



# SPEC® CFP2006 Result

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## ASUSTeK Computer Inc.

ASUS RS100-E6 (P7F-M) server system (Intel Xeon X3470)

SPECfp®2006 = 40.1

SPECfp\_base2006 = 38.1

CPU2006 license: 9016

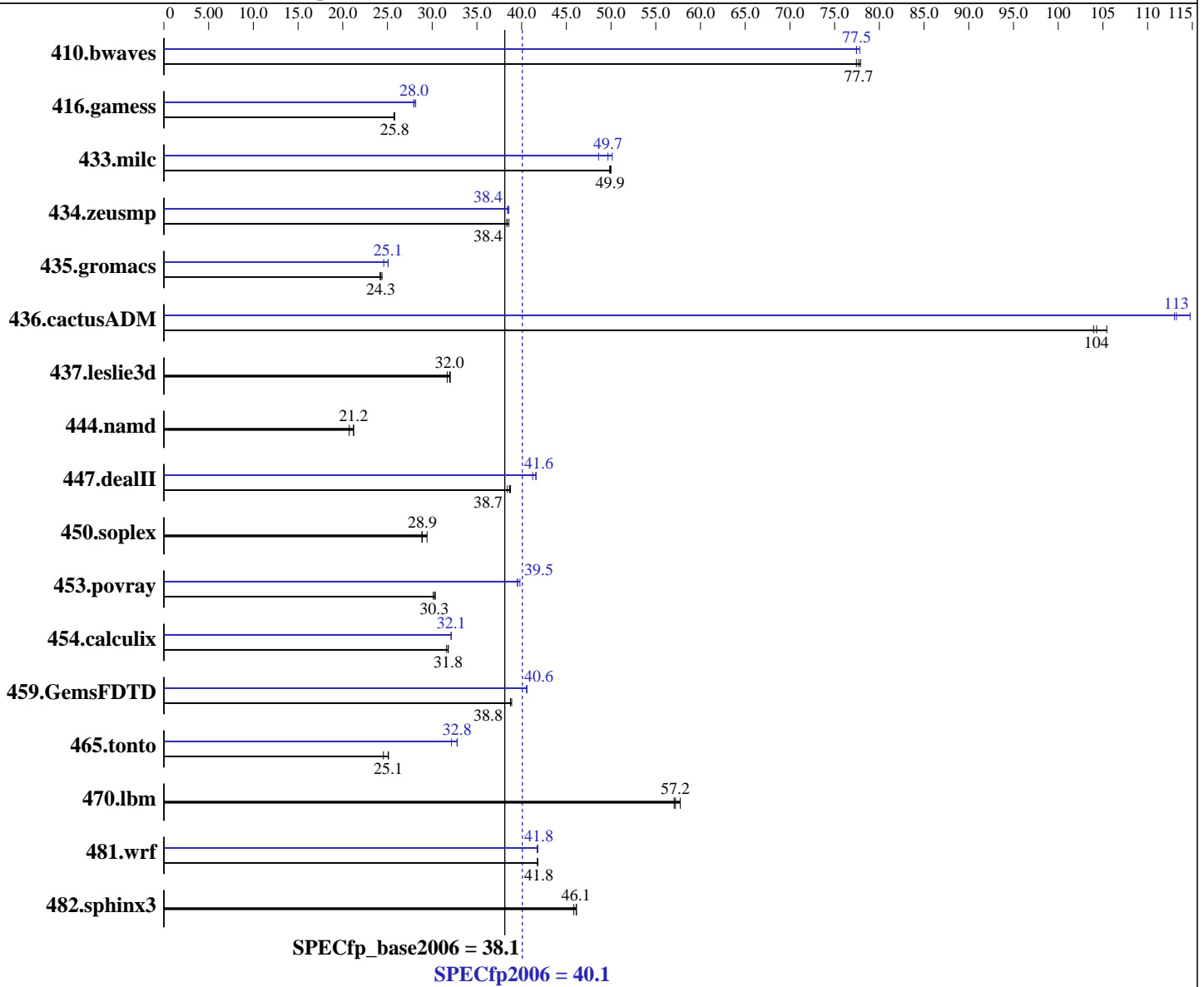
Test sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test date: Nov-2009

Hardware Availability: Sep-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	175	77.4	174	77.9	<b><u>175</u></b>	<b><u>77.7</u></b>	175	77.4	175	77.8	<b><u>175</u></b>	<b><u>77.5</u></b>
416.gamess	<b><u>759</u></b>	<b><u>25.8</u></b>	761	25.7	759	25.8	695	28.2	<b><u>700</u></b>	<b><u>28.0</u></b>	701	27.9
433.milc	184	49.8	<b><u>184</u></b>	<b><u>49.9</u></b>	184	50.0	183	50.1	<b><u>185</u></b>	<b><u>49.7</u></b>	189	48.6
434.zeusmp	<b><u>237</u></b>	<b><u>38.4</u></b>	236	38.6	237	38.3	237	38.4	236	38.6	<b><u>237</u></b>	<b><u>38.4</u></b>
435.gromacs	<b><u>294</u></b>	<b><u>24.3</u></b>	293	24.4	295	24.2	285	25.1	290	24.6	<b><u>285</u></b>	<b><u>25.1</u></b>
436.cactusADM	<b><u>115</u></b>	<b><u>104</u></b>	113	105	115	104	104	115	106	113	<b><u>106</u></b>	<b><u>113</u></b>
437.leslie3d	297	31.7	<b><u>294</u></b>	<b><u>32.0</u></b>	294	32.0	297	31.7	<b><u>294</u></b>	<b><u>32.0</u></b>	294	32.0
444.namd	378	21.2	387	20.7	<b><u>378</u></b>	<b><u>21.2</u></b>	378	21.2	387	20.7	<b><u>378</u></b>	<b><u>21.2</u></b>
447.dealII	298	38.4	<b><u>296</u></b>	<b><u>38.7</u></b>	295	38.8	<b><u>275</u></b>	<b><u>41.6</u></b>	275	41.6	277	41.2
450.soplex	289	28.8	283	29.4	<b><u>289</u></b>	<b><u>28.9</u></b>	289	28.8	283	29.4	<b><u>289</u></b>	<b><u>28.9</u></b>
453.povray	175	30.4	177	30.1	<b><u>176</u></b>	<b><u>30.3</u></b>	135	39.5	<b><u>135</u></b>	<b><u>39.5</u></b>	134	39.8
454.calculix	261	31.6	<b><u>260</u></b>	<b><u>31.8</u></b>	259	31.8	257	32.1	257	32.1	<b><u>257</u></b>	<b><u>32.1</u></b>
459.GemsFDTD	274	38.7	273	38.9	<b><u>274</u></b>	<b><u>38.8</u></b>	262	40.6	<b><u>261</u></b>	<b><u>40.6</u></b>	261	40.6
465.tonto	<b><u>392</u></b>	<b><u>25.1</u></b>	392	25.1	401	24.5	300	32.8	306	32.1	<b><u>300</u></b>	<b><u>32.8</u></b>
470.lbm	238	57.7	<b><u>240</u></b>	<b><u>57.2</u></b>	241	57.1	238	57.7	<b><u>240</u></b>	<b><u>57.2</u></b>	241	57.1
481.wrf	<b><u>267</u></b>	<b><u>41.8</u></b>	267	41.8	267	41.8	268	41.7	<b><u>267</u></b>	<b><u>41.8</u></b>	267	41.8
482.sphinx3	422	46.1	<b><u>423</u></b>	<b><u>46.1</u></b>	425	45.8	422	46.1	<b><u>423</u></b>	<b><u>46.1</u></b>	425	45.8

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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**CPU2006 license:** 9016

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## Component Notes

Tested system case compliance with Intel ATX or SSI spec  
390W or higher ATX Power Supply, 350W or higher SSI Server Power Supply  
System was configured with ASPEED AST2050 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-linux64-revD.20091222.html>

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

<http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revD.20091222.xml>



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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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