



# SPEC® CFP2006 Result

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GIGA-BYTE Technology Co. Ltd.

(Test Sponsor: Intel Corporation)

Gigabyte MA78GM-S2H Motherboard (AMD Phenom II X3 720)

SPECfp®2006 = 17.0

SPECfp\_base2006 = 16.7

CPU2006 license: 13

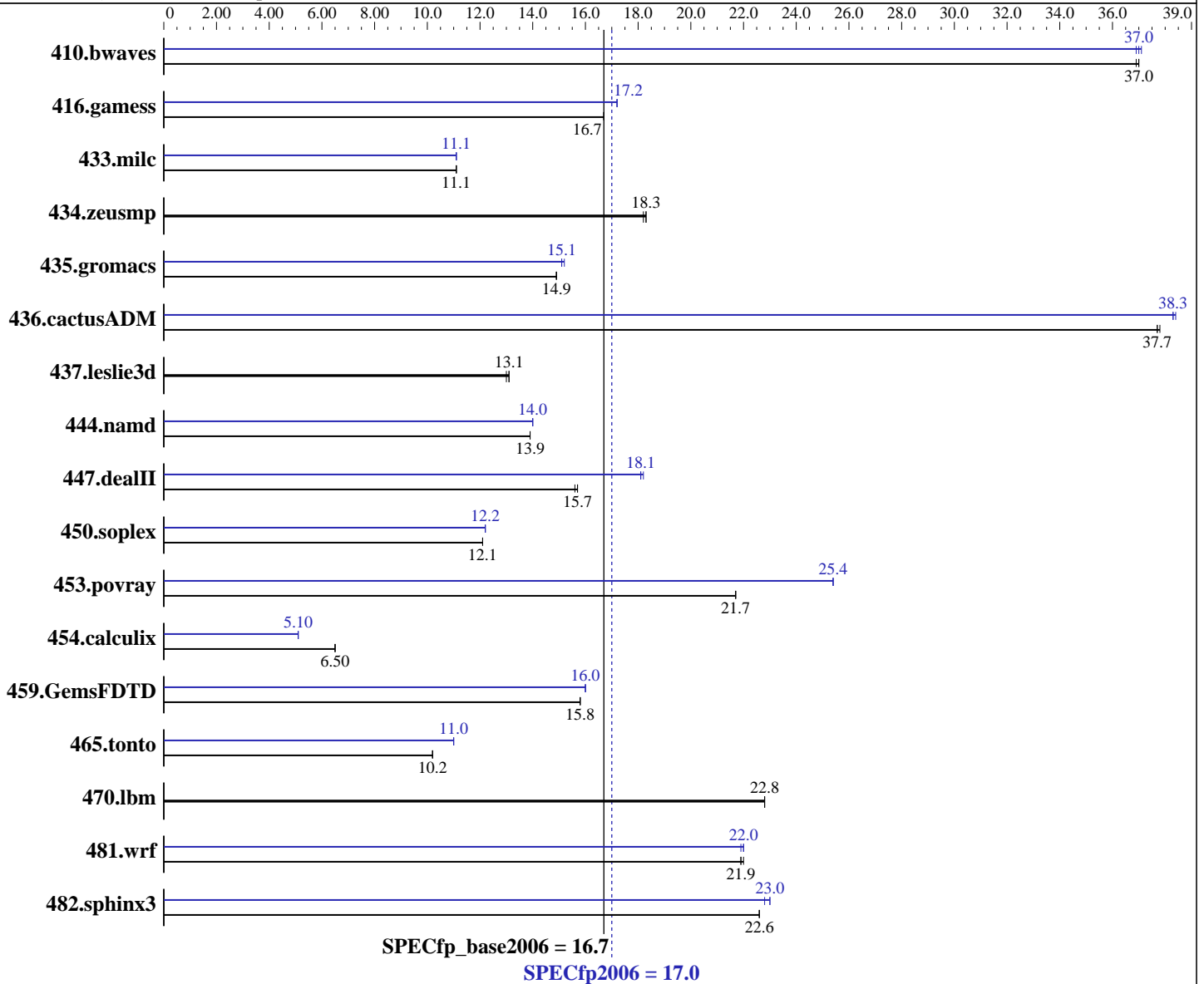
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: May-2009

Hardware Availability: Feb-2009

Software Availability: Nov-2008



### Hardware

CPU Name: AMD Phenom II X3 720  
 CPU Characteristics:  
 CPU MHz: 2800  
 FPU: Integrated  
 CPU(s) enabled: 3 cores, 1 chip, 3 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>368</b>	<b>37.0</b>	368	36.9	367	37.0	367	37.1	368	36.9	<b>367</b>	<b>37.0</b>
416.gamess	1174	16.7	<b>1175</b>	<b>16.7</b>	1175	16.7	<b>1141</b>	<b>17.2</b>	1141	17.2	1141	17.2
433.milc	828	11.1	826	11.1	<b>826</b>	<b>11.1</b>	825	11.1	<b>826</b>	<b>11.1</b>	826	11.1
434.zeusmp	500	18.2	<b>497</b>	<b>18.3</b>	497	18.3	500	18.2	<b>497</b>	<b>18.3</b>	497	18.3
435.gromacs	478	14.9	479	14.9	<b>479</b>	<b>14.9</b>	472	15.1	471	15.2	<b>471</b>	<b>15.1</b>
436.cactusADM	<b>317</b>	<b>37.7</b>	316	37.8	317	37.7	<b>312</b>	<b>38.3</b>	312	38.4	312	38.3
437.leslie3d	718	13.1	721	13.0	<b>720</b>	<b>13.1</b>	718	13.1	721	13.0	<b>720</b>	<b>13.1</b>
444.namd	577	13.9	<b>577</b>	<b>13.9</b>	577	13.9	573	14.0	<b>573</b>	<b>14.0</b>	573	14.0
447.dealII	733	15.6	730	15.7	<b>731</b>	<b>15.7</b>	632	18.1	<b>631</b>	<b>18.1</b>	630	18.2
450.soplex	688	12.1	687	12.1	<b>687</b>	<b>12.1</b>	683	12.2	<b>683</b>	<b>12.2</b>	683	12.2
453.povray	246	21.7	<b>246</b>	<b>21.7</b>	246	21.7	<b>210</b>	<b>25.4</b>	210	25.4	210	25.4
454.calculix	1274	6.50	1274	6.50	<b>1274</b>	<b>6.50</b>	1630	5.10	1630	5.10	<b>1630</b>	<b>5.10</b>
459.GemsFDTD	<b>671</b>	<b>15.8</b>	671	15.8	673	15.8	664	16.0	665	16.0	<b>665</b>	<b>16.0</b>
465.tonto	<b>965</b>	<b>10.2</b>	965	10.2	964	10.2	892	11.0	<b>893</b>	<b>11.0</b>	894	11.0
470.lbm	<b>602</b>	<b>22.8</b>	602	22.8	602	22.8	<b>602</b>	<b>22.8</b>	602	22.8	602	22.8
481.wrf	510	21.9	509	22.0	<b>509</b>	<b>21.9</b>	508	22.0	<b>508</b>	<b>22.0</b>	509	21.9
482.sphinx3	861	22.6	864	22.6	<b>863</b>	<b>22.6</b>	<b>849</b>	<b>23.0</b>	847	23.0	853	22.8

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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**Tested by:** 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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