## SPEC® CFP2006 Result

### Intel Corporation

**Intel DX58SO2 Motherboard (Intel Core i7-990X)**

<table>
<thead>
<tr>
<th><strong>SPECfp®2006</strong></th>
<th>48.9</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPECfp_base2006</strong></td>
<td>47.4</td>
</tr>
</tbody>
</table>

**CPU2006 license:** 13  
**Test date:** Jun-2011

**Test sponsor:** Intel Corporation  
**Hardware Availability:** Mar-2011

**Tested by:** Intel Corporation  
**Software Availability:** Apr-2011

### Hardware

<table>
<thead>
<tr>
<th><strong>CPU Name:</strong></th>
<th>Intel Core i7-990X</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Characteristics:</strong></td>
<td>Intel Turbo Boost Technology up to 3.73 GHz</td>
</tr>
<tr>
<td><strong>CPU MHz:</strong></td>
<td>3466</td>
</tr>
<tr>
<td><strong>FPU:</strong></td>
<td>Integrated</td>
</tr>
<tr>
<td><strong>CPU(s) enabled:</strong></td>
<td>6 cores, 1 chip, 6 cores/chip, 2 threads/core</td>
</tr>
<tr>
<td><strong>CPU(s) orderable:</strong></td>
<td>1 chip</td>
</tr>
<tr>
<td><strong>Primary Cache:</strong></td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td><strong>Secondary Cache:</strong></td>
<td>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th><strong>Operating System:</strong></th>
<th>Windows 7 Ultimate (64-bit)</th>
</tr>
</thead>
</table>
| **Compiler:** | Intel C++ Compiler XE for Intel64  
Version 12.0.3.176 Build 20110309  
Intel Visual Fortran Compiler XE for Intel64  
Version 12.0.3.176 Build 20110309  
Microsoft Visual Studio 2008 Professional SP1 (for libraries) |
| **Auto Parallel:** | Yes |
| **File System:** | NTFS |

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**Continued on next page**
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SPECfp2006 = 48.9
SPECfp_base2006 = 47.4

CPU2006 license: 13
Test sponsor: Intel Corporation
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L3 Cache: 12 MB I+D on chip per chip
Other Cache: None
Memory: 12 GB (3 x 4 GB 2Rx8 PC3-8500U-7)
Disk Subsystem: Intel 160GB SSD SSDSA2M160G2GN
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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<td>481.wrf</td>
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<td>60.7</td>
<td>321</td>
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<td>321</td>
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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 HD6970 discrete graphics card

Base Compiler Invocation

C benchmarks:
icl -Qvc9 -Qstd=c99

Continued on next page
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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.eusmp: -DSPEC_CPU_P64
435.gromacs: -DSPEC_CPU_P64
436.cactusADM: -DSPEC_CPU_P64 -names:lowercase /assume:underscore
437.lessh3d: -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
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### 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 -Qunroll14 -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 -Qunroll12 -Ob0 -Qansi-alias
  
  -Qscalar-rep /F1000000000

Continued on next page
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)
-qiopo -O3 -Qprec-div -Qunroll2 -Qopt-fetch -Qparallel
/F1000000000

465.tonto: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-qiopo -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)
-qiopo -O3 -Qprec-div -Qopt-fetch -Qparallel -Qunroll2
-qauto-1lp32 /F1000000000

454.calculix: basepeak = yes

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revC.xml
http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings.20110719.xml

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For other inquiries, please contact webmaster@spec.org.

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