# SPEC® CFP2006 Result

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## Acer Incorporated

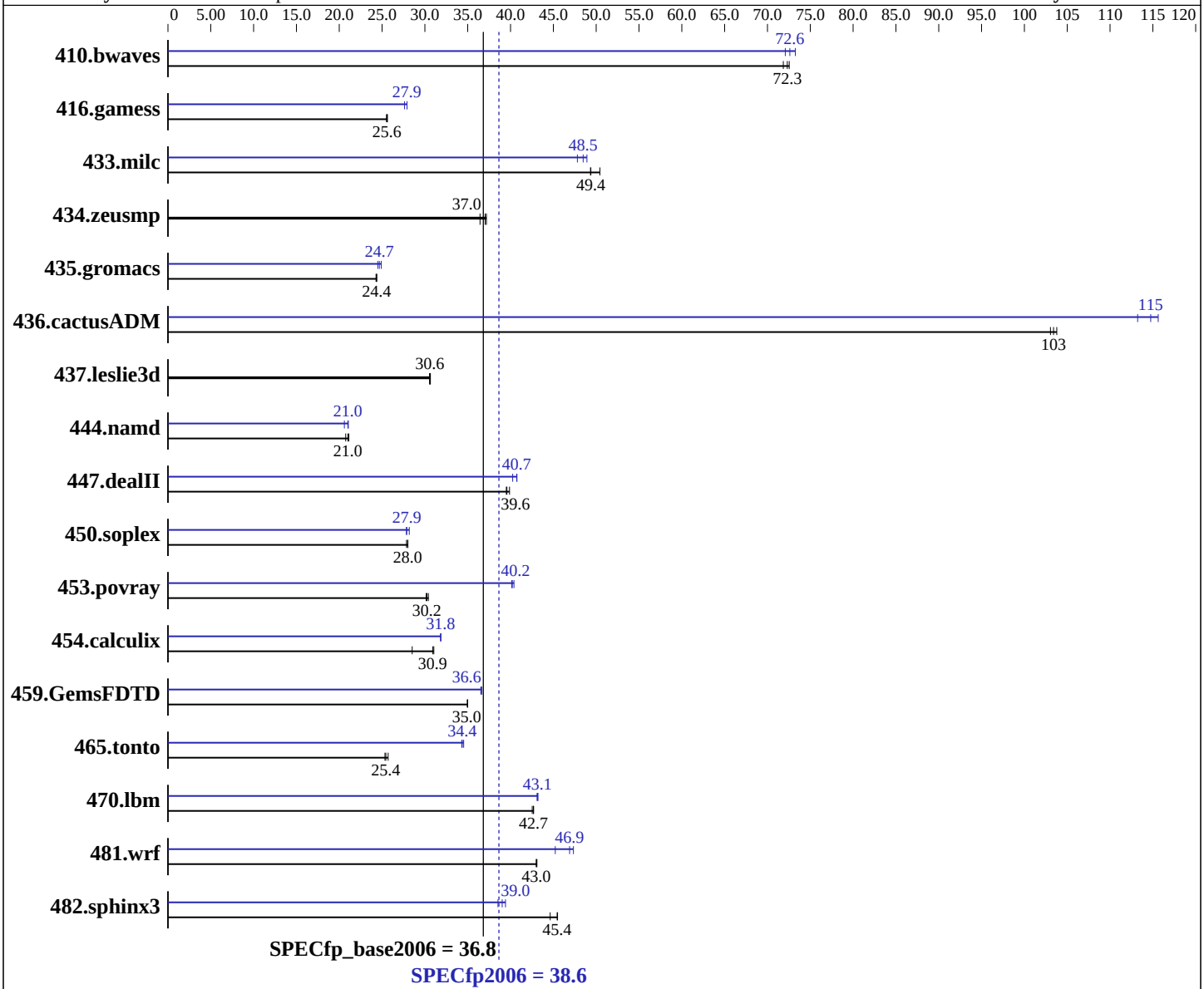
## Gateway GR320 F1 (Intel Xeon X3470)

SPECfp®2006 = 38.6

SPECfp_base2006 = 36.8

**CPU2006 license:** 97
**Test sponsor:** Acer Incorporated
**Tested by:** Acer Incorporated

**Test date:** Mar-2010
**Hardware Availability:** Mar-2010
**Software Availability:** Jan-2010




### 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 Sserver 11 (x86_64) Kernel 2.6.27.19-5 |
| Compiler: | Intel C++ and Fortran Professional Compiler for IA32 and Intel 64, Version 11.1 Build 20091130 Package ID: l_cproc_p_11.1.064, l_cprof_p_11.1.064 |
| Auto Parallel: | Yes |
| File System: | ReiserFS |
| System State: | Multi-user, level 3 |

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L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4096 MB ECC Unbuffered DDR3-1333)
Disk Subsystem: 1 x 1000 GB 7200RPM SATA HDD
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 | 189 | 71.8 | **188** | **72.3** | 187 | 72.5 | 186 | 73.3 | 189 | 72.1 | **187** | **72.6** |
| 416.gamess | 764 | 25.6 | **766** | **25.6** | 767 | 25.5 | 702 | 27.9 | 709 | 27.6 | **702** | **27.9** |
| 433.milc | 182 | 50.4 | **186** | **49.4** | 186 | 49.3 | **189** | **48.5** | 188 | 48.9 | 192 | 47.8 |
| 434.zeusmp | 245 | 37.2 | **246** | **37.0** | 250 | 36.4 | 245 | 37.2 | **246** | **37.0** | 250 | 36.4 |
| 435.gromacs | 294 | 24.3 | **293** | **24.4** | 293 | 24.4 | 291 | 24.5 | **289** | **24.7** | 287 | 24.9 |
| 436.cactusADM | 115 | 104 | **116** | **103** | 116 | 103 | **104** | **115** | 106 | 113 | 103 | 116 |
| 437.leslie3d | 308 | 30.5 | **307** | **30.6** | 307 | 30.6 | 308 | 30.5 | **307** | **30.6** | 307 | 30.6 |
| 444.namd | 380 | 21.1 | 386 | 20.8 | **382** | **21.0** | 381 | 21.1 | **382** | **21.0** | 389 | 20.6 |
| 447.dealII | 287 | 39.9 | **289** | **39.6** | 290 | 39.5 | 284 | 40.3 | 281 | 40.8 | **281** | **40.7** |
| 450.soplex | 298 | 28.0 | 299 | 27.8 | **298** | **28.0** | 296 | 28.2 | **299** | **27.9** | 300 | 27.8 |
| 453.povray | 175 | 30.4 | **176** | **30.2** | 176 | 30.1 | 133 | 40.1 | 132 | 40.4 | **132** | **40.2** |
| 454.calculix | **267** | **30.9** | 266 | 31.0 | 289 | 28.5 | **259** | **31.8** | 259 | 31.9 | 259 | 31.8 |
| 459.GemsFDTD | **303** | **35.0** | 303 | 35.0 | 303 | 35.0 | **290** | **36.6** | 290 | 36.6 | 290 | 36.5 |
| 465.tonto | **387** | **25.4** | 383 | 25.7 | 388 | 25.3 | 287 | 34.3 | 285 | 34.5 | **286** | **34.4** |
| 470.lbm | 322 | 42.7 | **322** | **42.7** | 323 | 42.5 | **318** | **43.1** | 318 | 43.2 | 319 | 43.1 |
| 481.wrf | 260 | 43.0 | 259 | 43.1 | **260** | **43.0** | 247 | 45.2 | **238** | **46.9** | 236 | 47.3 |
| 482.sphinx3 | **429** | **45.4** | 428 | 45.5 | 437 | 44.6 | 495 | 39.4 | **499** | **39.0** | 506 | 38.5 |

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Operating System Notes

```
'ulimit -s unlimited' was set for stacksize unlimited
```

## General Notes

```
OMP_NUM_THREADS set to number of cores
KMP_AFFINITY set to granularity=fine,scatter
KMP_STACKSIZE set to 200M
This result was measured on the Gateway GT310 F1.
These 4 systems are electronically equivalent:
Acer AR320 F1, Acer AT310 F1, Gateway GR320 F1, and Gateway GT310 F1.
```

## 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 -parallel -opt-prefetch

C++ benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Fortran benchmarks:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xSSE4.2 -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

## 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) -ansi-alias

470.lbm: -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) -parallel -ansi-alias -auto-ilp32

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -static -auto-ilp32 -unroll2

C++ benchmarks:

444.namd: -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 -auto-ilp32

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- -auto-ilp32

450.soplex: -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-malloc-options=3 -auto-ilp32

Continued on next page

# Peak Optimization Flags (Continued)

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: basepeak = yes

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) -inline-calloc -opt-malloc-options=3 -auto -unroll4

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: Same as 454.calculix

The flags file that was used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.html

You can also download the XML flags source by saving the following link:
http://www.spec.org/cpu2006/flags/Intel-ic11.1-linux64-revE.20100316.xml

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For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.1.
Report generated on Wed Jul 23 05:03:59 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 30 March 2010.