# SPEC® CFP2006 Result

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## ASUSTeK Computer Inc.

(Test Sponsor: Intel Corporation)

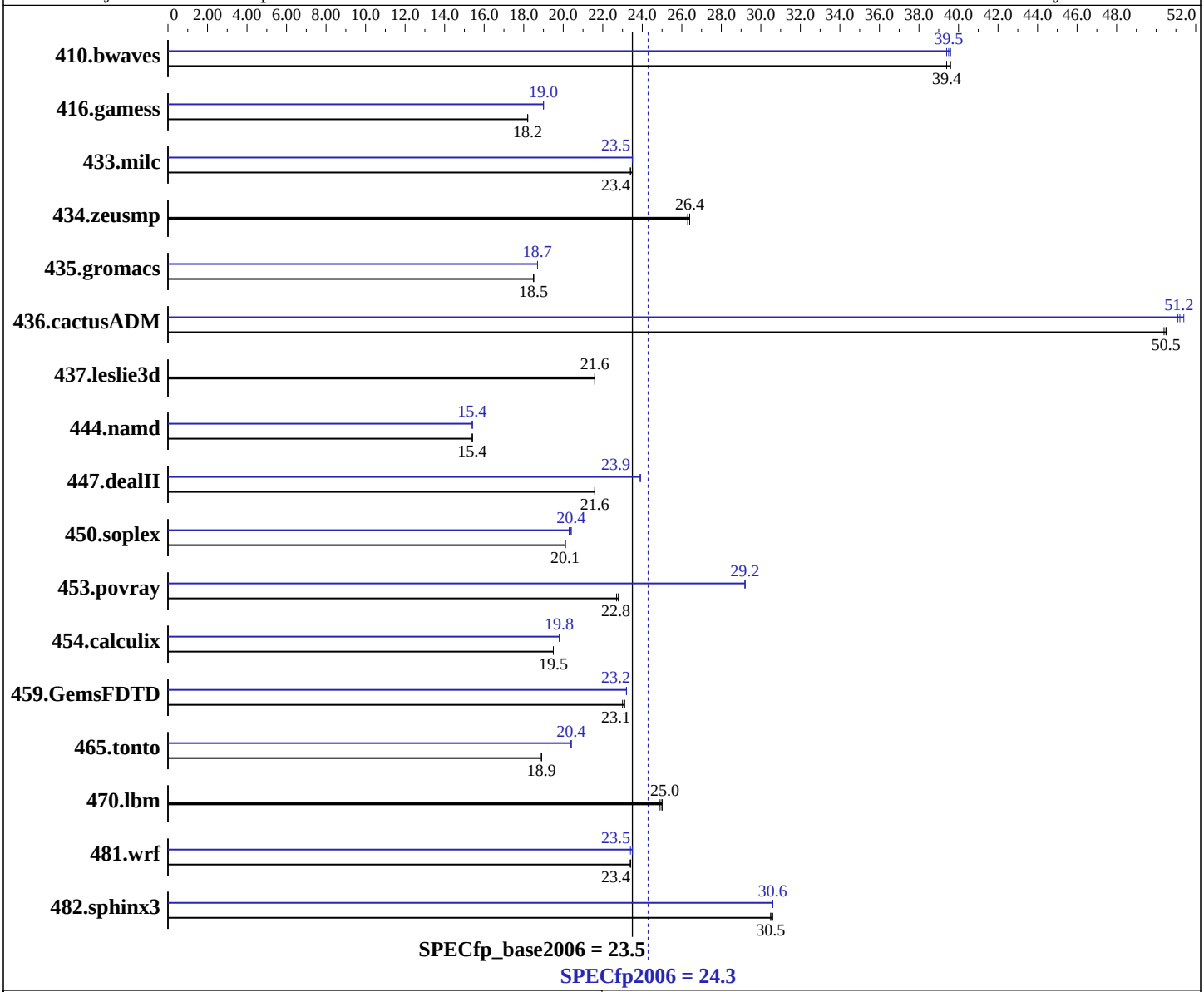
## Asus P5E3 Premium (Intel Core 2 Quad Q9650)

SPECfp®2006 = 24.3

SPECfp_base2006 = 23.5

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

**Test date:** Oct-2008
**Hardware Availability:** Apr-2008
**Software Availability:** Nov-2008




## Hardware

| | |
|---|---|
| CPU Name: | Intel Core 2 Quad Q9650 |
| CPU Characteristics: | |
| CPU MHz: | 3000 |
| FPU: | Integrated |
| CPU(s) enabled: | 4 cores, 1 chip, 4 cores/chip |
| CPU(s) orderable: | 1 chip |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 12 MB I+D on chip per chip, 6 MB shared / 2 cores |

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## Software

| | |
|---|---|
| Operating System: | Windows Vista Ultimate w/ SP1 (64-bit) |
| Compiler: | Intel C++ Compiler Professional 11.0 for IA32<br>Build 20080930 Package ID: w_cproc_p_11.0.054<br>Intel Visual Fortran Compiler Professional 11.0 for IA32<br>Build 20080930 Package ID: w_cprof_p_11.0.054<br>Microsoft Visual Studio 2008 (for libraries) |
| Auto Parallel: | Yes |
| File System: | NTFS |

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L3 Cache: None
Other Cache: None
Memory: 4 GB (4 x 1GB Corsair CM3X1024-1333C9DHX DDR3-1333 CL9)
Disk Subsystem: 80 GB Intel X-25M SATA Solid-State Drive
Other Hardware: None

System State: Default
Base Pointers: 32-bit
Peak Pointers: 32-bit
Other Software: SmartHeap Library Version 8.1 from http://www.microquill.com/

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 345 | 39.4 | **345** | **39.4** | 344 | 39.6 | **344** | **39.5** | 345 | 39.4 | 343 | 39.6 |
| 416.gamess | **1077** | **18.2** | 1077 | 18.2 | 1076 | 18.2 | 1033 | 19.0 | **1033** | **19.0** | 1033 | 19.0 |
| 433.milc | 390 | 23.5 | 392 | 23.4 | **392** | **23.4** | 391 | 23.5 | **391** | **23.5** | 391 | 23.5 |
| 434.zeusmp | 346 | 26.3 | 344 | 26.4 | **344** | **26.4** | 346 | 26.3 | 344 | 26.4 | **344** | **26.4** |
| 435.gromacs | 387 | 18.5 | **387** | **18.5** | 387 | 18.5 | 382 | 18.7 | **382** | **18.7** | 382 | 18.7 |
| 436.cactusADM | 237 | 50.5 | 237 | 50.4 | **237** | **50.5** | 233 | 51.4 | **233** | **51.2** | 234 | 51.1 |
| 437.leslie3d | 435 | 21.6 | 435 | 21.6 | **435** | **21.6** | 435 | 21.6 | 435 | 21.6 | **435** | **21.6** |
| 444.namd | 520 | 15.4 | **520** | **15.4** | 521 | 15.4 | 521 | 15.4 | **521** | **15.4** | 521 | 15.4 |
| 447.dealII | 529 | 21.6 | **529** | **21.6** | 529 | 21.6 | 479 | 23.9 | 479 | 23.9 | **479** | **23.9** |
| 450.soplex | 415 | 20.1 | 415 | 20.1 | **415** | **20.1** | **410** | **20.4** | 410 | 20.3 | 410 | 20.4 |
| 453.povray | 234 | 22.8 | 234 | 22.7 | **234** | **22.8** | 182 | 29.2 | **182** | **29.2** | 182 | 29.2 |
| 454.calculix | 424 | 19.5 | 424 | 19.5 | **424** | **19.5** | 416 | 19.8 | 416 | 19.8 | **416** | **19.8** |
| 459.GemsFDTD | 461 | 23.0 | **460** | **23.1** | 460 | 23.1 | 458 | 23.2 | 458 | 23.2 | **458** | **23.2** |
| 465.tonto | 519 | 18.9 | 520 | 18.9 | **520** | **18.9** | 483 | 20.4 | **483** | **20.4** | 483 | 20.4 |
| 470.lbm | 551 | 25.0 | **551** | **25.0** | 551 | 24.9 | 551 | 25.0 | **551** | **25.0** | 551 | 24.9 |
| 481.wrf | **477** | **23.4** | 477 | 23.4 | 476 | 23.4 | 477 | 23.4 | **476** | **23.5** | 476 | 23.5 |
| 482.sphinx3 | 638 | 30.6 | 638 | 30.5 | **638** | **30.5** | 636 | 30.6 | 637 | 30.6 | **637** | **30.6** |

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
The system bus runs at 1333 MHz
System was configured with nVidia GTX 280 discrete graphics card
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
```

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## Base Compiler Invocation (Continued)

C++ benchmarks:
icl -Qvc9

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc9 -Qc99 ifort

## Base Portability Flags

436.cactusADM: -Qlowercase /assume:underscore
444.namd: -TP
447.dealII: -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
453.povray: -DSPEC_CPU_WINDOWS_ICL
454.calculix: -DSPEC_CPU_NOZMODIFIER -Qlowercase
481.wrf: -DSPEC_CPU_WINDOWS_ICL

## Base Optimization Flags

C benchmarks:
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
/F1000000000

C++ benchmarks:
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
-Qcxx-features /F1000000000 shlw32m.lib
-link /FORCE:MULTIPLE

Fortran benchmarks:
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
/F1000000000

Benchmarks using both Fortran and C:
-QxSSE4.1 -Qipo -O3 -Qprec-div- -Qparallel -Qopt-prefetch
/F1000000000

## Peak Compiler Invocation

C benchmarks:
icl -Qvc9 -Qc99

C++ benchmarks:
icl -Qvc9

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## Peak Compiler Invocation (Continued)

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
icl -Qvc9 -Qc99 ifort

## Peak Portability Flags

436.cactusADM: -Qlowercase /assume:underscore
444.namd: -TP
447.dealII: -DDEAL_II_MEMBER_VAR_SPECIALIZATION_BUG
453.povray: -DSPEC_CPU_WINDOWS_ICL
454.calculix: -DSPEC_CPU_NOZMODIFIER -Qlowercase
481.wrf: -DSPEC_CPU_WINDOWS_ICL

## Peak Optimization Flags

C benchmarks:

433.milc: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Oa /F1000000000

470.lbm: basepeak = yes

482.sphinx3: -QxSSE4.1 -Qipo -O3 -Qprec-div- -Qunroll2 /F1000000000

C++ benchmarks:

444.namd: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Oa /F1000000000 shlw32m.lib
-link /FORCE:MULTIPLE

447.dealII: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch
-Qansi-alias -Qscalar-rep- /F1000000000 shlw32m.lib
-link /FORCE:MULTIPLE

450.soplex: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- /F1000000000 shlw32m.lib
-link /FORCE:MULTIPLE

453.povray: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2)
-Qipo -O3 -Qprec-div- -Qunroll4 -Qansi-alias /F1000000000
shlw32m.lib -link /FORCE:MULTIPLE

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## Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: -QxSSE4.1 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel /F1000000000

416.gamess: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qansi-alias -Qscalar-rep- /F1000000000

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Ob0 -Qopt-prefetch -Qparallel /F1000000000

465.tonto: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll4 -Qauto /F1000000000

Benchmarks using both Fortran and C:

435.gromacs: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qopt-prefetch /F1000000000

436.cactusADM: -QxSSE4.1(pass 2) -Qprof_gen(pass 1) -Qprof_use(pass 2) -Qipo -O3 -Qprec-div- -Qunroll2 -Qopt-prefetch -Qparallel /F1000000000

454.calculix: -QxSSE4.1 -Qipo -O3 -Qprec-div- /F1000000000

481.wrf: -QxSSE4.1 -Qipo -O3 -Qprec-div- -Qopt-prefetch -Qparallel /F1000000000

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.0-win32-revA.20090713.html
http://www.spec.org/cpu2006/flags/Intel-Win32-Platform.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic11.0-win32-revA.20090713.xml
http://www.spec.org/cpu2006/flags/Intel-Win32-Platform.xml

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Tested with SPEC CPU2006 v1.1.
Report generated on Tue Jul 22 20:13:56 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 11 November 2008.