

```
icl -Qvc12 -Qstd=c99
```

C++ benchmarks:

```
icl -Qvc12
```

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## Base Compiler Invocation (Continued)

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:

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

C++ benchmarks:

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



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## 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: -QxCORE-AVX2(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

453.povray: -QxCORE-AVX2(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: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qansi-alias  
-Qscalar-rep- /F1000000000

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## Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

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-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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