SPEC® CFP2006 Result

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Intel Corporation

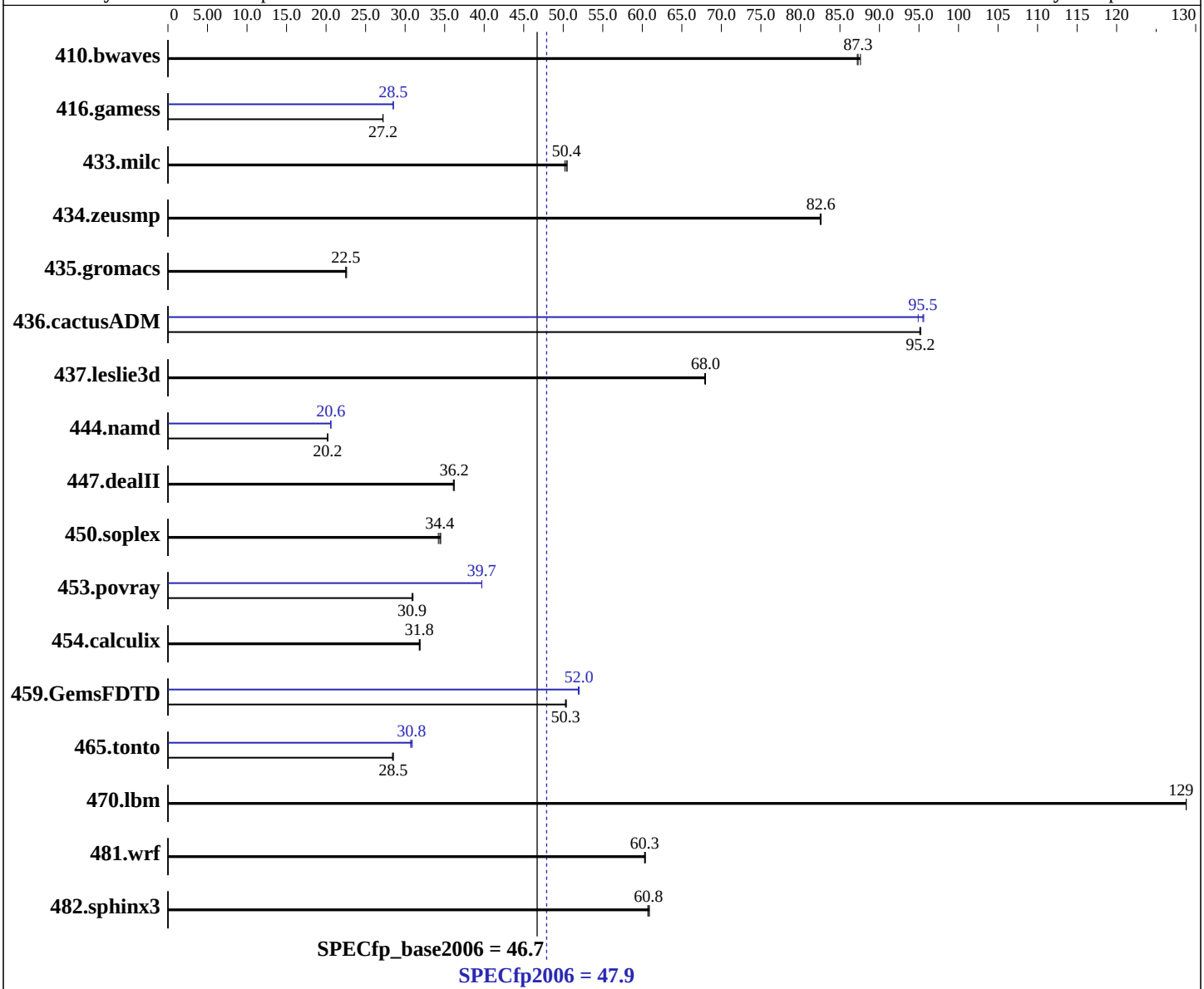
Intel DX58SO2 motherboard (Intel Core i7-990X Extreme Edition)

SPECfp®2006 = 47.9

SPECfp_base2006 = 46.7

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

Test date: Oct-2011
Hardware Availability: Feb-2011
Software Availability: Apr-2011



Hardware

CPU Name:	Intel Core i7-990X Extreme Edition
CPU Characteristics:	Intel Turbo Boost Technology up to 3.73 GHz
CPU MHz:	3466
FPU:	Integrated
CPU(s) enabled:	6 cores, 1 chip, 6 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 SP1 (64-bit)
Compiler:	Fortran: Version 12.0.3.176 of Intel Visual Fortran Studio XE for Windows; Libraries: Version 15.00.30729.01 of Microsoft Visual Studio 2008 Professional SP1
Auto Parallel:	Yes
File System:	NTFS
System State:	Default

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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 PC3-8600U-7)
Disk Subsystem: Intel 160 GB SSD
Other Hardware: None

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	156	87.2	**156**	**87.3**	155	87.6	156	87.2	**156**	**87.3**	155	87.6
416.gamess	721	27.2	**721**	**27.2**	721	27.2	**687**	**28.5**	687	28.5	687	28.5
433.milc	182	50.5	183	50.2	**182**	**50.4**	182	50.5	183	50.2	**182**	**50.4**
434.zeusmp	110	82.6	**110**	**82.6**	110	82.5	110	82.6	**110**	**82.6**	110	82.5
435.gromacs	317	22.6	**317**	**22.5**	317	22.5	317	22.6	**317**	**22.5**	317	22.5
436.cactusADM	126	95.2	**126**	**95.2**	126	95.1	125	95.6	126	94.9	**125**	**95.5**
437.leslie3d	138	67.9	**138**	**68.0**	138	68.0	138	67.9	**138**	**68.0**	138	68.0
444.namd	398	20.2	**398**	**20.2**	398	20.2	388	20.6	389	20.6	**389**	**20.6**
447.dealII	316	36.2	317	36.1	**316**	**36.2**	316	36.2	317	36.1	**316**	**36.2**
450.soplex	242	34.5	**242**	**34.4**	244	34.2	242	34.5	**242**	**34.4**	244	34.2
453.povray	**172**	**30.9**	172	30.9	172	31.0	134	39.7	**134**	**39.7**	134	39.7
454.calculix	260	31.8	**259**	**31.8**	259	31.9	260	31.8	**259**	**31.8**	259	31.9
459.GemsFDTD	211	50.3	**211**	**50.3**	211	50.4	204	51.9	**204**	**52.0**	204	52.0
465.tonto	346	28.5	**346**	**28.5**	346	28.4	**319**	**30.8**	319	30.9	320	30.7
470.lbm	107	129	**107**	**129**	107	129	107	129	**107**	**129**	107	129
481.wrf	185	60.3	185	60.4	**185**	**60.3**	185	60.3	185	60.4	**185**	**60.3**
482.sphinx3	321	60.7	320	60.9	**321**	**60.8**	321	60.7	320	60.9	**321**	**60.8**

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

Component Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
System was configured with an ATI HD 6990 discrete graphics card
```

General Notes

```
OMP_NUM_THREADS set to number of processors cores
KMP_AFFINITY set to granularity=fine,scatter
```

Base 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
```

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
```

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Base Optimization Flags (Continued)

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`

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Peak Optimization Flags (Continued)

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

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 files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revC.20111012.html
http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings-revC.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revC.20111012.xml
http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings-revC.xml

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