# SPEC® CFP2006 Result

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## Intel Corporation

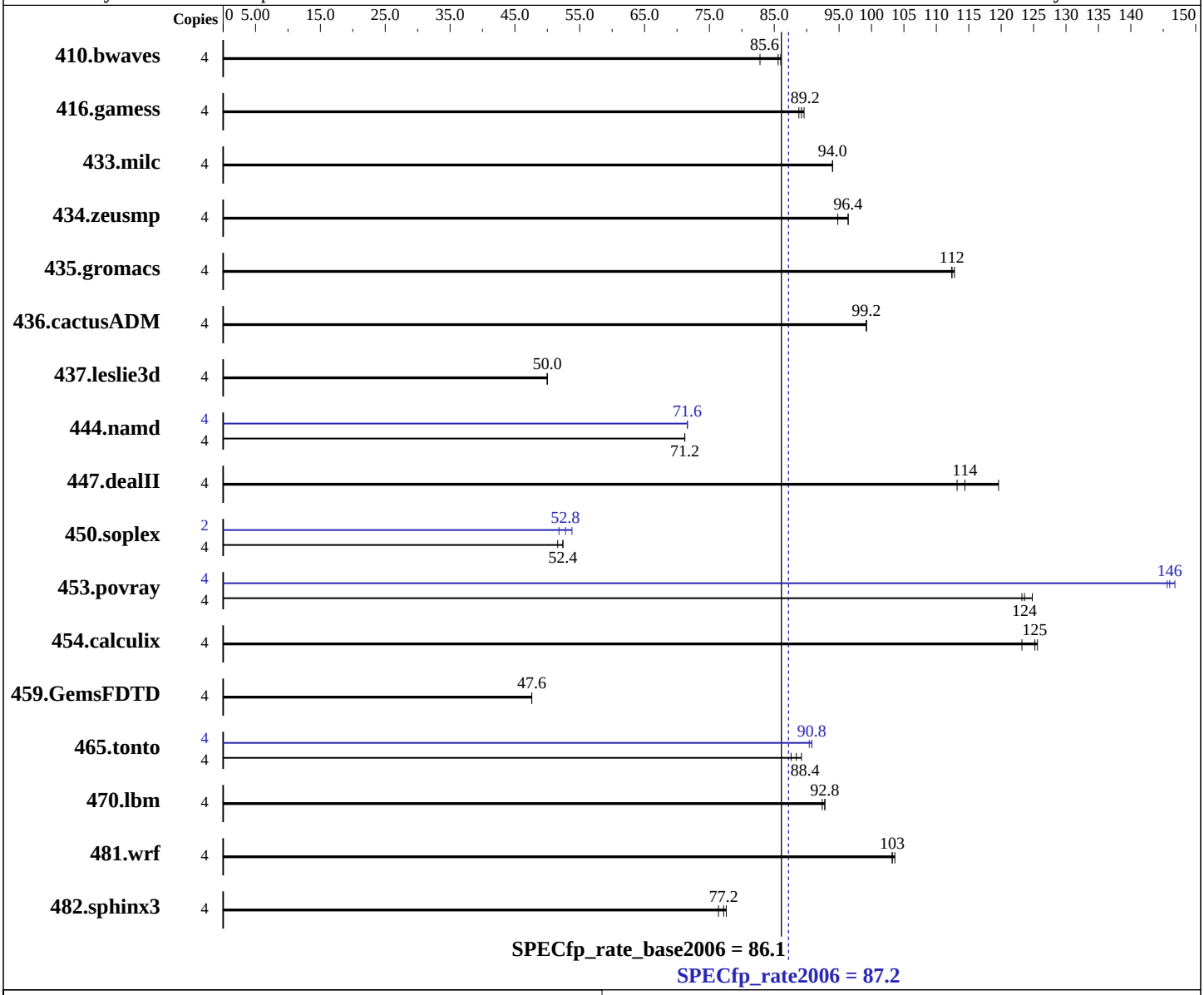
Intel DQ87PG Motherboard (Intel Core i3-4130)

SPECfp®_rate2006 = 87.2

SPECfp_rate_base2006 = 86.1

**CPU2006 license:** 13
**Test sponsor:** Intel Corporation
**Tested by:** Intel Corporation

**Test date:** Oct-2014
**Hardware Availability:** May-2014
**Software Availability:** Oct-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Core i3-4150 |
| CPU Characteristics: | |
| CPU MHz: | 3500 |
| 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 |

Continued on next page

### Software

| | |
|---|---|
| Operating System: | Microsoft Windows 7 Enterprise 6.1.7601 Service Pack 1 Build 7601 |
| 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: | 3 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 4 GB (2 x 2 GB 2Rx4 PC3-12800U-11) |
| Disk Subsystem: | 40 GB Intel SSD SA2CT040G3 |
| 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 | 658 | 82.8 | **634** | **85.6** | 632 | 86.0 | 4 | 658 | 82.8 | **634** | **85.6** | 632 | 86.0 |
| 416.gamess | 4 | 875 | 89.6 | **879** | **89.2** | 880 | 88.8 | 4 | 875 | 89.6 | **879** | **89.2** | 880 | 88.8 |
| 433.milc | 4 | **390** | **94.0** | 391 | 94.0 | 390 | 94.0 | 4 | **390** | **94.0** | 391 | 94.0 | 390 | 94.0 |
| 434.zeusmp | 4 | 384 | 94.8 | 378 | 96.4 | **378** | **96.4** | 4 | 384 | 94.8 | 378 | 96.4 | **378** | **96.4** |
| 435.gromacs | 4 | 254 | 112 | 254 | 113 | **254** | **112** | 4 | 254 | 112 | 254 | 113 | **254** | **112** |
| 436.cactusADM | 4 | 482 | 99.2 | 481 | 99.2 | **482** | **99.2** | 4 | 482 | 99.2 | 481 | 99.2 | **482** | **99.2** |
| 437.leslie3d | 4 | **750** | **50.0** | 754 | 50.0 | 750 | 50.0 | 4 | **750** | **50.0** | 754 | 50.0 | 750 | 50.0 |
| 444.namd | 4 | 450 | 71.2 | 451 | 71.2 | **450** | **71.2** | 4 | **447** | **71.6** | 447 | 71.6 | 448 | 71.6 |
| 447.dealII | 4 | **401** | **114** | 383 | 120 | 404 | 113 | 4 | **401** | **114** | 383 | 120 | 404 | 113 |
| 450.soplex | 4 | 646 | 51.6 | **637** | **52.4** | 634 | 52.4 | 2 | 322 | 51.8 | 311 | 53.8 | **316** | **52.8** |
| 453.povray | 4 | 173 | 123 | 170 | 125 | **172** | **124** | 4 | 146 | 146 | **146** | **146** | 145 | 147 |
| 454.calculix | 4 | 263 | 126 | **263** | **125** | 268 | 123 | 4 | 263 | 126 | **263** | **125** | 268 | 123 |
| 459.GemsFDTD | 4 | **890** | **47.6** | 894 | 47.6 | 890 | 47.6 | 4 | **890** | **47.6** | 894 | 47.6 | 890 | 47.6 |
| 465.tonto | 4 | **445** | **88.4** | 449 | 87.6 | 442 | 89.2 | 4 | **433** | **90.8** | 435 | 90.4 | 433 | 90.8 |
| 470.lbm | 4 | 591 | 92.8 | **593** | **92.8** | 595 | 92.4 | 4 | 591 | 92.8 | **593** | **92.8** | 595 | 92.4 |
| 481.wrf | 4 | **432** | **103** | 432 | 104 | 433 | 103 | 4 | **432** | **103** | 432 | 104 | 433 | 103 |
| 482.sphinx3 | 4 | 1023 | 76.4 | 1007 | 77.6 | **1009** | **77.2** | 4 | 1023 | 76.4 | 1007 | 77.6 | **1009** | **77.2** |

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)

## 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.

## Platform Notes

```
Sysinfo program C:\SPEC14.0/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Clt7C05070FB2EF Tue Oct 21 09:53:36 2014

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 ~3500 Mhz
BIOS Version  : Intel(R) Corp. PGQ8710H.86A.0148.2014.0804.1451, 8/4/2014
Total Physical Memory: 3,909 MB

Trying 'wmic cpu get /value'
DeviceID      : CPU0
L2CacheSize   : 512
L3CacheSize   : 3072
MaxClockSpeed : 3500
Name          : Intel(R) Core(TM) i3-4150 CPU @ 3.50GHz
NumberOfCores : 2
NumberOfLogicalProcessors: 4

(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

```
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
```

Continued on next page

## 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

## 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.dealII: `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`

Continued on next page

## 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.

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