



# SPEC® CFP2006 Result

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## Intel Corporation

SPECfp®2006 = 36.3

Intel DP55KG motherboard (Intel Core i7-870)

SPECfp\_base2006 = 34.0

CPU2006 license: 13

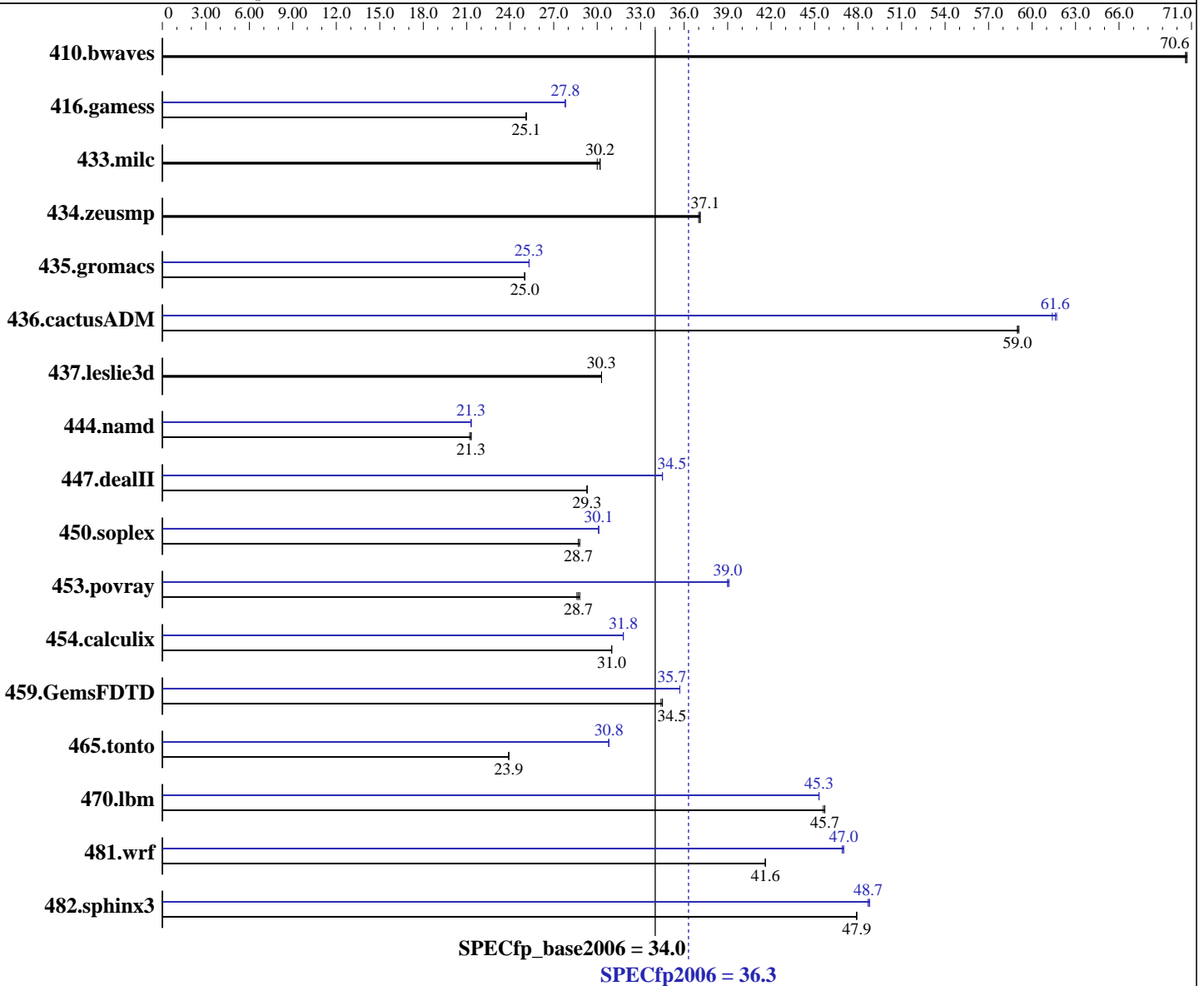
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: Jan-2010

Hardware Availability: Jun-2009

Software Availability: Oct-2009



### 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

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### Software

Operating System: Windows Vista Ultimate w/ SP1 (64-bit)  
 Compiler: Intel C++ Compiler Professional 11.1 for Intel 64  
 Build 20090903 Package ID: w\_cproc\_p\_11.1.045  
 Intel Visual Fortran Compiler Professional 11.1 for Intel 64  
 Build 20090903 Package ID: w\_cproc\_p\_11.1.045, w\_cprof\_p\_11.1.045  
 Microsoft Visual Studio 2008 Professional SP1 (for libraries)  
 Auto Parallel: Yes

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L3 Cache: 8 MB I+D on chip per chip  
 Other Cache: None  
 Memory: 4 GB (2x2GB Micron MT16JTF25664AZ-1G4 DDR3-1333 CL9)  
 Disk Subsystem: Intel X25-M 80GB SSD  
 Other Hardware: None

File System: NTFS  
 System State: Default  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other Software: None  
 SmartHeap Library Version 8.1 from <http://www.microquill.com/>

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
410.bwaves	193	70.6	192	70.7	<b>193</b>	<b>70.6</b>	193	70.6	192	70.7	<b>193</b>	<b>70.6</b>
416.gamess	<b>780</b>	<b>25.1</b>	780	25.1	780	25.1	<b>704</b>	<b>27.8</b>	705	27.8	704	27.8
433.milc	306	30.0	304	30.2	<b>304</b>	<b>30.2</b>	306	30.0	304	30.2	<b>304</b>	<b>30.2</b>
434.zeusmp	246	37.0	245	37.1	<b>245</b>	<b>37.1</b>	246	37.0	245	37.1	<b>245</b>	<b>37.1</b>
435.gromacs	286	25.0	286	25.0	<b>286</b>	<b>25.0</b>	<b>283</b>	<b>25.3</b>	283	25.3	283	25.3
436.cactusADM	203	59.0	202	59.1	<b>203</b>	<b>59.0</b>	<b>194</b>	<b>61.6</b>	195	61.4	194	61.7
437.leslie3d	311	30.3	311	30.3	<b>311</b>	<b>30.3</b>	311	30.3	311	30.3	<b>311</b>	<b>30.3</b>
444.namd	378	21.2	<b>377</b>	<b>21.3</b>	377	21.3	377	21.3	<b>377</b>	<b>21.3</b>	377	21.3
447.dealII	390	29.3	<b>390</b>	<b>29.3</b>	390	29.3	<b>332</b>	<b>34.5</b>	332	34.5	332	34.5
450.soplex	290	28.8	<b>290</b>	<b>28.7</b>	290	28.7	278	30.1	<b>277</b>	<b>30.1</b>	277	30.1
453.povray	<b>186</b>	<b>28.7</b>	185	28.8	186	28.6	136	39.1	<b>136</b>	<b>39.0</b>	137	39.0
454.calculix	266	31.0	266	31.0	<b>266</b>	<b>31.0</b>	259	31.8	259	31.8	<b>259</b>	<b>31.8</b>
459.GemsFDTD	<b>308</b>	<b>34.5</b>	308	34.4	308	34.5	<b>297</b>	<b>35.7</b>	297	35.7	297	35.7
465.tonto	411	23.9	411	23.9	<b>411</b>	<b>23.9</b>	<b>319</b>	<b>30.8</b>	319	30.8	319	30.8
470.lbm	<b>301</b>	<b>45.7</b>	301	45.6	301	45.7	304	45.3	304	45.3	<b>304</b>	<b>45.3</b>
481.wrf	269	41.6	268	41.6	<b>268</b>	<b>41.6</b>	238	47.0	<b>238</b>	<b>47.0</b>	238	46.9
482.sphinx3	407	47.9	<b>407</b>	<b>47.9</b>	407	47.9	<b>400</b>	<b>48.7</b>	400	48.8	400	48.7

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 5970 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 /Qlowercase  
 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 -Qlowercase /assume:underscore  
 437.lelie3d: -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 -Qlowercase  
 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 -Qopt-prefetch  
-Qauto-ilp32 /F1000000000

C++ benchmarks:

-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch  
-Qcxx-features -Qauto-ilp32 /F1000000000 shlW64M.lib  
-link /FORCE:MULTIPLE

Fortran benchmarks:

-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch  
/F1000000000

Benchmarks using both Fortran and C:

-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qparallel -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: -QxSSE4.2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qansi-alias -Qparallel  
-Qauto-ilp32 /F1000000000

482.sphinx3: -QxSSE4.2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Qauto-ilp32 /F1000000000

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.dealIII: -QxSSE4.2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch  
-Qansi-alias -Qscalar-rep- -Qauto-ilp32 /F1000000000  
shlW64M.lib -link /FORCE:MULTIPLE

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- -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: -QxSSE4.2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32  
/F1000000000

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: -QxSSE4.2 -Qipo -O3 -Qprec-div- -Qauto-ilp32 /F1000000000

481.wrf: Same as 454.calculix

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-winx64-revA.20100302.01.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-winx64-revA.20100302.01.xml>



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