# SPEC® CFP2006 Result

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## ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

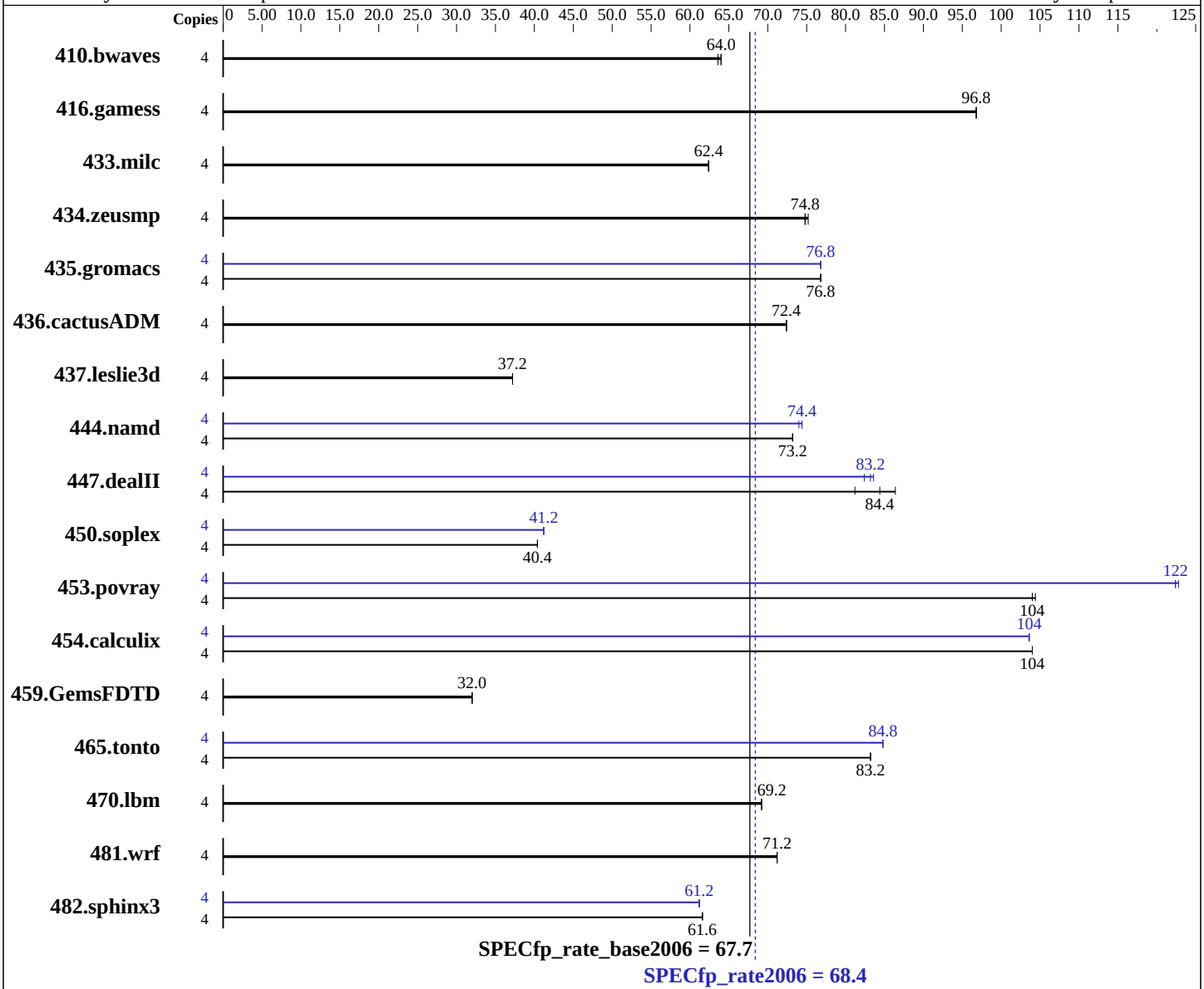
ASUSTek M4A89GTD PRO/USB3 (Phenom II X4 970)

SPECfp®_rate2006 = 68.4

SPECfp_rate_base2006 = 67.7

**CPU2006 license:** 13
**Test sponsor:** Intel Corporation
**Tested by:** Intel Corporation

**Test date:** Jun-2011
**Hardware Availability:** Feb-2011
**Software Availability:** Apr-2011




## Hardware

| | |
|---|---|
| CPU Name: | AMD Phenom II X4 970 |
| CPU Characteristics: | |
| CPU MHz: | 3500 |
| 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 7 Ultimate (64-bit) |
| Compiler: | Intel C++ Compiler XE for Intel 64 Version 12.0.3.176 Build 20110309<br>Intel Visual Fortran Compiler XE for Intel 64 Version 12.0.3.176 Build 20110309<br>Microsoft Visual Studio 2008 Professional SP1 (for libraries) |
| Auto Parallel: | No |
| File System: | NTFS |

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L3 Cache: 6 MB I+D on chip per chip
Other Cache: None
Memory: 4 GB (2 x 2 GB 2Rx4 PC3-10600U-9)
Disk Subsystem: 1 TB Seagate SATA, 7200 RPM
Other Hardware: None

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/

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 4 | 852 | 63.6 | **850** | **64.0** | 847 | 64.0 | 4 | 852 | 63.6 | **850** | **64.0** | 847 | 64.0 |
| 416.gamess | 4 | 810 | 96.8 | **810** | **96.8** | 810 | 96.8 | 4 | 810 | 96.8 | **810** | **96.8** | 810 | 96.8 |
| 433.milc | 4 | **588** | **62.4** | 587 | 62.4 | 588 | 62.4 | 4 | **588** | **62.4** | 587 | 62.4 | 588 | 62.4 |
| 434.zeusmp | 4 | **486** | **74.8** | 487 | 74.8 | 484 | 75.2 | 4 | **486** | **74.8** | 487 | 74.8 | 484 | 75.2 |
| 435.gromacs | 4 | **371** | **76.8** | 371 | 76.8 | 371 | 76.8 | 4 | 373 | 76.8 | 373 | 76.8 | **373** | **76.8** |
| 436.cactusADM | 4 | **662** | **72.4** | 661 | 72.4 | 662 | 72.4 | 4 | **662** | **72.4** | 661 | 72.4 | 662 | 72.4 |
| 437.leslie3d | 4 | 1007 | 37.2 | 1013 | 37.2 | **1011** | **37.2** | 4 | 1007 | 37.2 | 1013 | 37.2 | **1011** | **37.2** |
| 444.namd | 4 | 437 | 73.2 | 437 | 73.2 | **437** | **73.2** | 4 | **432** | **74.4** | 432 | 74.4 | 433 | 74.0 |
| 447.dealII | 4 | **543** | **84.4** | 562 | 81.2 | 530 | 86.4 | 4 | 547 | 83.6 | **551** | **83.2** | 556 | 82.4 |
| 450.soplex | 4 | 822 | 40.4 | 822 | 40.4 | **822** | **40.4** | 4 | 811 | 41.2 | 810 | 41.2 | **810** | **41.2** |
| 453.povray | 4 | **204** | **104** | 204 | 104 | 204 | 104 | 4 | 173 | 123 | **174** | **122** | 174 | 122 |
| 454.calculix | 4 | 318 | 104 | **318** | **104** | 317 | 104 | 4 | **319** | **104** | 318 | 104 | 319 | 104 |
| 459.GemsFDTD | 4 | 1325 | 32.0 | **1326** | **32.0** | 1327 | 32.0 | 4 | 1325 | 32.0 | **1326** | **32.0** | 1327 | 32.0 |
| 465.tonto | 4 | **474** | **83.2** | 473 | 83.2 | 474 | 83.2 | 4 | 463 | 84.8 | **464** | **84.8** | 465 | 84.8 |
| 470.lbm | 4 | 794 | 69.2 | **794** | **69.2** | 794 | 69.2 | 4 | 794 | 69.2 | **794** | **69.2** | 794 | 69.2 |
| 481.wrf | 4 | 628 | 71.2 | **627** | **71.2** | 626 | 71.2 | 4 | 628 | 71.2 | **627** | **71.2** | 626 | 71.2 |
| 482.sphinx3 | 4 | 1268 | 61.6 | **1269** | **61.6** | 1270 | 61.6 | 4 | 1271 | 61.2 | **1274** | **61.2** | 1274 | 61.2 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

```
The config file option 'submit' was used.
 The start command with the /affinity switch was used to bind processes to cores
```

## General Notes

```
Tested systems can be used with Shin-G ATX case,
PC Power and Cooling 1200W power supply
```

## Base Compiler Invocation

C benchmarks:

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

Continued on next page

## Base Compiler Invocation (Continued)

C++ benchmarks:
icl -Qvc9

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc9 -Qstd=c99 ifort

## Base Portability Flags

410.bwaves: -DSPEC_CPU_P64 -names:lowercase
416.gamess: -DSPEC_CPU_P64
433.milc: -DSPEC_CPU_P64
434.zeusmp: -DSPEC_CPU_P64
435.gromacs: -DSPEC_CPU_P64
436.cactusADM: -DSPEC_CPU_P64 -names:lowercase /assume:underscore
437.leslie3d: -DSPEC_CPU_P64
444.namd: -DSPEC_CPU_P64 /TP
447.dealII: -DSPEC_CPU_P64 -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
450.soplex: -DSPEC_CPU_P64
453.povray: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
454.calculix: -DSPEC_CPU_P64 -DSPEC_CPU_NOZMODIFIER -names:lowercase
459.GemsFDTD: -DSPEC_CPU_P64
465.tonto: -DSPEC_CPU_P64
470.lbm: -DSPEC_CPU_P64
481.wrf: -DSPEC_CPU_P64 -DSPEC_CPU_WINDOWS_ICL
482.sphinx3: -DSPEC_CPU_P64

## Base Optimization Flags

C benchmarks:
/arch:SSE3 -Qipo -O3 -Qprec-div- -Qansi-alias -Qauto-ilp32
/F1000000000 -link /FORCE:MULTIPLE

C++ benchmarks:
/arch:SSE3 -Qipo -O3 -Qprec-div- -Qansi-alias -Qcxx-features
-Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE

Fortran benchmarks:
/arch:SSE3 -Qipo -O3 -Qprec-div- -Qansi-alias /F1000000000
-link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:
/arch:SSE3 -Qipo -O3 -Qprec-div- -Qansi-alias -Qauto-ilp32
/F1000000000 -link /FORCE:MULTIPLE

## Peak Compiler Invocation

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

C++ benchmarks:
```
icl -Qvc9
```

Fortran benchmarks:
```
ifort
```

Benchmarks using both Fortran and C:
```
icl -Qvc9 -Qstd=c99 ifort
```

## Peak Portability Flags

```
Same as Base Portability Flags
```

## Peak Optimization Flags

C benchmarks:

433.milc: `basepeak = yes`

470.lbm: `basepeak = yes`

482.sphinx3: `/arch:SSE3 -Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias -Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE`

C++ benchmarks:

444.namd: `/arch:SSE3`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Oa -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

447.dealII: `/arch:SSE3`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Qunroll2 -Qansi-alias -Qscalar-rep- -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

450.soplex: `/arch:SSE3`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

453.povray: `/arch:SSE3`(pass 2) `-Qprof_gen`(pass 1) `-Qprof_use`(pass 2) `-Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32 /F1000000000 shlW64M.lib -link /FORCE:MULTIPLE`

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## Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: basepeak = yes

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: basepeak = yes

465.tonto: /arch:SSE3(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000 -link /FORCE:MULTIPLE

Benchmarks using both Fortran and C:

435.gromacs: /arch:SSE3(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

436.cactusADM: basepeak = yes

454.calculix: /arch:SSE3 -Qipo -O3 -Qprec-div- -Qauto-ilp32 /F1000000000 -link /FORCE:MULTIPLE

481.wrf: basepeak = yes

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic12-winx64-revC.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-revC.xml
http://www.spec.org/cpu2006/flags/Intel-Windows-Platform-Settings.20110719.xml


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For other inquiries, please contact webmaster@spec.org.

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