



SPEC® CFP2006 Result

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ASUSTeK Computer Inc.

SPECfp®2006 = 40.1

ASUS TS100-E6 (P7F-X) server system (Intel Xeon X3470)

SPECfp_base2006 = 38.1

CPU2006 license: 9016

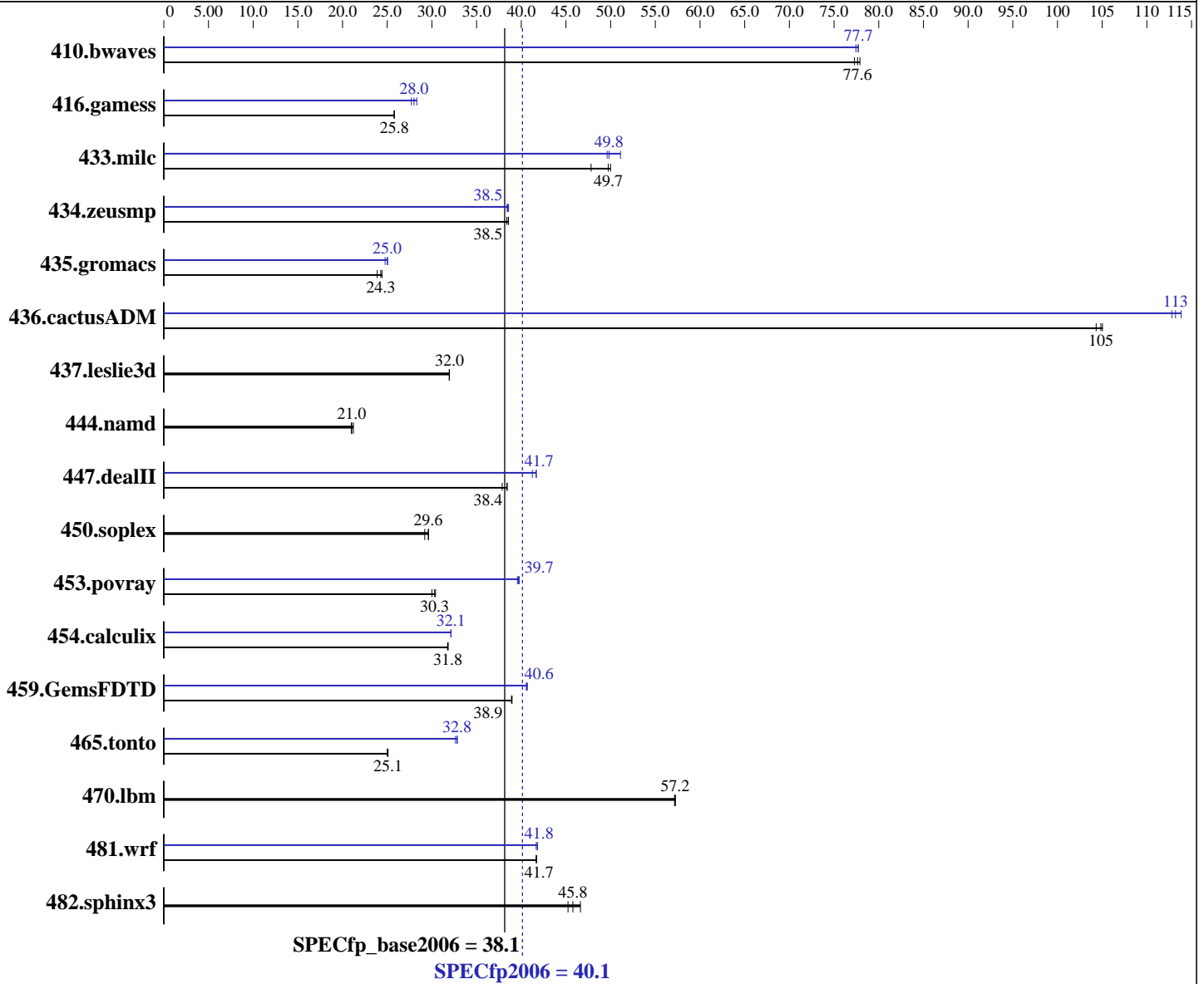
Test sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test date: Dec-2009

Hardware Availability: Oct-2009

Software Availability: Jul-2009



Hardware

CPU Name: Intel Xeon X3470
 CPU Characteristics: Intel Turbo Boost Technology up to 3.6 GHz
 CPU MHz: 2933
 FPU: Integrated
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip, 2 threads/core
 CPU(s) orderable: 1 chip
 Primary Cache: 32 KB I + 32 KB D on chip per core
 Secondary Cache: 256 KB I+D on chip per core

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Software

Operating System: SUSE Linux Enterprise Server 11 (x86_64), Kernel 2.6.27.19-5-default
 Compiler: Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1
 Build 20090511 Package ID: L_cproc_p_11.1.040, L_cprof_p_11.1.040
 Auto Parallel: Yes
 File System: ReiserFS
 System State: Run level 3 (multi-user)

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4 GB PC3-10600R, CL=9)
Disk Subsystem: 1 x 250 GB SATAII, 7200RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: Binutils 2.18.50.0.7.20080502

Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|-------------|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 176 | 77.3 | 174 | 77.9 | 175 | 77.6 | 175 | 77.5 | 175 | 77.7 | 175 | 77.7 |
| 416.gamess | 759 | 25.8 | 759 | 25.8 | 760 | 25.8 | 699 | 28.0 | 692 | 28.3 | 707 | 27.7 |
| 433.milc | 184 | 50.0 | 192 | 47.8 | 185 | 49.7 | 185 | 49.6 | 184 | 49.8 | 180 | 51.1 |
| 434.zeusmp | 237 | 38.4 | 236 | 38.6 | 236 | 38.5 | 236 | 38.6 | 237 | 38.4 | 237 | 38.5 |
| 435.gromacs | 292 | 24.4 | 299 | 23.9 | 294 | 24.3 | 285 | 25.0 | 288 | 24.8 | 286 | 25.0 |
| 436.cactusADM | 114 | 105 | 114 | 105 | 115 | 104 | 106 | 113 | 106 | 113 | 105 | 114 |
| 437.leslie3d | 294 | 32.0 | 294 | 31.9 | 294 | 32.0 | 294 | 32.0 | 294 | 31.9 | 294 | 32.0 |
| 444.namd | 378 | 21.2 | 381 | 21.0 | 382 | 21.0 | 378 | 21.2 | 381 | 21.0 | 382 | 21.0 |
| 447.dealII | 298 | 38.4 | 298 | 38.4 | 302 | 37.9 | 275 | 41.7 | 274 | 41.7 | 277 | 41.2 |
| 450.soplex | 282 | 29.6 | 282 | 29.6 | 286 | 29.2 | 282 | 29.6 | 282 | 29.6 | 286 | 29.2 |
| 453.povray | 177 | 30.0 | 176 | 30.3 | 175 | 30.4 | 134 | 39.8 | 134 | 39.6 | 134 | 39.7 |
| 454.calculix | 259 | 31.8 | 260 | 31.8 | 259 | 31.8 | 257 | 32.1 | 257 | 32.1 | 257 | 32.1 |
| 459.GemsFDTD | 273 | 38.9 | 273 | 38.9 | 272 | 39.0 | 262 | 40.6 | 261 | 40.7 | 261 | 40.6 |
| 465.tonto | 394 | 25.0 | 392 | 25.1 | 392 | 25.1 | 300 | 32.8 | 301 | 32.6 | 300 | 32.8 |
| 470.lbm | 240 | 57.2 | 240 | 57.2 | 240 | 57.1 | 240 | 57.2 | 240 | 57.2 | 240 | 57.1 |
| 481.wrf | 268 | 41.7 | 268 | 41.7 | 268 | 41.7 | 267 | 41.8 | 267 | 41.8 | 268 | 41.7 |
| 482.sphinx3 | 418 | 46.6 | 426 | 45.8 | 431 | 45.2 | 418 | 46.6 | 426 | 45.8 | 431 | 45.2 |

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.
numactl was used to bind threads to the cores

Operating System Notes

OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M



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Component Notes

Tested system case compliance with ATX spec
300W PS2 80 Plus Power Supply
System was configured with XGI Volari Z9s VGA (on board VGA)

Base Compiler Invocation

C benchmarks:

icc -m64

C++ benchmarks:

icpc -m64

Fortran benchmarks:

ifort -m64

Benchmarks using both Fortran and C:

icc -m64 ifort -m64

Base Portability Flags

410.bwaves: -DSPEC_CPU_LP64
416.gamess: -DSPEC_CPU_LP64
433.milc: -DSPEC_CPU_LP64
434.zeusmp: -DSPEC_CPU_LP64
435.gromacs: -DSPEC_CPU_LP64 -nofor_main
436.cactusADM: -DSPEC_CPU_LP64 -nofor_main
437.leslie3d: -DSPEC_CPU_LP64
444.namd: -DSPEC_CPU_LP64
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

C++ benchmarks:

-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch

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Base Optimization Flags (Continued)

Fortran benchmarks:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel`

Benchmarks using both Fortran and C:

`-xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch -parallel`

Peak Compiler Invocation

C benchmarks:

`icc -m64`

C++ benchmarks:

`icpc -m64`

Fortran benchmarks:

`ifort -m64`

Benchmarks using both Fortran and C:

`icc -m64 ifort -m64`

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

433.milc: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-fno-alias`

470.lbm: `basepeak = yes`

482.sphinx3: `basepeak = yes`

C++ benchmarks:

444.namd: `basepeak = yes`

447.dealII: `-xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -ansi-alias -scalar-rep- -opt-prefetch`

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Peak Optimization Flags (Continued)

450.soplex: basepeak = yes

453.povray: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel

416.gamess: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -ansi-alias -scalar-rep-

434.zeusmp: Same as 410.bwaves

437.leslie3d: basepeak = yes

459.GemsFDTD: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -Ob0 -opt-prefetch -parallel

465.tonto: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll4 -auto

Benchmarks using both Fortran and C:

435.gromacs: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2)
-no-prec-div(pass 2) -static(pass 2) -prof-use(pass 2)
-unroll2 -opt-prefetch -parallel -auto-ilp32

454.calculix: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32

481.wrf: -xSSE4.2 -ipo -O3 -no-prec-div -static -opt-prefetch
-parallel -auto-ilp32

The flags file that was used to format this result can be browsed at

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revF.html>

You can also download the XML flags source by saving the following link:

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-fp-linux64-revF.xml>



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