# SPEC® CFP2006 Result

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## Intel Corporation

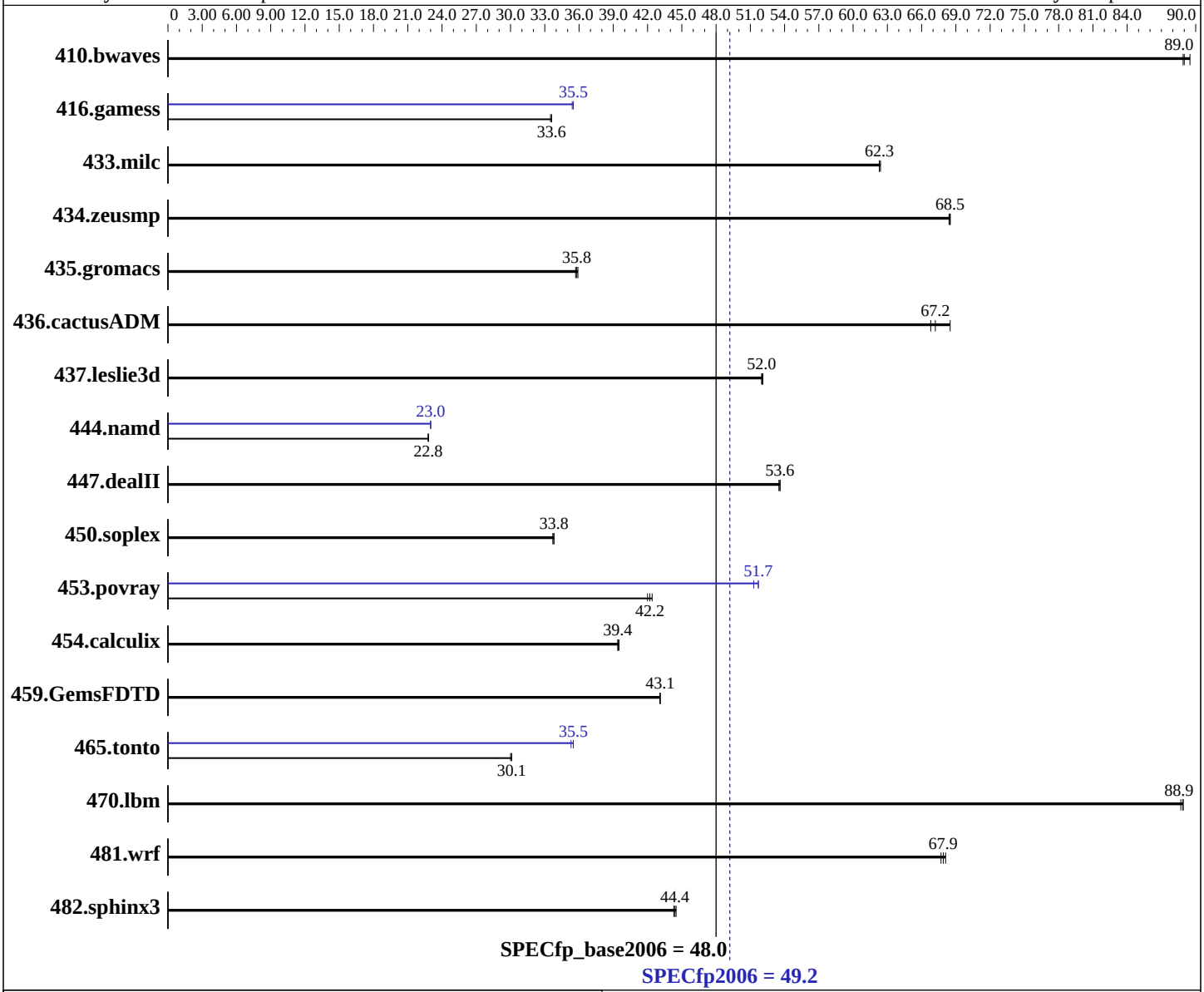
Intel DQ77MK motherboard (Intel Pentium G2140)

SPECfp®2006 = 49.2

SPECfp_base2006 = 48.0

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

**Test date:** Nov-2013
**Hardware Availability:** Jun-2013
**Software Availability:** Apr-2013




### Hardware

| | |
|---|---|
| CPU Name: | Intel Pentium G2140 |
| CPU Characteristics: | |
| CPU MHz: | 3300 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 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: | Yes |

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| | |
|---|---|
| L3 Cache: | 3 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 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | **153** | **89.0** | 153 | 88.9 | 152 | 89.5 | **153** | **89.0** | 153 | 88.9 | 152 | 89.5 |
| 416.gamess | 584 | 33.5 | 583 | 33.6 | **583** | **33.6** | 553 | 35.4 | 552 | 35.5 | **552** | **35.5** |
| 433.milc | 147 | 62.4 | **147** | **62.3** | 147 | 62.3 | 147 | 62.4 | **147** | **62.3** | 147 | 62.3 |
| 434.zeusmp | 133 | 68.5 | 133 | 68.4 | **133** | **68.5** | 133 | 68.5 | 133 | 68.4 | **133** | **68.5** |
| 435.gromacs | 200 | 35.7 | **199** | **35.8** | 199 | 35.9 | 200 | 35.7 | **199** | **35.8** | 199 | 35.9 |
| 436.cactusADM | 179 | 66.8 | 175 | 68.5 | **178** | **67.2** | 179 | 66.8 | 175 | 68.5 | **178** | **67.2** |
| 437.leslie3d | **181** | **52.0** | 180 | 52.1 | 181 | 52.0 | **181** | **52.0** | 180 | 52.1 | 181 | 52.0 |
| 444.namd | 352 | 22.8 | 352 | 22.8 | **352** | **22.8** | 348 | 23.0 | 348 | 23.0 | **348** | **23.0** |
| 447.dealII | **214** | **53.6** | 214 | 53.5 | 213 | 53.6 | **214** | **53.6** | 214 | 53.5 | 213 | 53.6 |
| 450.soplex | **247** | **33.8** | 247 | 33.8 | 247 | 33.7 | **247** | **33.8** | 247 | 33.8 | 247 | 33.7 |
| 453.povray | 126 | 42.4 | 127 | 42.0 | **126** | **42.2** | 104 | 51.3 | 103 | 51.7 | **103** | **51.7** |
| 454.calculix | 209 | 39.5 | **209** | **39.4** | 210 | 39.4 | 209 | 39.5 | **209** | **39.4** | 210 | 39.4 |
| 459.GemsFDTD | **246** | **43.1** | 246 | 43.1 | 246 | 43.1 | **246** | **43.1** | 246 | 43.1 | 246 | 43.1 |
| 465.tonto | 328 | 30.0 | 327 | 30.1 | **327** | **30.1** | 279 | 35.3 | 277 | 35.5 | **278** | **35.5** |
| 470.lbm | 155 | 88.9 | **155** | **88.9** | 155 | 88.7 | 155 | 88.9 | **155** | **88.9** | 155 | 88.7 |
| 481.wrf | 165 | 67.7 | 164 | 68.1 | **165** | **67.9** | 165 | 67.7 | 164 | 68.1 | **165** | **67.9** |
| 482.sphinx3 | **439** | **44.4** | 440 | 44.3 | 438 | 44.5 | **439** | **44.4** | 440 | 44.3 | 438 | 44.5 |

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)
```

## Platform Notes

```
Sysinfo program C:\SPEC13.1/Docs/sysinfo
$Rev: 6775 $ $Date:: 2011-08-16 #$ \8787f7622badcf24e01c368b1db4377c
running on Clt7054D2179849 Fri Nov 22 05:06:49 2013

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
```

Continued on next page

## Platform Notes (Continued)

```
      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  : DQ77MK__
    Processor(s)  : 1 Processor(s) Installed.
         [01]: Intel64 Family 6 Model 58 Stepping 9 GenuineIntel ~3300 Mhz
    BIOS Version  : Intel Corp. MKQ7710H.86A.0054.2012.1120.1444, 11/20/2012
    Total Physical Memory: 3,912 MB

    Trying 'wmic cpu get /value'
    DeviceID      : CPU0
    L2CacheSize   : 512
    L3CacheSize   : 3072
    MaxClockSpeed : 3300
    Name          : Intel(R) Pentium(R) CPU G2140 @ 3.30GHz
    NumberOfCores : 2
    NumberOfLogicalProcessors: 2

    (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

```
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
```

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:
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qauto-ilp32 /F1000000000

C++ benchmarks:
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch -Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qansi-alias
-Qopt-prefetch /F1000000000

Benchmarks using both Fortran and C:
-QxSSE4.2 -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
```

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: `-QxSSE4.2`(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: `basepeak = yes`

453.povray: `-QxSSE4.2`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

Fortran benchmarks:

410.bwaves: `basepeak = yes`

416.gamess: `-QxSSE4.2`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qansi-alias -Qscalar-rep- /F1000000000`

Continued on next page

# Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: -QxSSE4.2(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-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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