# SPEC® CFP2006 Result

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## Supermicro

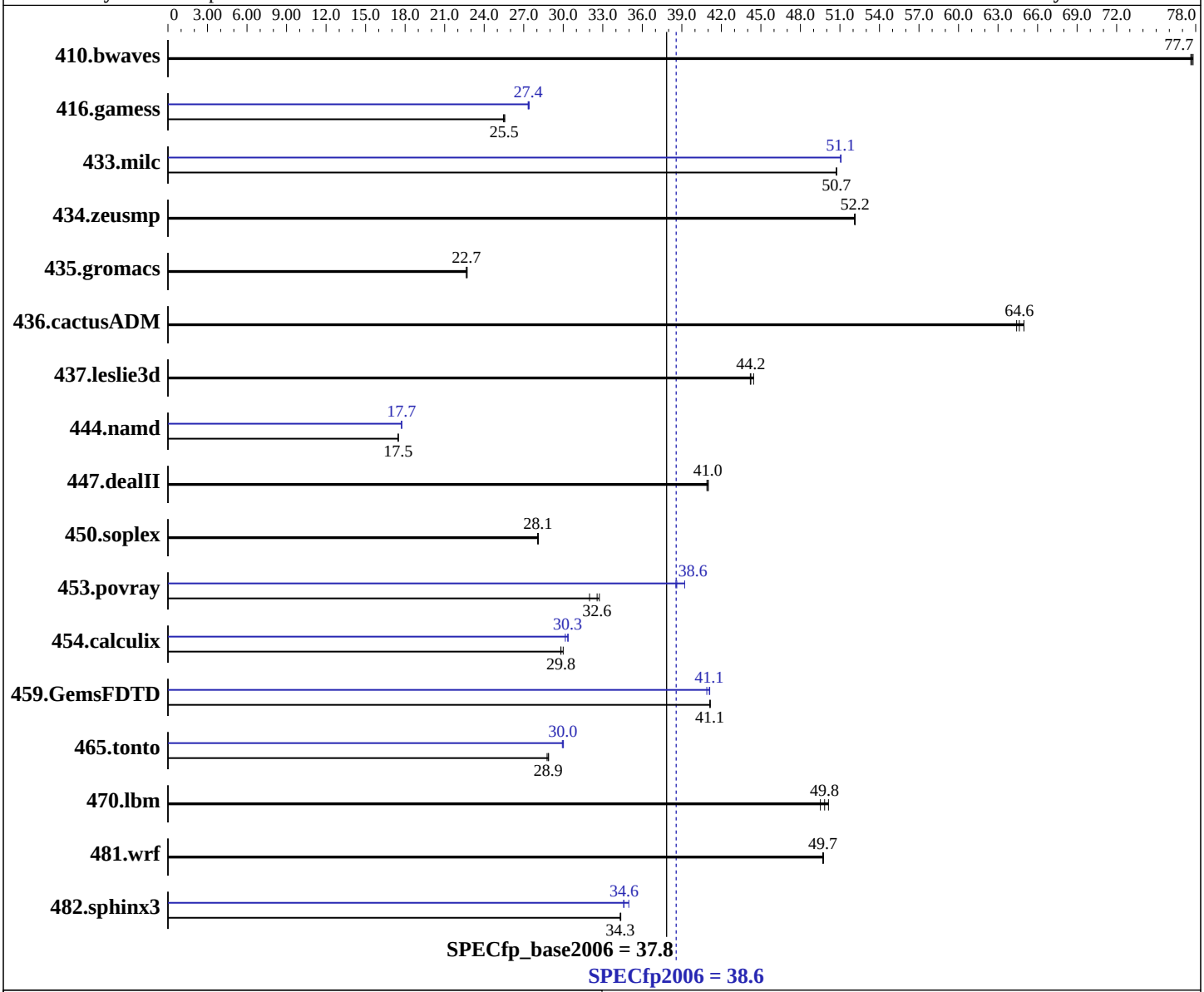
SuperServer 1017C-TF (X9SCL-F, Intel G620)

SPECfp®2006 = 38.6

SPECfp_base2006 = 37.8

**CPU2006 license:** 001176
**Test sponsor:** Supermicro
**Tested by:** Supermicro

**Test date:** Apr-2012
**Hardware Availability:** Apr-2011
**Software Availability:** Oct-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Pentium G620 |
| CPU Characteristics: | |
| CPU MHz: | 2600 |
| FPU: | Integrated |
| CPU(s) enabled: | 2 cores, 1 chip, 2 cores/chip |
| 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: | Red Hat Enterprise Linux Server Release 6.1, Kernel 2.6.32-131.0.15.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux; Fortran: Version 12.1.0.225 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |

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L3 Cache: 3 MB I+D on chip per chip
Other Cache: None
Memory: 8 GB (2 x 4 GB 2Rx8 PC3-10600E-9, ECC, running at 1066 MHz and CL7)
Disk Subsystem: 1 x 500 GB SATA II, 7200 RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

## Results Table

| Benchmark | Base | | | | | | Peak | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 175 | 77.8 | **175** | **77.7** | 175 | 77.6 | 175 | 77.8 | **175** | **77.7** | 175 | 77.6 |
| 416.gamess | 766 | 25.6 | 769 | 25.5 | **767** | **25.5** | 716 | 27.3 | 714 | 27.4 | **716** | **27.4** |
| 433.milc | **181** | **50.7** | 181 | 50.7 | 181 | 50.7 | 180 | 51.0 | **180** | **51.1** | 180 | 51.1 |
| 434.zeusmp | **174** | **52.2** | 174 | 52.2 | 175 | 52.1 | **174** | **52.2** | 174 | 52.2 | 175 | 52.1 |
| 435.gromacs | 314 | 22.7 | **315** | **22.7** | 315 | 22.7 | 314 | 22.7 | **315** | **22.7** | 315 | 22.7 |
| 436.cactusADM | **185** | **64.6** | 184 | 65.0 | 186 | 64.4 | **185** | **64.6** | 184 | 65.0 | 186 | 64.4 |
| 437.leslie3d | 211 | 44.4 | 213 | 44.2 | **212** | **44.2** | 211 | 44.4 | 213 | 44.2 | **212** | **44.2** |
| 444.namd | 459 | 17.5 | **459** | **17.5** | 459 | 17.5 | 452 | 17.7 | **452** | **17.7** | 452 | 17.7 |
| 447.dealII | 280 | 40.9 | 279 | 41.0 | **279** | **41.0** | 280 | 40.9 | 279 | 41.0 | **279** | **41.0** |
| 450.soplex | 297 | 28.1 | 297 | 28.1 | **297** | **28.1** | 297 | 28.1 | 297 | 28.1 | **297** | **28.1** |
| 453.povray | 162 | 32.7 | 166 | 32.0 | **163** | **32.6** | 138 | 38.6 | 136 | 39.2 | **138** | **38.6** |
| 454.calculix | 275 | 30.0 | **277** | **29.8** | 277 | 29.8 | 274 | 30.2 | 272 | 30.4 | **272** | **30.3** |
| 459.GemsFDTD | 258 | 41.2 | **258** | **41.1** | 258 | 41.1 | 258 | 41.1 | 259 | 40.9 | **258** | **41.1** |
| 465.tonto | 341 | 28.9 | **341** | **28.9** | 342 | 28.8 | 328 | 30.0 | **328** | **30.0** | 329 | 29.9 |
| 470.lbm | 277 | 49.5 | 274 | 50.1 | **276** | **49.8** | 277 | 49.5 | 274 | 50.1 | **276** | **49.8** |
| 481.wrf | 225 | 49.7 | 225 | 49.8 | **225** | **49.7** | 225 | 49.7 | 225 | 49.8 | **225** | **49.7** |
| 482.sphinx3 | 567 | 34.4 | 568 | 34.3 | **568** | **34.3** | **563** | **34.6** | 564 | 34.6 | 557 | 35.0 |

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

## Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2006/libs/32:/home/cpu2006/libs/64"
OMP_NUM_THREADS = "2"

 Binaries compiled on a system with 1x Core i7-860 CPU + 8GB
 memory using RHEL5.5
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/redhat_transparent_hugepage/enabled
```

## 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 -ansi-alias

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

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 -ansi-alias

## 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) -prof-use(pass 2) -static -auto-ilp32 -ansi-alias

470.lbm: basepeak = yes

482.sphinx3: -xSSE4.2 -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

C++ benchmarks:

444.namd: -xSSE4.2(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

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) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

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## Peak Optimization Flags (Continued)

416.gamess: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-unroll2` `-inline-level=0 -scalar-rep- -static`

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) `-prof-use`(pass 2) `-unroll2` `-inline-level=0 -opt-prefetch -parallel`

465.tonto: `-xSSE4.2`(pass 2) `-prof-gen`(pass 1) `-ipo`(pass 2) `-O3`(pass 2) `-no-prec-div`(pass 2) `-prof-use`(pass 2) `-inline-calloc` `-opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

435.gromacs: `basepeak = yes`

436.cactusADM: `basepeak = yes`

454.calculix: `-xSSE4.2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

481.wrf: `basepeak = yes`

The flags file that was used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.html`

You can also download the XML flags source by saving the following link:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20111122.xml`


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