SPEC® CFP2006 Result
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Intel Corporation

Intel DP55KG Motherboard (Intel Core i7-870)

$SPECfp^{®}2006 =$ 43.4

$SPECfp\_base2006 =$ 41.8
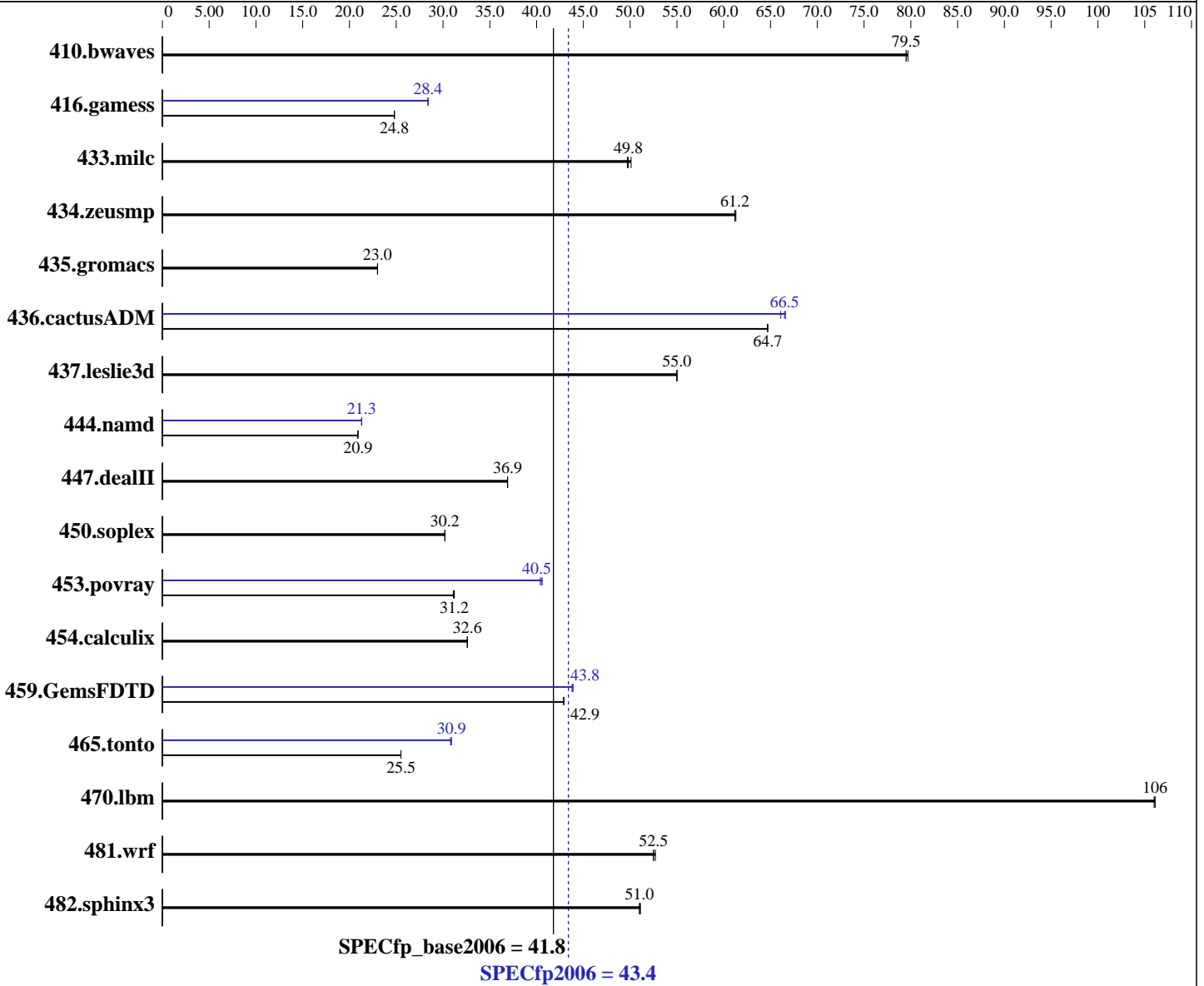
CPU2006 license: 13
Test sponsor: Intel Corporation
Tested by: Intel Corporation

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

Benchmark	Result
410.bwaves	79.5
416.gamess	28.4 / 24.8
433.milc	49.8
434.zeusmp	61.2
435.gromacs	23.0
436.cactusADM	66.5 / 64.7
437.leslie3d	55.0
444.namd	21.3 / 20.9
447.dealII	36.9
450.soplex	30.2
453.povray	40.5 / 31.2
454.calculix	32.6
459.GemsFDTD	43.8 / 42.9
465.tonto	30.9 / 25.5
470.lbm	106
481.wrf	52.5
482.sphinx3	51.0

SPECfp_base2006 = 41.8
SPECfp2006 = 43.4

Hardware

CPU Name: Intel Core i7-870
CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz
CPU MHz: 2933
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 Intel64
Version 12.0.3.163 Build 20110217
Intel Visual Fortran Compiler XE for Intel64
Version 12.0.3.163 Build 20110217
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	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					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	**171**	**79.5**	171	79.7	171	79.5	**171**	**79.5**	171	79.7	171	79.5
416.gamess	789	24.8	**789**	**24.8**	789	24.8	690	28.4	**690**	**28.4**	690	28.4
433.milc	**184**	**49.8**	183	50.1	185	49.7	**184**	**49.8**	183	50.1	185	49.7
434.zeusmp	148	61.3	149	61.2	**149**	**61.2**	148	61.3	149	61.2	**149**	**61.2**
435.gromacs	311	23.0	311	23.0	**311**	**23.0**	311	23.0	311	23.0	**311**	**23.0**
436.cactusADM	185	64.7	**185**	**64.7**	185	64.7	**180**	**66.5**	180	66.6	181	66.1
437.leslie3d	171	55.0	171	55.0	**171**	**55.0**	171	55.0	171	55.0	**171**	**55.0**
444.namd	**384**	**20.9**	384	20.9	384	20.9	376	21.3	**376**	**21.3**	376	21.3
447.dealII	310	36.9	310	36.9	**310**	**36.9**	310	36.9	310	36.9	**310**	**36.9**
450.soplex	**276**	**30.2**	276	30.2	276	30.2	**276**	**30.2**	276	30.2	276	30.2
453.povray	**171**	**31.2**	171	31.2	171	31.1	131	40.6	**132**	**40.5**	132	40.4
454.calculix	253	32.6	253	32.6	**253**	**32.6**	253	32.6	253	32.6	**253**	**32.6**
459.GemsFDTD	**248**	**42.9**	247	42.9	248	42.9	242	43.8	242	43.9	**242**	**43.8**
465.tonto	386	25.5	**386**	**25.5**	386	25.5	**319**	**30.9**	319	30.8	319	30.9
470.lbm	130	106	**130**	**106**	130	106	130	106	**130**	**106**	130	106
481.wrf	213	52.5	212	52.7	**213**	**52.5**	213	52.5	212	52.7	**213**	**52.5**
482.sphinx3	382	51.0	382	51.1	**382**	**51.0**	382	51.0	382	51.1	**382**	**51.0**

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
```

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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- -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

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

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