# SPEC® CFP2006 Result

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## Intel Corporation

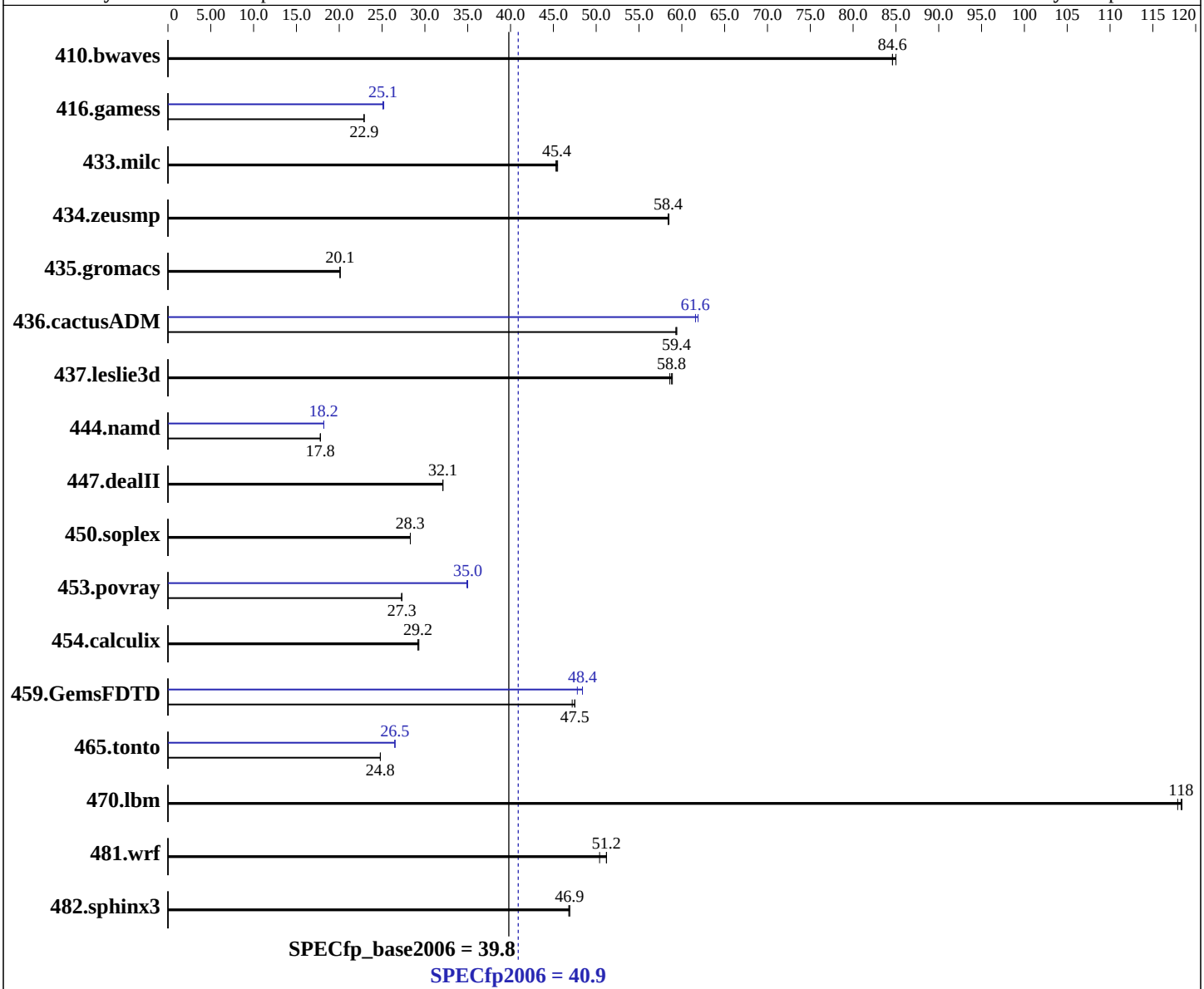
Intel DX58SO2 Motherboard (Intel Core i7-930)

SPECfp®2006 = 40.9

SPECfp_base2006 = 39.8

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

**Test date:** Jul-2011
**Hardware Availability:** Mar-2011
**Software Availability:** Apr-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Core i7-930 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.06 GHz |
| CPU MHz: | 2800 |
| 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: | Windows 7 Ultimate (64-bit) |
| Compiler: | Intel C++ Compiler XE for Intel64 Version 12.0.3.163 Build 20110217<br>Intel Visual Fortran Compiler XE for Intel64 Version 12.0.3.163 Build 20110217<br>Microsoft Visual Studio 2008 Professional SP1 (for libraries) |
| Auto Parallel: | Yes |
| File System: | NTFS |

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| | |
|---|---|
| L3 Cache: | 8 MB I+D on chip per chip |
| Other Cache: | None |
| Memory: | 12 GB (3 x 4 GB 2Rx8 PC3-8600U-9) |
| Disk Subsystem: | Seagate 1 TB SATA, 7200 RPM |
| Other Hardware: | None |

| | |
|---|---|
| System State: | Default |
| Base Pointers: | 32/64-bit |
| Peak Pointers: | 32/64-bit |
| Other Software: | SmartHeap Library Version 9.01 from http://www.microquill.com/ |

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 160 | 85.0 | **161** | **84.6** | 161 | 84.6 | 160 | 85.0 | **161** | **84.6** | 161 | 84.6 |
| 416.gamess | 856 | 22.9 | 856 | 22.9 | **856** | **22.9** | 779 | 25.2 | **779** | **25.1** | 781 | 25.1 |
| 433.milc | 203 | 45.3 | 202 | 45.5 | **202** | **45.4** | 203 | 45.3 | 202 | 45.5 | **202** | **45.4** |
| 434.zeusmp | **156** | **58.4** | 156 | 58.5 | 156 | 58.4 | **156** | **58.4** | 156 | 58.5 | 156 | 58.4 |
| 435.gromacs | 355 | 20.1 | 355 | 20.1 | **355** | **20.1** | 355 | 20.1 | 355 | 20.1 | **355** | **20.1** |
| 436.cactusADM | 201 | 59.3 | 201 | 59.4 | **201** | **59.4** | **194** | **61.6** | 194 | 61.6 | 193 | 61.9 |
| 437.leslie3d | 160 | 58.9 | 160 | 58.6 | **160** | **58.8** | 160 | 58.9 | 160 | 58.6 | **160** | **58.8** |
| 444.namd | **450** | **17.8** | 450 | 17.8 | 450 | 17.8 | 441 | 18.2 | **441** | **18.2** | 441 | 18.2 |
| 447.dealII | **356** | **32.1** | 356 | 32.1 | 357 | 32.1 | **356** | **32.1** | 356 | 32.1 | 357 | 32.1 |
| 450.soplex | **295** | **28.3** | 294 | 28.3 | 295 | 28.3 | **295** | **28.3** | 294 | 28.3 | 295 | 28.3 |
| 453.povray | 195 | 27.3 | **195** | **27.3** | 195 | 27.3 | 153 | 34.9 | **152** | **35.0** | 152 | 35.0 |
| 454.calculix | 282 | 29.3 | 282 | 29.2 | **282** | **29.2** | 282 | 29.3 | 282 | 29.2 | **282** | **29.2** |
| 459.GemsFDTD | 225 | 47.2 | **224** | **47.5** | 223 | 47.5 | 222 | 47.8 | 219 | 48.4 | **219** | **48.4** |
| 465.tonto | **397** | **24.8** | 396 | 24.8 | 397 | 24.8 | **371** | **26.5** | 371 | 26.5 | 371 | 26.5 |
| 470.lbm | **116** | **118** | 117 | 118 | 116 | 118 | **116** | **118** | 117 | 118 | 116 | 118 |
| 481.wrf | 222 | 50.4 | 218 | 51.2 | **218** | **51.2** | 222 | 50.4 | 218 | 51.2 | **218** | **51.2** |
| 482.sphinx3 | **416** | **46.9** | 416 | 46.8 | 416 | 46.9 | **416** | **46.9** | 416 | 46.8 | 416 | 46.9 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## General Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
OMP_NUM_THREADS set to number of processors cores
KMP_AFFINITY set to granularity=fine,scatter
System was configured with an ATI HD5770 discrete graphics card
```

## Base Compiler Invocation

C benchmarks:

```
icl -Qvc9 -Qstd=c99
```

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## Base Compiler Invocation (Continued)

C++ benchmarks:
icl -Qvc9

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc9 -Qstd=c99 ifort

## Base Portability Flags

410.bwaves: -DSPEC_CPU_P64 -names:lowercase
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
450.soplex: -DSPEC_CPU_P64
453.povray: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
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 -Qvc9 -Qstd=c99
```

C++ benchmarks:
```
icl -Qvc9
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc9 -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`

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# Peak Optimization Flags (Continued)

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch -Qparallel /F1000000000

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: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel -Qunroll2 -Qauto-ilp32 /F1000000000

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-ic12-winx64-revB.20110808.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revB.20110808.xml


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