



# SPEC® CFP2006 Result

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GIGA-BYTE Technology Co. Ltd.

(Test Sponsor: Intel Corporation)

Gigabyte MA78GM-S2H Motherboard (AMD Phenom II X4 955)

SPECfp®2006 = 18.6

SPECfp\_base2006 = 18.4

CPU2006 license: 13

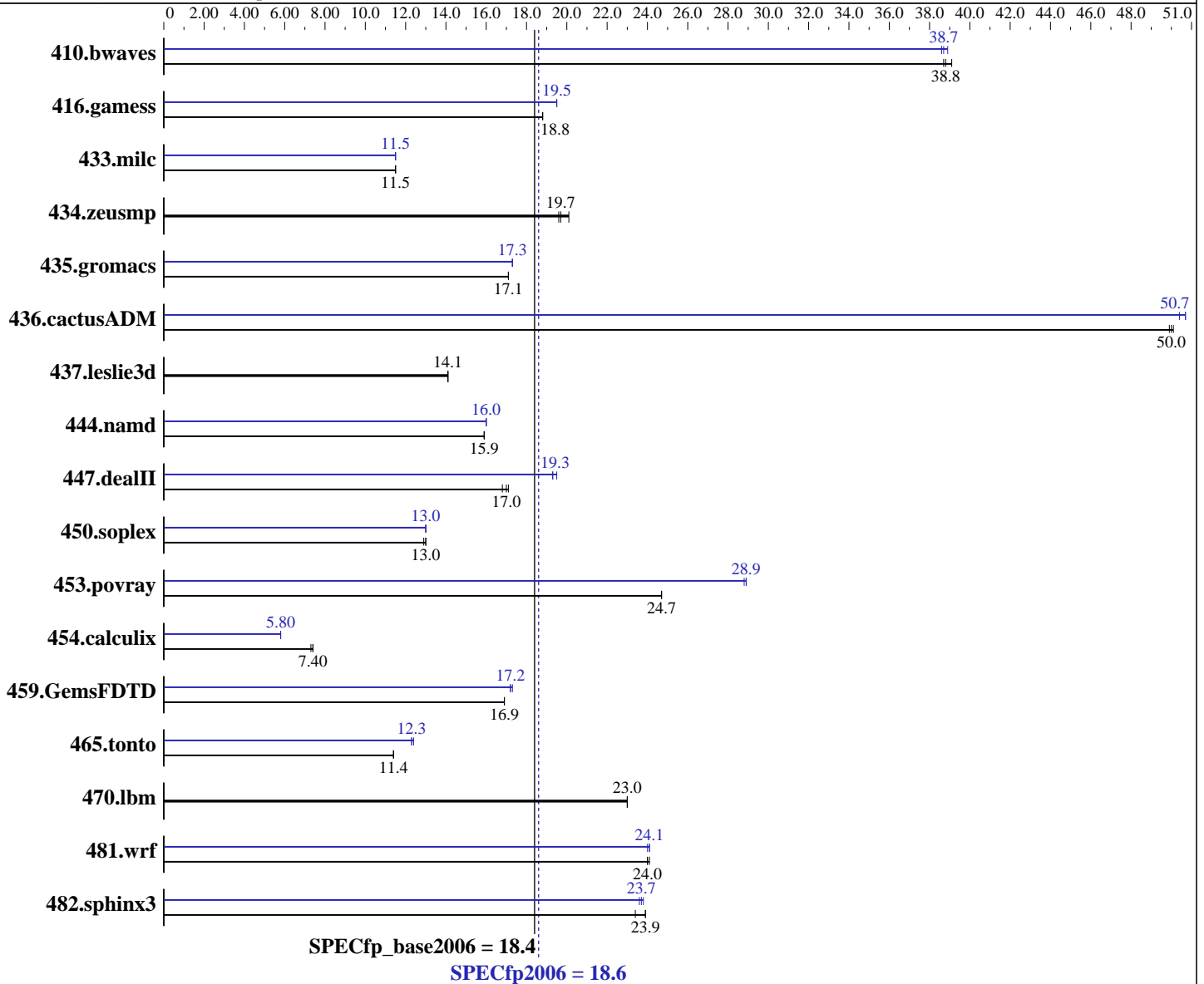
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: May-2009

Hardware Availability: Apr-2009

Software Availability: Nov-2008



## Hardware

CPU Name: AMD Phenom II X4 955  
 CPU Characteristics:  
 CPU MHz: 3200  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 Primary Cache: 64 KB I + 64 KB D on chip per core  
 Secondary Cache: 512 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 11.0 for IA32  
 Build 20080930 Package ID: w\_cproc\_p\_11.0.054  
 Intel Visual Fortran Compiler Professional 11.0 for IA32  
 Build 20080930 Package ID: w\_cprof\_p\_11.0.054  
 Microsoft Visual Studio 2008 (for libraries)  
 Auto Parallel: Yes  
 File System: NTFS

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L3 Cache: 6 MB I+D on chip per chip  
Other Cache: None  
Memory: 4 GB (4x1GB DDR2-800 CL5)  
Disk Subsystem: Seagate 320 GB SATA, 7200RPM  
Other Hardware: None

System State: Default  
Base Pointers: 32-bit  
Peak Pointers: 32-bit  
Other Software: 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	<b>350</b>	<b>38.8</b>	348	39.1	351	38.7	<b>351</b>	<b>38.7</b>	352	38.6	349	38.9
416.gamess	1039	18.8	<b>1039</b>	<b>18.8</b>	1040	18.8	<b>1003</b>	<b>19.5</b>	1004	19.5	1003	19.5
433.milc	800	11.5	<b>800</b>	<b>11.5</b>	800	11.5	800	11.5	<b>800</b>	<b>11.5</b>	800	11.5
434.zeusmp	<b>461</b>	<b>19.7</b>	465	19.6	453	20.1	<b>461</b>	<b>19.7</b>	465	19.6	453	20.1
435.gromacs	418	17.1	<b>418</b>	<b>17.1</b>	418	17.1	412	17.3	412	17.3	<b>412</b>	<b>17.3</b>
436.cactusADM	240	49.9	239	50.1	<b>239</b>	<b>50.0</b>	237	50.4	<b>236</b>	<b>50.7</b>	236	50.7
437.leslie3d	<b>666</b>	<b>14.1</b>	667	14.1	665	14.1	<b>666</b>	<b>14.1</b>	667	14.1	665	14.1
444.namd	505	15.9	<b>505</b>	<b>15.9</b>	505	15.9	502	16.0	<b>502</b>	<b>16.0</b>	502	16.0
447.dealII	683	16.8	669	17.1	<b>674</b>	<b>17.0</b>	593	19.3	587	19.5	<b>592</b>	<b>19.3</b>
450.soplex	645	12.9	642	13.0	<b>644</b>	<b>13.0</b>	642	13.0	<b>642</b>	<b>13.0</b>	641	13.0
453.povray	215	24.7	215	24.7	<b>215</b>	<b>24.7</b>	185	28.8	184	28.9	<b>184</b>	<b>28.9</b>
454.calculix	1123	7.30	1120	7.40	<b>1121</b>	<b>7.40</b>	1430	5.80	<b>1430</b>	<b>5.80</b>	1431	5.80
459.GemsFDTD	626	16.9	<b>627</b>	<b>16.9</b>	627	16.9	617	17.2	614	17.3	<b>615</b>	<b>17.2</b>
465.tonto	<b>864</b>	<b>11.4</b>	865	11.4	863	11.4	<b>797</b>	<b>12.3</b>	797	12.4	797	12.3
470.lbm	<b>598</b>	<b>23.0</b>	598	23.0	598	23.0	<b>598</b>	<b>23.0</b>	598	23.0	598	23.0
481.wrf	464	24.1	465	24.0	<b>465</b>	<b>24.0</b>	465	24.0	463	24.1	<b>464</b>	<b>24.1</b>
482.sphinx3	832	23.4	<b>816</b>	<b>23.9</b>	816	23.9	<b>821</b>	<b>23.7</b>	825	23.6	819	23.8

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, Antec NeoPower 480W power supply  
Binaries were built on Windows Vista Ultimate (32-bit)  
OMP\_NUM\_THREADS set to number of logical processors as seen by the OS  
KMP\_AFFINITY set to physical,0

## Base Compiler Invocation

C benchmarks:  
icl -Qvc9 -Qc99

C++ benchmarks:  
icl -Qvc9

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## Base Compiler Invocation (Continued)

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

icl -Qvc9 -Qc99 ifort

## Base Portability Flags

436.cactusADM: -Qlowercase /assume:underscore

444.namd: -TP

447.dealII: -DDEAL\_II\_MEMBER\_VAR\_SPECIALIZATION\_BUG

453.povray: -DSPEC\_CPU\_WINDOWS\_ICL

454.calculix: -DSPEC\_CPU\_NOZMODIFIER -Qlowercase

481.wrf: -DSPEC\_CPU\_WINDOWS\_ICL

## Base Optimization Flags

C benchmarks:

/arch:SSE2 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch  
/F1000000000

C++ benchmarks:

/arch:SSE2 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch  
-Qcxx-features /F1000000000 shlw32m.lib  
-link /FORCE:MULTIPLE

Fortran benchmarks:

/arch:SSE2 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch  
/F1000000000

Benchmarks using both Fortran and C:

/arch:SSE2 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch  
/F1000000000

## Peak Compiler Invocation

C benchmarks:

icl -Qvc9 -Qc99

C++ benchmarks:

icl -Qvc9

Fortran benchmarks:

ifort

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**Test sponsor:** Intel Corporation

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## Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

icl -Qvc9 -Qc99 ifort

## Peak Portability Flags

436.cactusADM: -Qlowercase /assume:underscore  
444.namd: -TP  
447.dealII: -DDEAL\_II\_MEMBER\_VAR\_SPECIALIZATION\_BUG  
453.povray: -DSPEC\_CPU\_WINDOWS\_ICL  
454.calculix: -DSPEC\_CPU\_NOZMODIFIER -Qlowercase  
481.wrf: -DSPEC\_CPU\_WINDOWS\_ICL

## Peak Optimization Flags

C benchmarks:

433.milc: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Oa /F1000000000

470.lbm: basepeak = yes

482.sphinx3: /arch:SSE2 -Qipo -O3 -Qprec-div- -Qunroll2 /F1000000000

C++ benchmarks:

444.namd: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Oa /F1000000000 shlw32m.lib  
-link /FORCE:MULTIPLE

447.dealII: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch  
-Qansi-alias -Qscalar-rep- /F1000000000 shlw32m.lib  
-link /FORCE:MULTIPLE

450.soplex: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- /F1000000000 shlw32m.lib  
-link /FORCE:MULTIPLE

453.povray: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias /F1000000000  
shlw32m.lib -link /FORCE:MULTIPLE

Fortran benchmarks:

410.bwaves: /arch:SSE2 -Qipo -O3 -Qprec-div- -Qopt-prefetch  
-Qparallel /F1000000000

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## Peak Optimization Flags (Continued)

416.gamess: /arch:SSE2(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: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qopt-prefetch  
-Qparallel /F1000000000

465.tonto: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000

Benchmarks using both Fortran and C:

435.gromacs: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch /F1000000000

436.cactusADM: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch -Qparallel  
/F1000000000

454.calculix: /arch:SSE2 -Qipo -O3 -Qprec-div- /F1000000000

481.wrf: /arch:SSE2 -Qipo -O3 -Qprec-div- -Qopt-prefetch  
-Qparallel /F1000000000

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-win32-revA.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.0-win32-revA.xml>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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