



# SPEC® CINT2006 Result

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GIGA-BYTE Technology Co. Ltd.

(Test Sponsor: Intel Corporation)

Gigabyte MA78GM-S2H Motherboard (AMD Phenom II X4 810)

SPECint®2006 = 15.6

SPECint\_base2006 = 14.7

CPU2006 license: 13

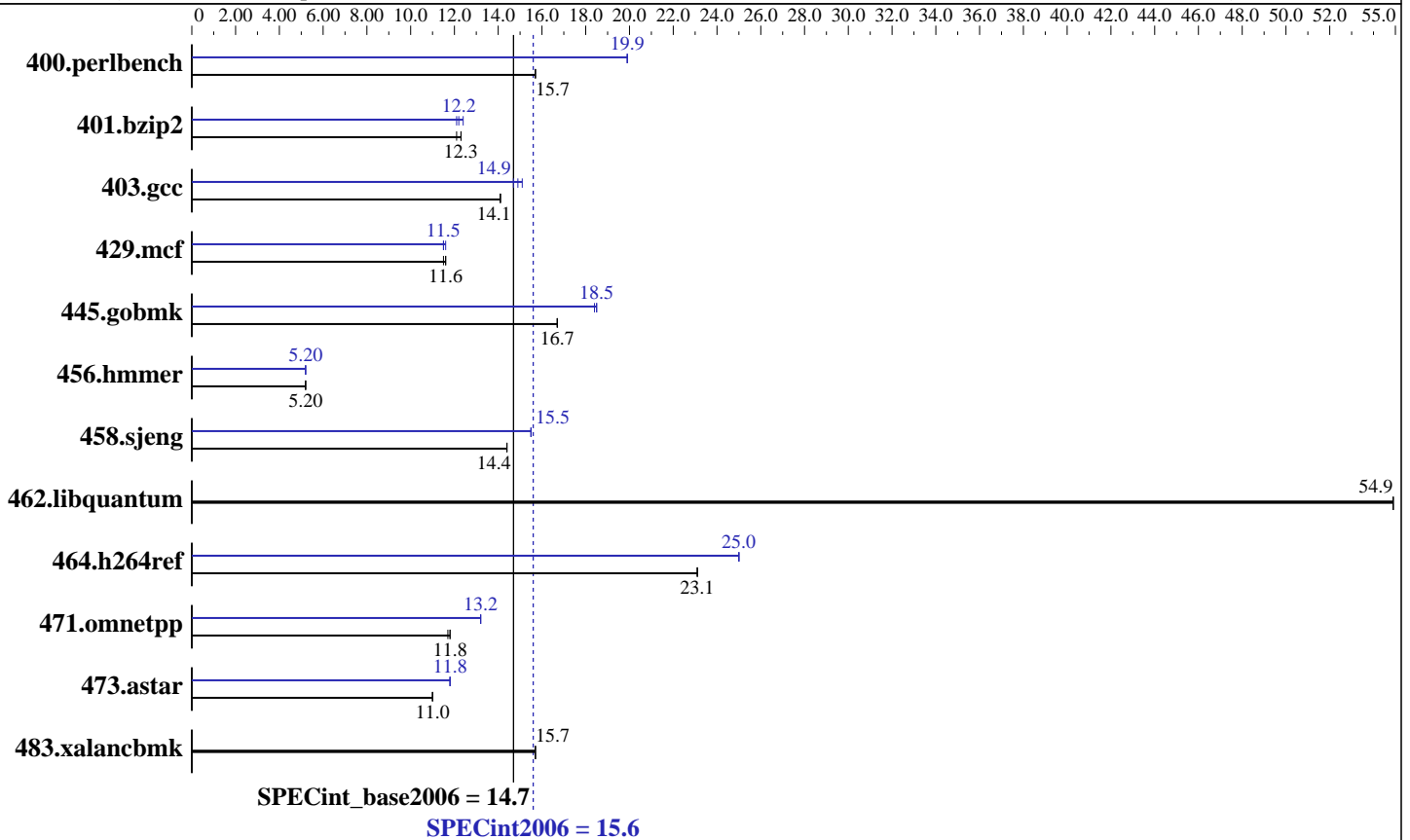
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: May-2009

Hardware Availability: Feb-2009

Software Availability: Nov-2008



## Hardware

CPU Name: AMD Phenom II X4 810  
 CPU Characteristics:  
 CPU MHz: 2600  
 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  
 L3 Cache: 4 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

## 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  
 Microsoft Visual Studio 2008 (for libraries)  
 Auto Parallel: Yes  
 File System: NTFS  
 System State: Default  
 Base Pointers: 32-bit  
 Peak Pointers: 32-bit  
 Other Software: SmartHeap Library Version 8.1 from  
<http://www.microquill.com/>



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## Results Table

| Benchmark      | Base    |       |                    |                    |                   |                    | Peak              |                    |                    |                    |                   |                    |
|----------------|---------|-------|--------------------|--------------------|-------------------|--------------------|-------------------|--------------------|--------------------|--------------------|-------------------|--------------------|
|                | Seconds | Ratio | Seconds            | Ratio              | Seconds           | Ratio              | Seconds           | Ratio              | Seconds            | Ratio              | Seconds           | Ratio              |
| 400.perlbench  | 621     | 15.7  | 622                | 15.7               | <b><u>621</u></b> | <b><u>15.7</u></b> | <b><u>491</u></b> | <b><u>19.9</u></b> | 492                | 19.9               | 491               | 19.9               |
| 401.bzip2      | 784     | 12.3  | 797                | 12.1               | <b><u>787</u></b> | <b><u>12.3</u></b> | <b><u>794</u></b> | <b><u>12.2</u></b> | 781                | 12.4               | 795               | 12.1               |
| 403.gcc        | 572     | 14.1  | <b><u>570</u></b>  | <b><u>14.1</u></b> | 569               | 14.1               | <b><u>542</u></b> | <b><u>14.9</u></b> | 547                | 14.7               | 534               | 15.1               |
| 429.mcf        | 791     | 11.5  | 786                | 11.6               | <b><u>788</u></b> | <b><u>11.6</u></b> | 794               | 11.5               | <b><u>791</u></b>  | <b><u>11.5</u></b> | 789               | 11.6               |
| 445.gobmk      | 628     | 16.7  | 627                | 16.7               | <b><u>627</u></b> | <b><u>16.7</u></b> | 569               | 18.4               | <b><u>568</u></b>  | <b><u>18.5</u></b> | 568               | 18.5               |
| 456.hammer     | 1798    | 5.20  | <b><u>1798</u></b> | <b><u>5.20</u></b> | 1793              | 5.20               | 1802              | 5.20               | <b><u>1799</u></b> | <b><u>5.20</u></b> | 1794              | 5.20               |
| 458.sjeng      | 840     | 14.4  | 839                | 14.4               | <b><u>840</u></b> | <b><u>14.4</u></b> | 782               | 15.5               | 782                | 15.5               | <b><u>782</u></b> | <b><u>15.5</u></b> |
| 462.libquantum | 377     | 54.9  | <b><u>377</u></b>  | <b><u>54.9</u></b> | 377               | 54.9               | 377               | 54.9               | <b><u>377</u></b>  | <b><u>54.9</u></b> | 377               | 54.9               |
| 464.h264ref    | 959     | 23.1  | <b><u>959</u></b>  | <b><u>23.1</u></b> | 957               | 23.1               | 885               | 25.0               | <b><u>886</u></b>  | <b><u>25.0</u></b> | 886               | 25.0               |
| 471.omnetpp    | 529     | 11.8  | 534                | 11.7               | <b><u>532</u></b> | <b><u>11.8</u></b> | 472               | 13.2               | 475                | 13.2               | <b><u>472</u></b> | <b><u>13.2</u></b> |
| 473.astar      | 636     | 11.0  | 637                | 11.0               | <b><u>637</u></b> | <b><u>11.0</u></b> | 595               | 11.8               | <b><u>595</u></b>  | <b><u>11.8</u></b> | 594               | 11.8               |
| 483.xalancbmk  | 439     | 15.7  | 440                | 15.7               | <b><u>439</u></b> | <b><u>15.7</u></b> | 439               | 15.7               | 440                | 15.7               | <b><u>439</u></b> | <b><u>15.7</u></b> |

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

## Base Portability Flags

403.gcc: -DSPEC\_CPU\_WIN32  
464.h264ref: -DSPEC\_CPU\_NO\_INTTYPES -DWIN32  
483.xalancbmk: -Qoption,cpp,--no\_wchar\_t\_keyword



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## Base Optimization Flags

C benchmarks:

```
/arch:SSE2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel
-Qpar-runtime-control -Qvec-guard-write /F512000000
```

C++ benchmarks:

```
/arch:SSE2 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features
/F512000000 shlw32m.lib -link /FORCE:MULTIPLE
```

## Base Other Flags

C benchmarks:

```
403.gcc: -Dalloca=_alloca
```

## Peak Compiler Invocation

C benchmarks:

```
icl -Qvc9 -Qc99
```

C++ benchmarks:

```
icl -Qvc9
```

## Peak Portability Flags

```
403.gcc: -DSPEC_CPU_WIN32
464.h264ref: -DSPEC_CPU_NO_INTTYPES -DWIN32
483.xalancbmk: -Qoption,cpp,--no_wchar_t_keyword
```

## Peak Optimization Flags

C benchmarks:

```
400.perlbench: /arch:SSE2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
/F512000000 shlw32m.lib -link /FORCE:MULTIPLE
```

```
401.bzip2: /arch:SSE2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qansi-alias
/F512000000
```

```
403.gcc: /arch:SSE2(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- /F512000000
```

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## Peak Optimization Flags (Continued)

429.mcf: /arch:SSE2 -Qipo -O3 -Qprec-div- -Qopt-prefetch /F512000000

445.gobmk: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -Qipo -O2 -Qprec-div- -Qansi-alias /F512000000

456.hmmer: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias /F512000000

458.sjeng: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 /F512000000

462.libquantum: basepeak = yes

464.h264ref: Same as 456.hmmer

C++ benchmarks:

471.omnetpp: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-ra-region-strategy=block /F512000000 shlw32m.lib -link /FORCE:MULTIPLE

473.astar: /arch:SSE2(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2) -Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-ra-region-strategy=routine /F512000000 shlw32m.lib -link /FORCE:MULTIPLE

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca

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 questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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