



# SPEC® CINT2006 Result

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ASUSTeK Computer Inc.  
(Test Sponsor: Intel Corporation)

SPECint®2006 = 24.3

Asus M4A89GTD-PRO (Phenom II X2 560)

SPECint\_base2006 = 22.3

CPU2006 license: 13

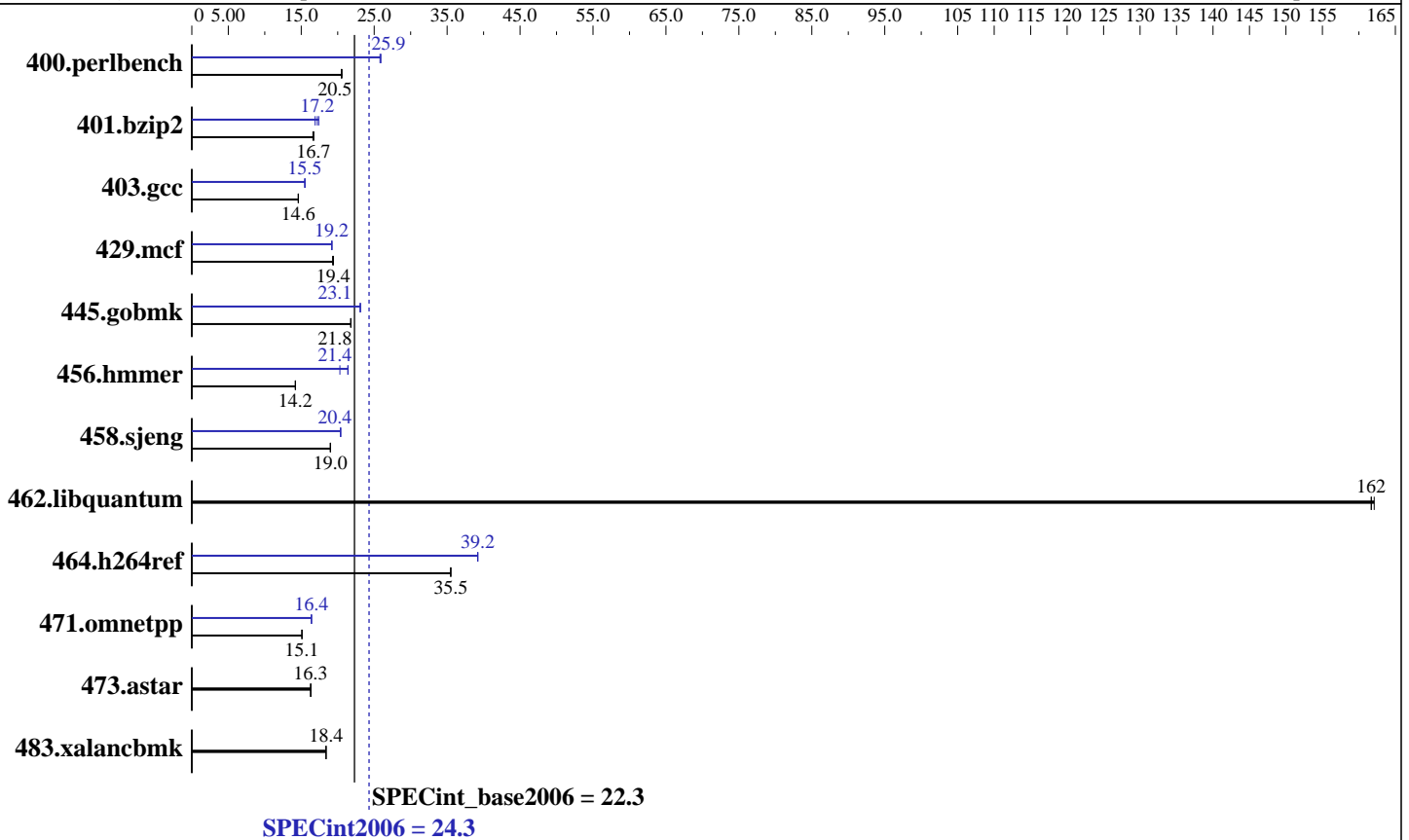
Test date: May-2011

Test sponsor: Intel Corporation

Hardware Availability: Sep-2010

Tested by: Intel Corporation

Software Availability: Apr-2011



## Hardware

CPU Name: AMD Phenom II X2 560  
 CPU Characteristics:  
 CPU MHz: 3300  
 FPU: Integrated  
 CPU(s) enabled: 2 cores, 1 chip, 2 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 (2 x 2 GB 2Rx8 PC3-10600U-9)  
 Disk Subsystem: Seagate 1 TB SATA, 7200 RPM  
 Other Hardware: None

## Software

Operating System: Windows 7 Ultimate (64-bit)  
 Compiler: Intel C++ Compiler XE for IA32 and Intel 64 Version 12.0.3.176 Build 20110309  
 Microsoft Visual Studio 2008 Professional SP1 (for libraries)  
 Auto Parallel: Yes  
 File System: NTFS  
 System State: Default  
 Base Pointers: 32/64-bit  
 Peak Pointers: 32/64-bit  
 Other Software: SmartHeap Library Version 9.01 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  | 476        | 20.5        | <b>476</b> | <b>20.5</b> | 475        | 20.6        | 378        | 25.8        | 378        | 25.9       | <b>378</b> | <b>25.9</b> |
| 401.bzip2      | 580        | 16.6        | 578        | 16.7        | <b>579</b> | <b>16.7</b> | <b>562</b> | <b>17.2</b> | 570        | 16.9       | 555        | 17.4        |
| 403.gcc        | 551        | 14.6        | <b>551</b> | <b>14.6</b> | 551        | 14.6        | 518        | 15.5        | 518        | 15.5       | <b>518</b> | <b>15.5</b> |
| 429.mcf        | 471        | 19.4        | 472        | 19.3        | <b>471</b> | <b>19.4</b> | 475        | 19.2        | 475        | 19.2       | <b>475</b> | <b>19.2</b> |
| 445.gobmk      | 481        | 21.8        | <b>481</b> | <b>21.8</b> | 482        | 21.8        | <b>455</b> | <b>23.1</b> | 455        | 23.1       | 455        | 23.1        |
| 456.hmmer      | 659        | 14.2        | <b>659</b> | <b>14.2</b> | 659        | 14.2        | 435        | 21.4        | 460        | 20.3       | <b>435</b> | <b>21.4</b> |
| 458.sjeng      | <b>637</b> | <b>19.0</b> | 637        | 19.0        | 637        | 19.0        | <b>592</b> | <b>20.4</b> | 592        | 20.4       | 592        | 20.4        |
| 462.libquantum | 128        | 162         | <b>128</b> | <b>162</b>  | 128        | 162         | 128        | 162         | <b>128</b> | <b>162</b> | 128        | 162         |
| 464.h264ref    | 623        | 35.5        | <b>623</b> | <b>35.5</b> | 623        | 35.5        | <b>565</b> | <b>39.2</b> | 565        | 39.2       | 565        | 39.2        |
| 471.omnetpp    | 413        | 15.1        | <b>413</b> | <b>15.1</b> | 413        | 15.1        | 382        | 16.4        | 382        | 16.4       | <b>382</b> | <b>16.4</b> |
| 473.astar      | 431        | 16.3        | 431        | 16.3        | <b>431</b> | <b>16.3</b> | 431        | 16.3        | 431        | 16.3       | <b>431</b> | <b>16.3</b> |
| 483.xalancbmk  | 375        | 18.4        | 375        | 18.4        | <b>375</b> | <b>18.4</b> | 375        | 18.4        | 375        | 18.4       | <b>375</b> | <b>18.4</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,  
PC Power and Cooling 1200W power supply  
OMP\_NUM\_THREADS set to number of processors cores  
KMP\_AFFINITY set to granularity=fine,scatter

## Base Compiler Invocation

C benchmarks:

```
icl -Qvc9 -Qstd=c99
```

C++ benchmarks:

```
icl -Qvc9
```

## Base Portability Flags

```

400.perlbench: -DSPEC_CPU_P64 -DSPEC_CPU_WIN64_X64
               -DSPEC_CPU_NO_NEED_VA_COPY
401.bzip2: -DSPEC_CPU_P64
403.gcc: -DSPEC_CPU_P64 -DSPEC_CPU_WIN64
429.mcf: -DSPEC_CPU_P64
445.gobmk: -DSPEC_CPU_P64
456.hmmer: -DSPEC_CPU_P64
458.sjeng: -DSPEC_CPU_P64

```

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## Base Portability Flags (Continued)

```
462.libquantum: -DSPEC_CPU_P64
464.h264ref: -DSPEC_CPU_P64 -DWIN32 -DSPEC_CPU_NO_INTTYPES
471.omnetpp: -DSPEC_CPU_P64 -DSPEC_CPU_WIN64
473.astar: -DSPEC_CPU_P64
483.xalancbmk: -DSPEC_CPU_P64 -Qoption, cpp, --no_wchar_t_keyword
```

## Base Optimization Flags

```
C benchmarks:
/arch:SSE3 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel
-Qauto-ilp32 /F512000000

C++ benchmarks:
/arch:SSE3 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qcxx-features
-Qauto-ilp32 /F512000000 shlw64M.lib -link /FORCE:MULTIPLE
```

## Base Other Flags

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

## Peak Compiler Invocation

```
C benchmarks:
icl -Qvc9 -Qstd=c99

C++ benchmarks:
icl -Qvc9
```

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

```
C benchmarks:
400.perlbench: /arch:SSE3(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qansi-alias -Qopt-prefetch
-Qauto-ilp32 /F512000000 shlw64M.lib
```

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## Peak Optimization Flags (Continued)

400.perlbench (continued):

-link /FORCE:MULTIPLE

401.bzip2: /arch:SSE3(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qansi-alias  
-Qauto-ilp32 /F512000000

403.gcc: /arch:SSE3(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qauto-ilp32 /F512000000

429.mcf: /arch:SSE3 -Qipo -O3 -Qprec-div- -Qopt-prefetch  
-Qauto-ilp32 /F512000000

445.gobmk: /arch:SSE3(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O2 -Qprec-div- -Qansi-alias -Qauto-ilp32  
/F512000000

456.hmmer: /arch:SSE3 -Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias  
-Qauto-ilp32 /F512000000

458.sjeng: /arch:SSE3(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll4 -Qauto-ilp32 /F512000000

462.libquantum: basepeak = yes

464.h264ref: /arch:SSE3(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias  
-Qauto-ilp32 /F512000000

C++ benchmarks:

471.omnetpp: /arch:SSE3(pass 2) -Qprof\_gen(pass 1) -Qprof\_use(pass 2)  
-Qipo -O3 -Qprec-div- -Qansi-alias  
-Qopt-ra-region-strategy=block -Qauto-ilp32 /F512000000  
shlW64M.lib -link /FORCE:MULTIPLE

473.astar: basepeak = yes

483.xalancbmk: basepeak = yes

## Peak Other Flags

C benchmarks:

403.gcc: -Dalloca=\_alloca



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The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revB.html>

<http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings.20110719.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revB.xml>

<http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings.20110719.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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