



# SPEC® CFP2006 Result

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## Intel Corporation

SPECfp®2006 = 35.7

Intel DP55KG motherboard (Intel Core i7-870)

SPECfp\_base2006 = 33.0

CPU2006 license: 13

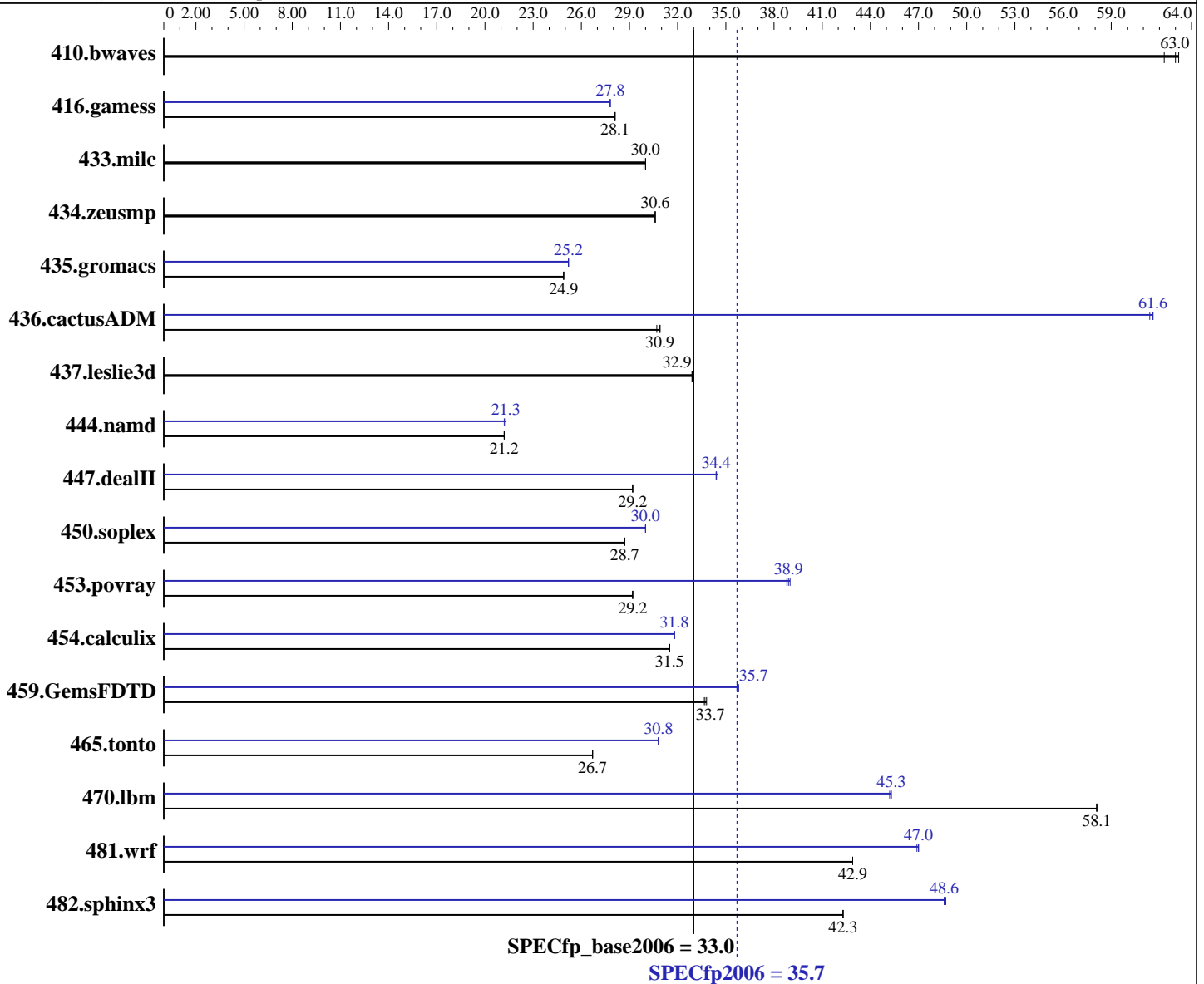
Test sponsor: Intel Corporation

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	218	62.3	<b>216</b>	<b>63.0</b>	215	63.2	218	62.3	<b>216</b>	<b>63.0</b>	215	63.2
416.gamess	698	28.1	698	28.1	<b>698</b>	<b>28.1</b>	705	27.8	705	27.8	<b>705</b>	<b>27.8</b>
433.milc	<b>306</b>	<b>30.0</b>	307	29.9	306	30.0	<b>306</b>	<b>30.0</b>	307	29.9	306	30.0
434.zeusmp	298	30.6	<b>298</b>	<b>30.6</b>	298	30.6	298	30.6	<b>298</b>	<b>30.6</b>	298	30.6
435.gromacs	<b>286</b>	<b>24.9</b>	286	24.9	286	24.9	<b>283</b>	<b>25.2</b>	283	25.2	283	25.2
436.cactusADM	<b>387</b>	<b>30.9</b>	390	30.7	387	30.9	194	61.6	<b>194</b>	<b>61.6</b>	195	61.4
437.leslie3d	286	32.9	<b>286</b>	<b>32.9</b>	286	32.9	286	32.9	<b>286</b>	<b>32.9</b>	286	32.9
444.namd	<b>378</b>	<b>21.2</b>	378	21.2	378	21.2	378	21.2	<b>377</b>	<b>21.3</b>	377	21.3
447.dealII	391	29.2	<b>391</b>	<b>29.2</b>	391	29.2	<b>332</b>	<b>34.4</b>	332	34.4	332	34.5
450.soplex	<b>291</b>	<b>28.7</b>	291	28.7	291	28.7	<b>278</b>	<b>30.0</b>	278	30.0	278	30.0
453.povray	182	29.2	183	29.2	<b>182</b>	<b>29.2</b>	137	38.8	<b>137</b>	<b>38.9</b>	136	39.0
454.calculix	262	31.5	262	31.5	<b>262</b>	<b>31.5</b>	260	31.8	<b>260</b>	<b>31.8</b>	260	31.8
459.GemsFDTD	316	33.6	<b>314</b>	<b>33.7</b>	314	33.8	297	35.8	<b>297</b>	<b>35.7</b>	297	35.7
465.tonto	<b>369</b>	<b>26.7</b>	369	26.7	369	26.7	320	30.8	<b>320</b>	<b>30.8</b>	320	30.8
470.lbm	236	58.1	<b>236</b>	<b>58.1</b>	237	58.1	<b>304</b>	<b>45.3</b>	304	45.2	303	45.3
481.wrf	261	42.9	<b>261</b>	<b>42.9</b>	261	42.9	238	46.9	238	47.0	<b>238</b>	<b>47.0</b>
482.sphinx3	461	42.3	<b>461</b>	<b>42.3</b>	461	42.3	401	48.6	401	48.7	<b>401</b>	<b>48.6</b>

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.

## 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



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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 /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.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 -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- -Qopt-prefetch -Qauto-ilp32 /F1000000000

C++ benchmarks:

-QxSSE4.2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features -Qauto-ilp32 /F1000000000 shlw64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

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

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## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C:

-QxSSE4.2 -Qipo -O3 -Qprec-div- -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: -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  
sh1W64M.lib -link /FORCE:MULTIPLE

447.dealII: -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  
sh1W64M.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- -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

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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