



# SPEC® CFP2006 Result

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## Intel Corporation

### SPECfp®\_rate2006 = 113

### Intel DQ87PG motherboard (Intel Core i5-4440S)

### SPECfp\_rate\_base2006 = 112

CPU2006 license: 13

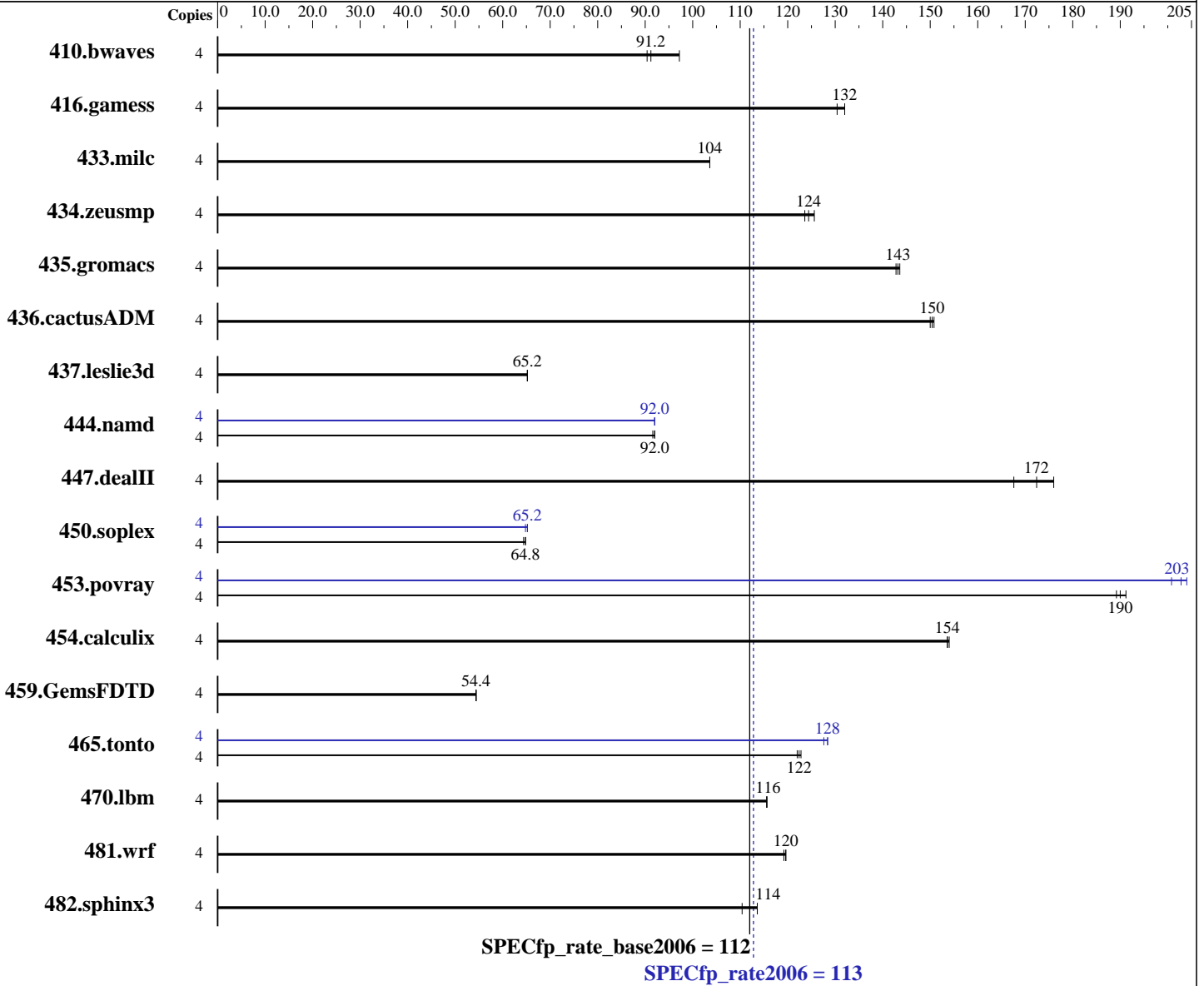
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Dec-2013

Hardware Availability: Sep-2013

Software Availability: Apr-2013



#### Hardware

CPU Name: Intel Core i5-4440S  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.30 GHz  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 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 Enterprise 6.1.7601 Service Pack 1 Build 7601  
 Compiler: C/C++: Version 13.1.1.171 of Intel C++ Studio XE for Windows;  
 Fortran: Version 13.1.1.171 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: 6 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 4 GB (2 x 2 GB 1Rx8 PC3-12800U-11)  
 Disk Subsystem: 250 GB Seagate SATA 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	4	602	90.4	<u>597</u>	<u>91.2</u>	559	97.2	4	602	90.4	<u>597</u>	<u>91.2</u>	559	97.2
416.gamess	4	<u>593</u>	<u>132</u>	601	130	593	132	4	<u>593</u>	<u>132</u>	601	130	593	132
433.milc	4	354	104	354	104	<u>354</u>	<u>104</u>	4	354	104	354	104	<u>354</u>	<u>104</u>
434.zeusmp	4	<u>293</u>	<u>124</u>	294	124	290	126	4	<u>293</u>	<u>124</u>	294	124	290	126
435.gromacs	4	<u>199</u>	<u>143</u>	199	144	200	143	4	<u>199</u>	<u>143</u>	199	144	200	143
436.cactusADM	4	<u>318</u>	<u>150</u>	317	151	319	150	4	<u>318</u>	<u>150</u>	317	151	319	150
437.leslie3d	4	<u>577</u>	<u>65.2</u>	576	65.2	577	65.2	4	<u>577</u>	<u>65.2</u>	576	65.2	577	65.2
444.namd	4	350	91.6	<u>349</u>	<u>92.0</u>	349	92.0	4	349	92.0	<u>349</u>	<u>92.0</u>	349	92.0
447.dealII	4	<u>266</u>	<u>172</u>	273	168	260	176	4	<u>266</u>	<u>172</u>	273	168	260	176
450.soplex	4	<u>515</u>	<u>64.8</u>	514	64.8	518	64.4	4	<u>511</u>	<u>65.2</u>	515	64.8	510	65.2
453.povray	4	112	189	<u>112</u>	<u>190</u>	111	191	4	104	204	<u>105</u>	<u>203</u>	106	201
454.calculix	4	215	154	214	154	<u>215</u>	<u>154</u>	4	215	154	214	154	<u>215</u>	<u>154</u>
459.GemsFDTD	4	779	54.4	<u>778</u>	<u>54.4</u>	778	54.4	4	779	54.4	<u>778</u>	<u>54.4</u>	778	54.4
465.tonto	4	320	123	<u>322</u>	<u>122</u>	323	122	4	<u>307</u>	<u>128</u>	306	128	308	128
470.lbm	4	<u>475</u>	<u>116</u>	475	116	475	116	4	<u>475</u>	<u>116</u>	475	116	475	116
481.wrf	4	<u>374</u>	<u>120</u>	374	120	375	119	4	<u>374</u>	<u>120</u>	374	120	375	119
482.sphinx3	4	<u>687</u>	<u>114</u>	707	110	686	114	4	<u>687</u>	<u>114</u>	707	110	686	114

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 13.1 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:\SPEC13.1/Docs/sysinfo  
\$Rev: 6775 \$ \$Date:: 2011-08-16 # \$ \8787f7622badcf24e01c368b1db4377c  
running on Clt00224D4FB715 Sun Dec 8 08:34:48 2013

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 7 Enterprise  
OS Version : 6.1.7601 Service Pack 1 Build 7601  
System Manufacturer: INTEL\_  
System Model : DQ87PG\_\_  
Processor(s) : 1 Processor(s) Installed.  
 [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~2801 Mhz  
BIOS Version : Intel(R) Corp. PGQ8710H.86A.0036.2013.0702.1908, 7/2/2013  
Total Physical Memory: 3,749 MB

Trying 'wmic cpu get /value'

DeviceID : CPU0  
L2CacheSize : 1024  
L3CacheSize : 6144  
MaxClockSpeed : 2801  
Name : Intel(R) Core(TM) i5-4440S CPU @ 2.80GHz  
NumberOfCores : 4  
NumberOfLogicalProcessors: 4

(End of data from sysinfo program)

BIOS: SATA mode set to RAID

Windows Disk Driver: Intel Rapid Storage Technology 12.5.0.1066

Windows Chipset Driver: Intel Chipset Driver 9.4.0.1027

## Component Notes

Tested systems can be used with Shin-G ATX case,  
PC Power and Cooling 1200W power supply  
Micron MT8JTF25664AZ-1G6 Series Memory DIMMs

## 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

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## Base Compiler Invocation (Continued)

C++ benchmarks:

icl -Qvc10

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

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

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

## 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  
sh1W64M.lib -link /FORCE:MULTIPLE`

447.dealII: basepeak = yes

450.soplex: `-QxCORE-AVX2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)  
-Qipo -O3 -Qauto-ilp32 /F1000000000 sh1W64M.lib  
-link /FORCE:MULTIPLE`

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Software Availability: Apr-2013

## Peak Optimization Flags (Continued)

453.povray: -QxCORE-AVX2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32  
/F1000000000 sh1W64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: basepeak = yes

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-ic13.1-official-windows.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic13.1-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).

Tested with SPEC CPU2006 v1.2.  
Report generated on Tue Sep 9 10:56:22 2014 by SPEC CPU2006 PS/PDF formatter v6932.  
Originally published on 15 July 2014.