SPEC® CFP2006 Result

Intel Corporation

Intel DP55KG Motherboard (Intel Core i7-870S)

$SPECfp®\_rate2006 =$ 86.3

$SPECfp\_rate\_base2006 =$ 85.1
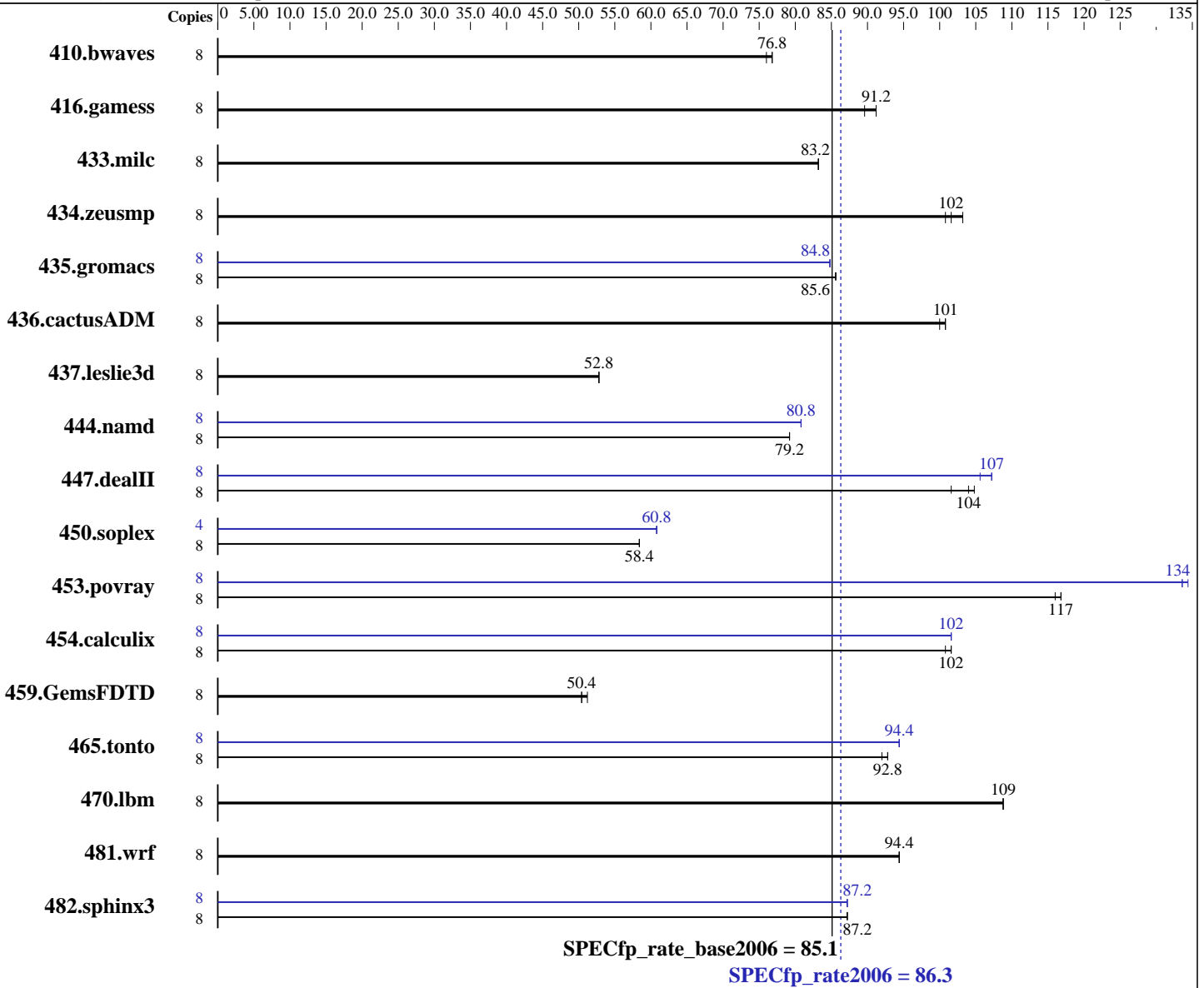
CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

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

Copies	Result
410.bwaves	8	76.8
416.gamess	8	91.2
433.milc	8	83.2
434.zeusmp	8	102
435.gromacs	8	84.8
435.gromacs	8	85.6
436.cactusADM	8	101
437.leslie3d	8	52.8
444.namd	8	80.8
444.namd	8	79.2
447.dealII	8	107
447.dealII	8	104
450.soplex	4	60.8
450.soplex	8	58.4
453.povray	8	134
453.povray	8	117
454.calculix	8	102
454.calculix	8	102
459.GemsFDTD	8	50.4
465.tonto	8	94.4
465.tonto	8	92.8
470.lbm	8	109
481.wrf	8	94.4
482.sphinx3	8	87.2
482.sphinx3	8	87.2

SPECfp_rate_base2006 = 85.1

SPECfp_rate2006 = 86.3

Hardware

CPU Name: Intel Core i7-870S
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 2667
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

Continued on next page

Software

Operating System: Windows 7 Ultimate (64-bit)
Compiler: Intel C++ Compiler XE for Intel 64
Version 12.0.3.176 Build 20110309
Intel Visual Fortran Compiler XE for Intel 64
Version 12.0.3.176 Build 20110309
Microsoft Visual Studio 2008 Professional SP1
(for libraries)
Auto Parallel: No
File System: NTFS

Continued on next page

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L3 Cache:	8 MB I+D on chip per chip	System State:	Default
Other Cache:	None	Base Pointers:	32/64-bit
Memory:	8 GB (2 x 4 GB 2Rx8 PC3-10600U-9)	Peak Pointers:	32/64-bit
Disk Subsystem:	Seagate 1 TB SATA, 7200 RPM	Other Software:	SmartHeap Library Version 9.01 from
Other Hardware:	None		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	8	1427	76.0	**1414**	**76.8**	1412	76.8	8	1427	76.0	**1414**	**76.8**	1412	76.8
416.gamess	8	1744	89.6	1716	91.2	**1719**	**91.2**	8	1744	89.6	1716	91.2	**1719**	**91.2**
433.milc	8	**886**	**83.2**	886	83.2	886	83.2	8	**886**	**83.2**	886	83.2	886	83.2
434.zeusmp	8	722	101	707	103	**714**	**102**	8	722	101	707	103	**714**	**102**
435.gromacs	8	**667**	**85.6**	666	85.6	667	85.6	8	**674**	**84.8**	672	84.8	675	84.8
436.cactusADM	8	**950**	**101**	959	100	946	101	8	**950**	**101**	959	100	946	101
437.leslie3d	8	1433	52.8	1424	52.8	**1428**	**52.8**	8	1433	52.8	1424	52.8	**1428**	**52.8**
444.namd	8	813	79.2	814	79.2	**813**	**79.2**	8	791	80.8	**791**	**80.8**	791	80.8
447.dealII	8	901	102	**879**	**104**	876	105	8	**856**	**107**	855	107	866	106
450.soplex	8	1149	58.4	1147	58.4	**1148**	**58.4**	4	550	60.8	549	60.8	**550**	**60.8**
453.povray	8	366	116	**365**	**117**	365	117	8	317	134	**318**	**134**	319	134
454.calculix	8	**649**	**102**	653	101	649	102	8	650	102	649	102	**650**	**102**
459.GemsFDTD	8	1668	51.2	1673	50.4	**1672**	**50.4**	8	1668	51.2	1673	50.4	**1672**	**50.4**
465.tonto	8	852	92.0	850	92.8	**851**	**92.8**	8	835	94.4	836	94.4	**836**	**94.4**
470.lbm	8	**1010**	**109**	1010	109	1011	109	8	**1010**	**109**	1010	109	1011	109
481.wrf	8	947	94.4	946	94.4	**947**	**94.4**	8	947	94.4	946	94.4	**947**	**94.4**
482.sphinx3	8	**1786**	**87.2**	1787	87.2	1785	87.2	8	1785	87.2	1785	87.2	**1785**	**87.2**

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

Submit Notes

The config file option 'submit' was used.
The start command with the /affinity switch was used to bind processes to cores

General Notes

Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
System was configured with an ATI HD5770 discrete graphics card

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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- -Qansi-alias -Qauto-ilp32
/F1000000000          -link /FORCE:MULTIPLE
```

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

Fortran benchmarks:
```
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qansi-alias /F1000000000
          -link /FORCE:MULTIPLE
```

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Test date: Jul-2011
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Software Availability: Apr-2011

Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:
```
-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qansi-alias -Qauto-ilp32
/F1000000000          -link /FORCE:MULTIPLE
```

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: -QxSSE4.2 -Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias
             -Qauto-ilp32 /F1000000000          -link /FORCE:MULTIPLE
```

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: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
             -Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias
             -Qscalar-rep- -Qauto-ilp32 /F1000000000 shlW64M.lib
                     -link /FORCE:MULTIPLE
```

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Peak Optimization Flags (Continued)

```
    450.soplex: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
                -Qipo -O3 -Qauto-ilp32 /F1000000000 shlW64M.lib
                            -link /FORCE:MULTIPLE

    453.povray: -QxSSE4.2(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

    416.gamess: basepeak = yes

    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 /F1000000000
                            -link /FORCE:MULTIPLE
```

Benchmarks using both Fortran and C:

```
    435.gromacs: -QxSSE4.2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
                 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32
                 /F1000000000           -link /FORCE:MULTIPLE

  436.cactusADM: basepeak = yes

    454.calculix: -QxSSE4.2 -Qipo -O3 -Qprec-div- -Qauto-ilp32 /F1000000000
                            -link /FORCE:MULTIPLE

      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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For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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