# SPEC® CFP2006 Result

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## ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

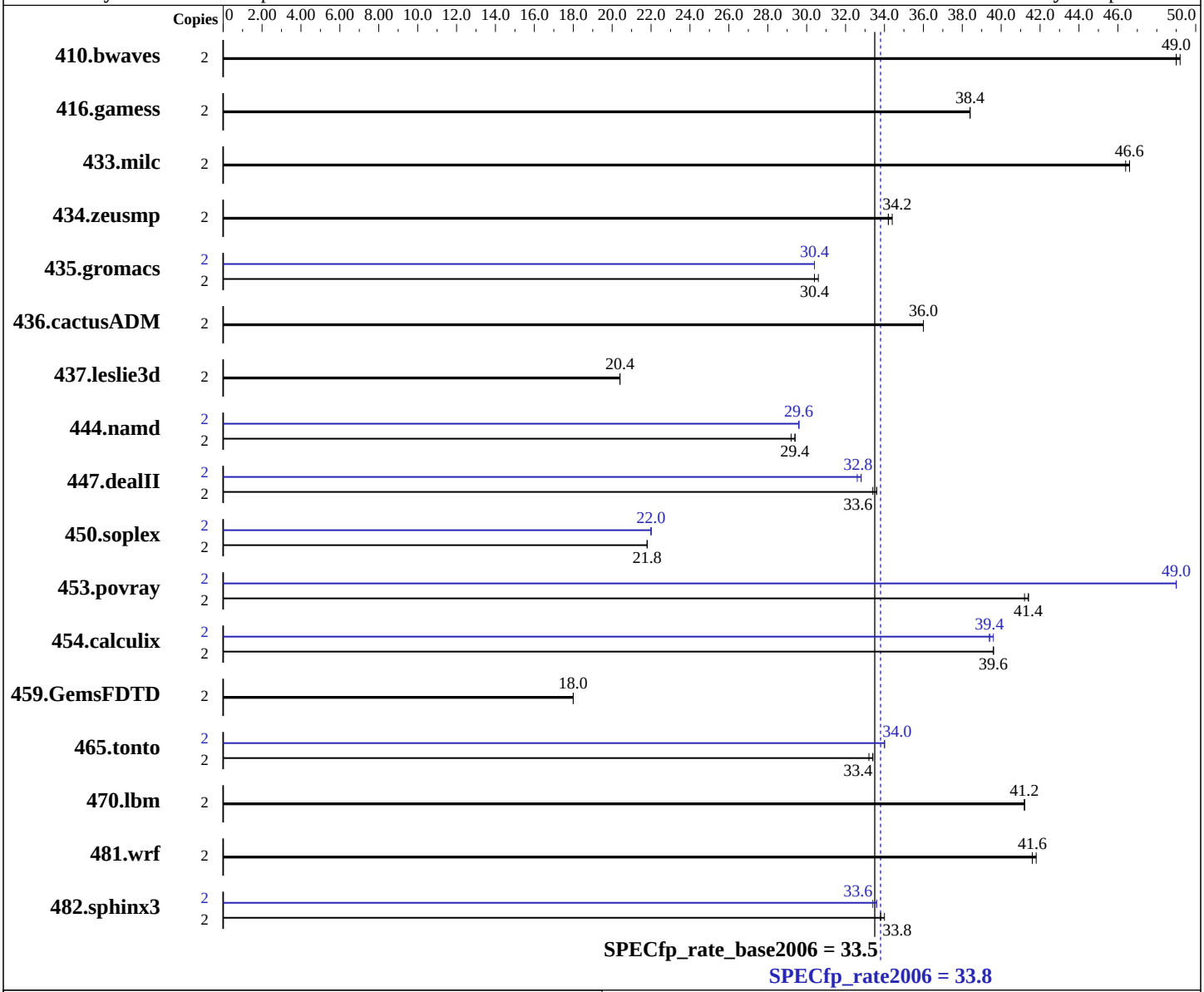
ASUSTek M4A89GTD PRO/USB3 (Athlon II X2 220)

SPECfp®_rate2006 = 33.8

SPECfp_rate_base2006 = 33.5

**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 Athlon II X2 220 |
| CPU Characteristics: | |
| CPU MHz: | 2800 |
| 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 |

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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: None
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 | 2 | 555 | 49.0 | 553 | 49.2 | **554** | **49.0** | 2 | 555 | 49.0 | 553 | 49.2 | **554** | **49.0** |
| 416.gamess | 2 | 1018 | 38.4 | **1019** | **38.4** | 1022 | 38.4 | 2 | 1018 | 38.4 | **1019** | **38.4** | 1022 | 38.4 |
| 433.milc | 2 | 394 | 46.6 | **394** | **46.6** | 396 | 46.4 | 2 | 394 | 46.6 | **394** | **46.6** | 396 | 46.4 |
| 434.zeusmp | 2 | 531 | 34.4 | **531** | **34.2** | 531 | 34.2 | 2 | 531 | 34.4 | **531** | **34.2** | 531 | 34.2 |
| 435.gromacs | 2 | 468 | 30.6 | **469** | **30.4** | 469 | 30.4 | 2 | 470 | 30.4 | **470** | **30.4** | 471 | 30.4 |
| 436.cactusADM | 2 | 662 | 36.0 | **664** | **36.0** | 665 | 36.0 | 2 | 662 | 36.0 | **664** | **36.0** | 665 | 36.0 |
| 437.leslie3d | 2 | **921** | **20.4** | 920 | 20.4 | 922 | 20.4 | 2 | **921** | **20.4** | 920 | 20.4 | 922 | 20.4 |
| 444.namd | 2 | 547 | 29.4 | **547** | **29.4** | 548 | 29.2 | 2 | 541 | 29.6 | **541** | **29.6** | 541 | 29.6 |
| 447.dealII | 2 | 680 | 33.6 | 683 | 33.4 | **682** | **33.6** | 2 | 702 | 32.6 | 697 | 32.8 | **698** | **32.8** |
| 450.soplex | 2 | 766 | 21.8 | 767 | 21.8 | **767** | **21.8** | 2 | 759 | 22.0 | 759 | 22.0 | **759** | **22.0** |
| 453.povray | 2 | 258 | 41.2 | 257 | 41.4 | **257** | **41.4** | 2 | 217 | 49.0 | 217 | 49.0 | **217** | **49.0** |
| 454.calculix | 2 | 416 | 39.6 | 417 | 39.6 | **417** | **39.6** | 2 | 418 | 39.6 | 418 | 39.4 | **418** | **39.4** |
| 459.GemsFDTD | 2 | 1177 | 18.0 | **1180** | **18.0** | 1181 | 18.0 | 2 | 1177 | 18.0 | **1180** | **18.0** | 1181 | 18.0 |
| 465.tonto | 2 | **590** | **33.4** | 591 | 33.2 | 590 | 33.4 | 2 | 577 | 34.0 | 578 | 34.0 | **578** | **34.0** |
| 470.lbm | 2 | 665 | 41.2 | **667** | **41.2** | 667 | 41.2 | 2 | 665 | 41.2 | **667** | **41.2** | 667 | 41.2 |
| 481.wrf | 2 | **536** | **41.6** | 536 | 41.6 | 536 | 41.8 | 2 | **536** | **41.6** | 536 | 41.6 | 536 | 41.8 |
| 482.sphinx3 | 2 | 1148 | 34.0 | 1151 | 33.8 | **1151** | **33.8** | 2 | 1163 | 33.6 | 1164 | 33.4 | **1163** | **33.6** |

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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