



# SPEC® CFP2006 Result

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## Intel Corporation

### SPECfp®\_rate2006 = 159

### ASUS Z97-A motherboard (Intel Core i7-4790K)

### SPECfp\_rate\_base2006 = 155

CPU2006 license: 13

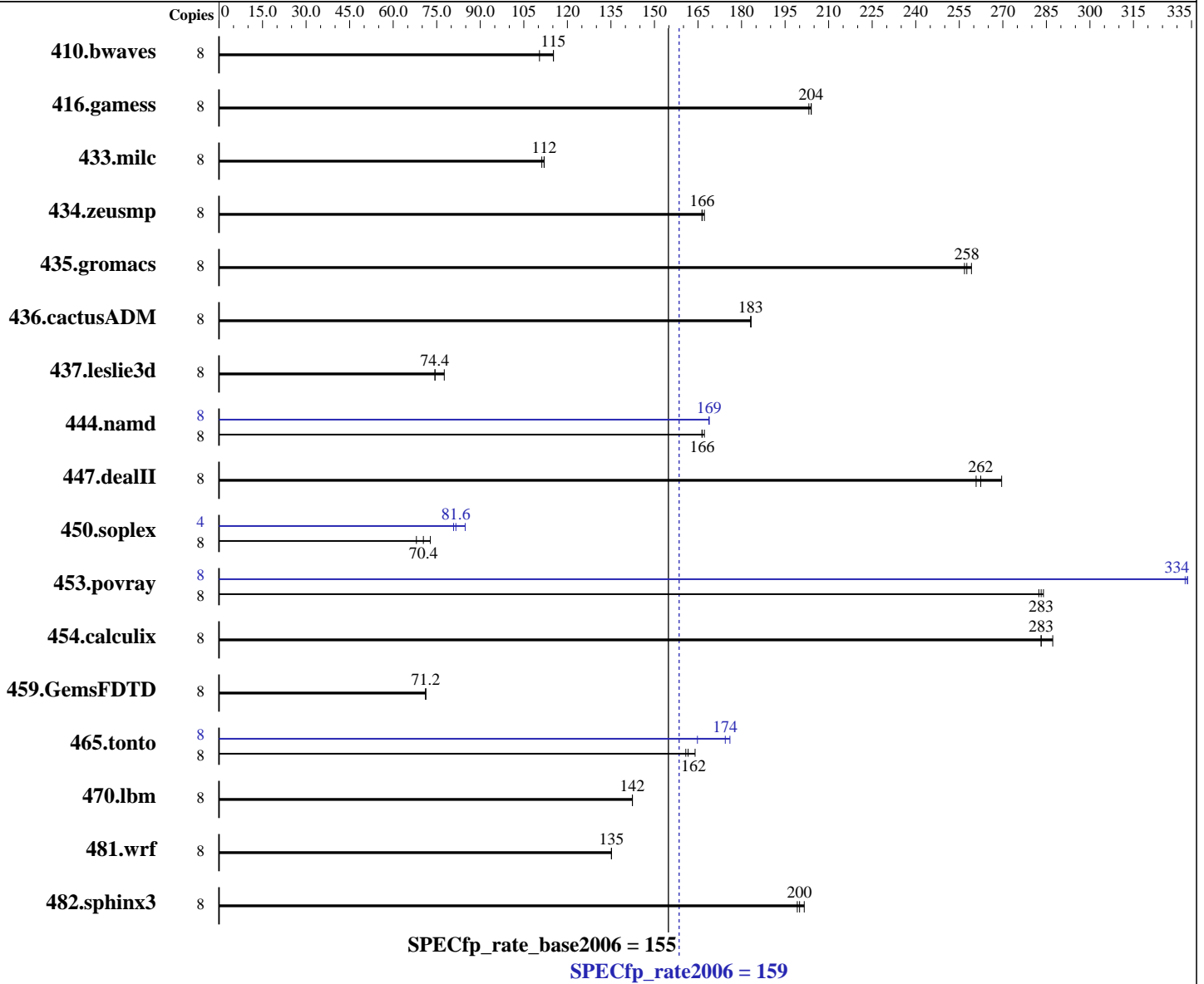
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Mar-2015

Hardware Availability: May-2014

Software Availability: Oct-2013



#### Hardware

CPU Name: Intel Core i7-4790K  
 CPU Characteristics: Intel Turbo Boost Technology up to 4.40 GHz  
 CPU MHz: 4000  
 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 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: No

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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 8 GB (2 x 4 GB 2Rx4 PC3-12800U-11)  
 Disk Subsystem: 1 TB Seagate 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 10.0 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	8	988	110	944	115	<b>945</b>	<b>115</b>	8	988	110	944	115	<b>945</b>	<b>115</b>
416.gamess	8	768	204	771	203	<b>769</b>	<b>204</b>	8	768	204	771	203	<b>769</b>	<b>204</b>
433.milc	8	<b>657</b>	<b>112</b>	658	111	656	112	8	<b>657</b>	<b>112</b>	658	111	656	112
434.zeusmp	8	<b>437</b>	<b>166</b>	436	167	437	166	8	<b>437</b>	<b>166</b>	436	167	437	166
435.gromacs	8	<b>222</b>	<b>258</b>	222	257	221	259	8	<b>222</b>	<b>258</b>	222	257	221	259
436.cactusADM	8	522	183	522	183	<b>522</b>	<b>183</b>	8	522	183	522	183	<b>522</b>	<b>183</b>
437.leslie3d	8	973	77.6	1012	74.4	<b>1010</b>	<b>74.4</b>	8	973	77.6	1012	74.4	<b>1010</b>	<b>74.4</b>
444.namd	8	386	166	<b>385</b>	<b>166</b>	384	167	8	381	169	381	169	<b>381</b>	<b>169</b>
447.dealII	8	<b>349</b>	<b>262</b>	351	261	339	270	8	<b>349</b>	<b>262</b>	351	261	339	270
450.soplex	8	978	68.0	<b>949</b>	<b>70.4</b>	919	72.8	4	413	80.8	<b>408</b>	<b>81.6</b>	393	84.8
453.povray	8	150	284	<b>150</b>	<b>283</b>	151	282	8	128	334	<b>128</b>	<b>334</b>	128	333
454.calculix	8	<b>233</b>	<b>283</b>	230	287	233	283	8	<b>233</b>	<b>283</b>	230	287	233	283
459.GemsFDTD	8	1187	71.2	<b>1189</b>	<b>71.2</b>	1193	71.2	8	1187	71.2	<b>1189</b>	<b>71.2</b>	1193	71.2
465.tonto	8	480	164	<b>487</b>	<b>162</b>	491	161	8	448	176	<b>451</b>	<b>174</b>	479	165
470.lbm	8	774	142	773	142	<b>773</b>	<b>142</b>	8	774	142	773	142	<b>773</b>	<b>142</b>
481.wrf	8	663	135	<b>662</b>	<b>135</b>	661	135	8	663	135	<b>662</b>	<b>135</b>	661	135
482.sphinx3	8	773	202	<b>778</b>	<b>200</b>	782	199	8	773	202	<b>778</b>	<b>200</b>	782	199

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)

## Submit Notes

Processes were bound to specific processors using the start command with the /affinity switch. The config file option 'submit' was used to generate the affinity mask for each process.



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## Platform Notes

Sysinfo program C:\SPEC14.0/Docs/sysinfo  
\$Rev: 6775 \$ \$Date:: 2011-08-16 #\$ \8787f7622badcf24e01c368b1db4377c  
running on Z97A Wed Mar 25 19:47:48 2015

This section contains SUT (System Under Test) info as seen by some common utilities. To remove or add to this section, see:  
<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: ASUS  
System Model : All Series  
Processor(s) : 1 Processor(s) Installed.  
 [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~4001 Mhz  
BIOS Version : American Megatrends Inc. 0702, 4/23/2014  
Total Physical Memory: 8,069 MB

Trying 'wmic cpu get /value'

DeviceID : CPU0  
L2CacheSize : 1024  
L3CacheSize : 8192  
MaxClockSpeed : 4001  
Name : Intel(R) Core(TM) i7-4790K CPU @ 4.00GHz  
NumberOfCores : 4  
NumberOfLogicalProcessors: 8

(End of data from sysinfo program)

BIOS: SATA mode set to RAID

Windows Disk Driver: Intel Rapid Storage Technology 12.9.0.1001

## Component Notes

Tested systems can be used with Shin-G ATX case,  
PC Power and Cooling 1200W power supply

## General Notes

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

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## Base Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icl -Qvc10 -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  
 -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- -Qansi-alias -Qopt-prefetch  
-Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

C++ benchmarks:

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

Fortran benchmarks:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
/F1000000000 -link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:

-QxCORE-AVX2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch  
-Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE



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## Peak 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

## 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  
shlW64M.lib -link /FORCE:MULTIPLE

447.dealIII: basepeak = yes

450.soplex: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qauto-ilp32 /F1000000000 shlW64M.lib  
-link /FORCE:MULTIPLE

453.povray: -QxCORE-AVX2(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

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## Peak Optimization Flags (Continued)

416.gamess: basepeak = yes

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 /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-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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Sep 9 10:44:58 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 18 June 2014.