



# SPEC® CINT2006 Result

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GIGA-BYTE Technology Co. Ltd.

(Test Sponsor: Intel Corporation)

Gigabyte MA78GM-S2H Motherboard (AMD Phenom II X4 940)

SPECint®2006 = 17.3

SPECint\_base2006 = 16.4

CPU2006 license: 13

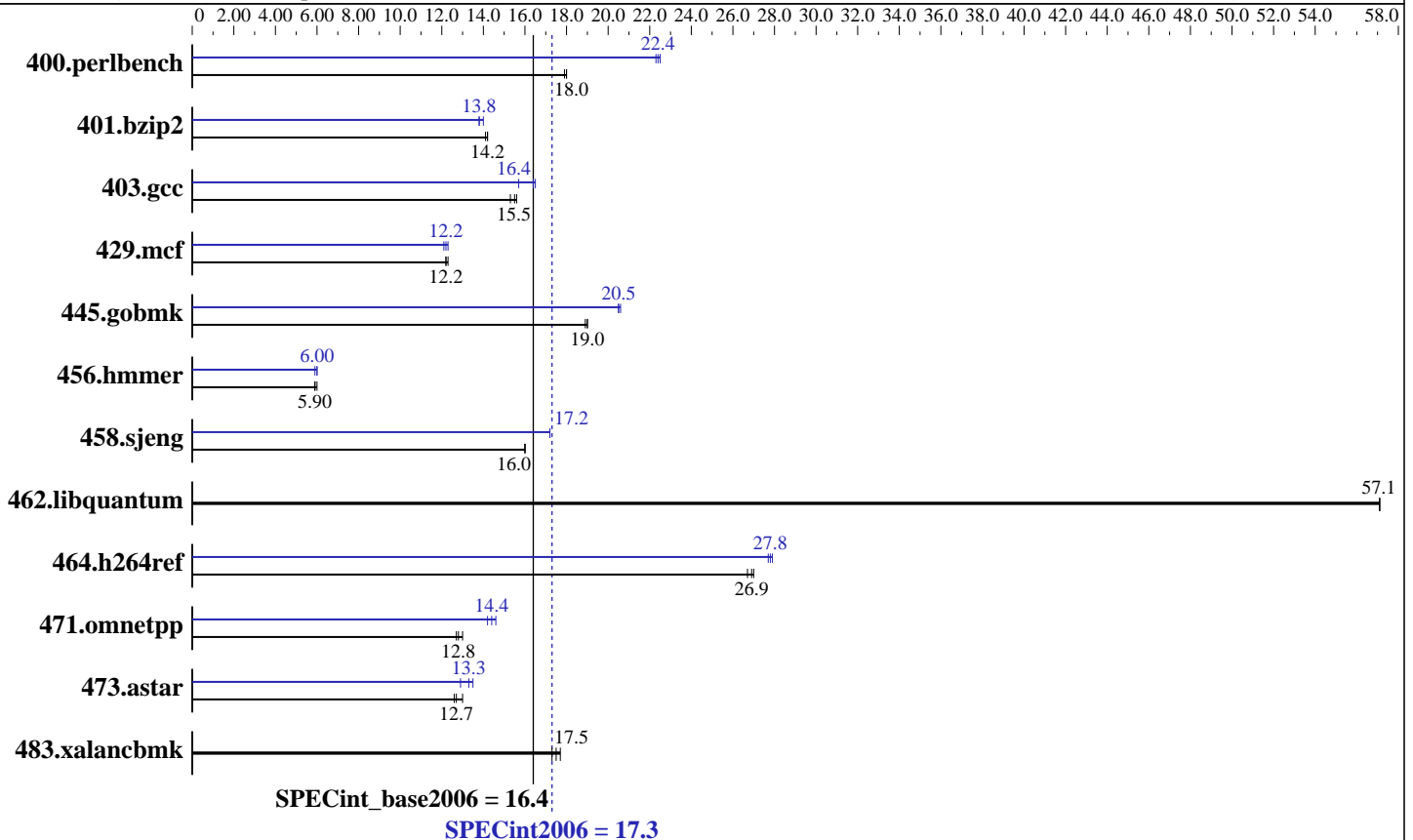
Test sponsor: Intel Corporation

Tested by: Intel Corporation

Test date: May-2009

Hardware Availability: Jan-2009

Software Availability: Nov-2008



## Hardware

CPU Name: AMD Phenom II X4 940  
 CPU Characteristics:  
 CPU MHz: 3000  
 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: 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

## 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	547	17.9	542	18.0	<b>544</b>	<b>18.0</b>	<b>437</b>	<b>22.4</b>	435	22.5	438	22.3
401.bzip2	<b>678</b>	<b>14.2</b>	682	14.1	677	14.2	691	14.0	<b>698</b>	<b>13.8</b>	699	13.8
403.gcc	526	15.3	517	15.6	<b>519</b>	<b>15.5</b>	512	15.7	<b>491</b>	<b>16.4</b>	488	16.5
429.mcf	748	12.2	741	12.3	<b>747</b>	<b>12.2</b>	754	12.1	<b>745</b>	<b>12.2</b>	743	12.3
445.gobmk	555	18.9	552	19.0	<b>553</b>	<b>19.0</b>	510	20.6	<b>512</b>	<b>20.5</b>	513	20.5
456.hammer	1574	5.90	<b>1572</b>	<b>5.90</b>	1568	6.00	1570	5.90	<b>1567</b>	<b>6.00</b>	1566	6.00
458.sjeng	<b>757</b>	<b>16.0</b>	757	16.0	758	16.0	703	17.2	705	17.2	<b>705</b>	<b>17.2</b>
462.libquantum	363	57.1	<b>363</b>	<b>57.1</b>	363	57.1	363	57.1	<b>363</b>	<b>57.1</b>	363	57.1
464.h264ref	820	27.0	830	26.7	<b>821</b>	<b>26.9</b>	794	27.9	<b>797</b>	<b>27.8</b>	799	27.7
471.omnetpp	482	13.0	491	12.7	<b>487</b>	<b>12.8</b>	439	14.2	<b>434</b>	<b>14.4</b>	429	14.6
473.astar	540	13.0	<b>552</b>	<b>12.7</b>	555	12.6	522	13.5	<b>526</b>	<b>13.3</b>	546	12.9
483.xalancbmk	389	17.7	<b>395</b>	<b>17.5</b>	400	17.3	389	17.7	<b>395</b>	<b>17.5</b>	400	17.3

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

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