



# SPEC® CFP2006 Result

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ASUSTeK Computer Inc.  
(Test Sponsor: Intel Corporation)

SPECfp®2006 = 24.3

Asus P5E3 Premium (Intel Core 2 Quad Q9650)

SPECfp\_base2006 = 23.5

CPU2006 license: 13

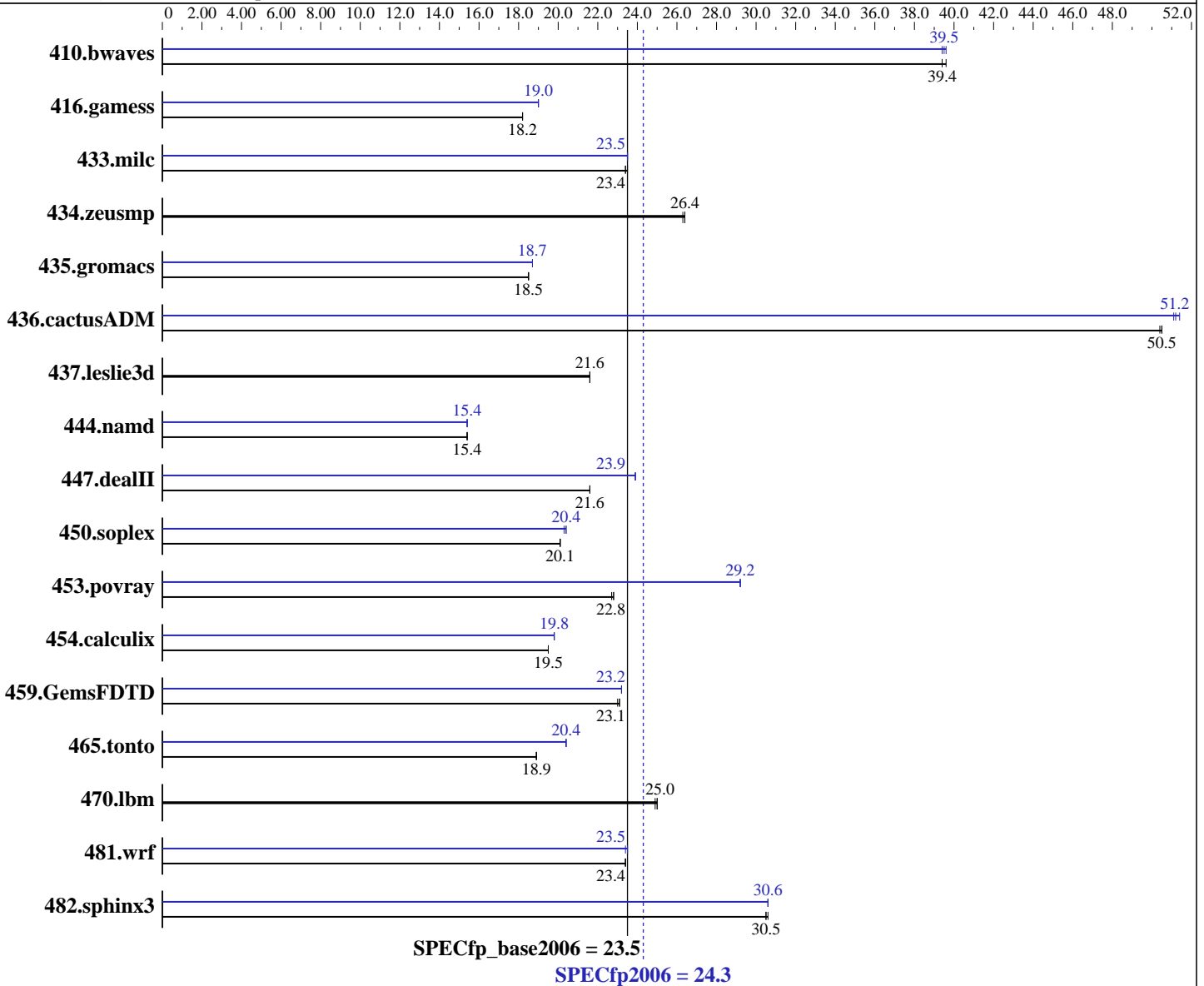
Test date: Oct-2008

Test sponsor: Intel Corporation

Hardware Availability: Apr-2008

Tested by: Intel Corporation

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  
 Build 20080930 Package ID: w\_cproc\_p\_11.0.054  
 Intel Visual Fortran Compiler Professional 11.0 for IA32  
 Build 20080930 Package ID: w\_cprof\_p\_11.0.054  
 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        | <b>345</b> | <b>39.4</b> | 344        | 39.6        | <b>344</b> | <b>39.5</b> | 345         | 39.4        | 343        | 39.6        |
| 416.gamess    | <b>1077</b> | <b>18.2</b> | 1077       | 18.2        | 1076       | 18.2        | 1033       | 19.0        | <b>1033</b> | <b>19.0</b> | 1033       | 19.0        |
| 433.milc      | 390         | 23.5        | 392        | 23.4        | <b>392</b> | <b>23.4</b> | 391        | 23.5        | <b>391</b>  | <b>23.5</b> | 391        | 23.5        |
| 434.zeusmp    | 346         | 26.3        | 344        | 26.4        | <b>344</b> | <b>26.4</b> | 346        | 26.3        | 344         | 26.4        | <b>344</b> | <b>26.4</b> |
| 435.gromacs   | 387         | 18.5        | <b>387</b> | <b>18.5</b> | 387        | 18.5        | 382        | 18.7        | <b>382</b>  | <b>18.7</b> | 382        | 18.7        |
| 436.cactusADM | 237         | 50.5        | 237        | 50.4        | <b>237</b> | <b>50.5</b> | 233        | 51.4        | <b>233</b>  | <b>51.2</b> | 234        | 51.1        |
| 437.leslie3d  | 435         | 21.6        | 435        | 21.6        | <b>435</b> | <b>21.6</b> | 435        | 21.6        | 435         | 21.6        | <b>435</b> | <b>21.6</b> |
| 444.namd      | 520         | 15.4        | <b>520</b> | <b>15.4</b> | 521        | 15.4        | 521        | 15.4        | <b>521</b>  | <b>15.4</b> | 521        | 15.4        |
| 447.dealII    | 529         | 21.6        | <b>529</b> | <b>21.6</b> | 529        | 21.6        | 479        | 23.9        | 479         | 23.9        | <b>479</b> | <b>23.9</b> |
| 450.soplex    | 415         | 20.1        | 415        | 20.1        | <b>415</b> | <b>20.1</b> | <b>410</b> | <b>20.4</b> | 410         | 20.3        | 410        | 20.4        |
| 453.povray    | 234         | 22.8        | 234        | 22.7        | <b>234</b> | <b>22.8</b> | 182        | 29.2        | <b>182</b>  | <b>29.2</b> | 182        | 29.2        |
| 454.calculix  | 424         | 19.5        | 424        | 19.5        | <b>424</b> | <b>19.5</b> | 416        | 19.8        | 416         | 19.8        | <b>416</b> | <b>19.8</b> |
| 459.GemsFDTD  | 461         | 23.0        | <b>460</b> | <b>23.1</b> | 460        | 23.1        | 458        | 23.2        | 458         | 23.2        | <b>458</b> | <b>23.2</b> |
| 465.tonto     | 519         | 18.9        | 520        | 18.9        | <b>520</b> | <b>18.9</b> | 483        | 20.4        | <b>483</b>  | <b>20.4</b> | 483        | 20.4        |
| 470.lbm       | 551         | 25.0        | <b>551</b> | <b>25.0</b> | 551        | 24.9        | 551        | 25.0        | <b>551</b>  | <b>25.0</b> | 551        | 24.9        |
| 481.wrf       | <b>477</b>  | <b>23.4</b> | 477        | 23.4        | 476        | 23.4        | 477        | 23.4        | <b>476</b>  | <b>23.5</b> | 476        | 23.5        |
| 482.sphinx3   | 638         | 30.6        | 638        | 30.5        | <b>638</b> | <b>30.5</b> | 636        | 30.6        | 637         | 30.6        | <b>637</b> | <b>30.6</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  
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>

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