# SPEC® CFP2006 Result

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## Supermicro

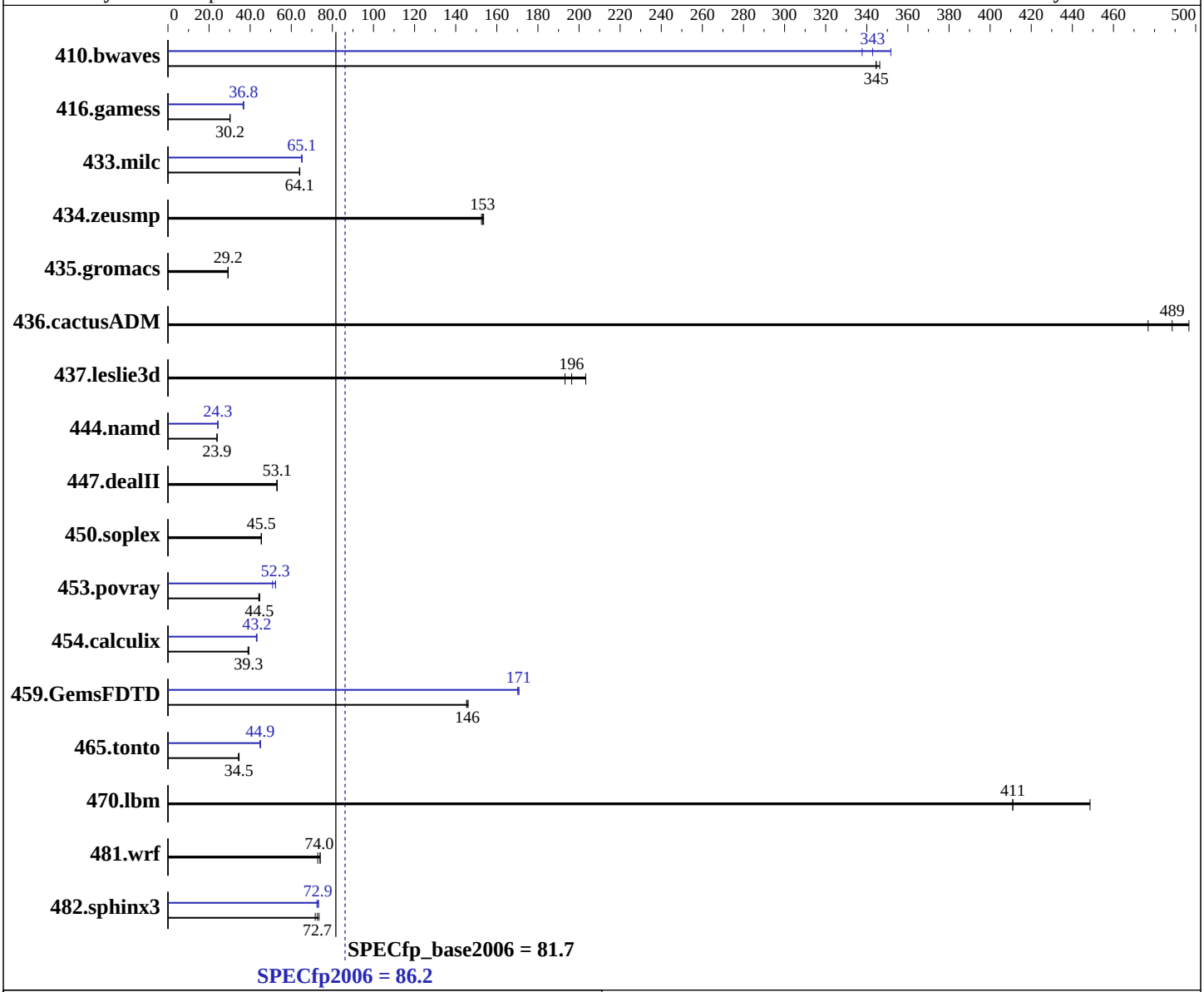
SuperServer 6047R-E1R36N (X9DRi-LN4F+, Intel E5-2680)

SPECfp®2006 = 86.2

SPECfp_base2006 = 81.7

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

**Test date:** Apr-2013
**Hardware Availability:** Feb-2012
**Software Availability:** Dec-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2680 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.50 GHz |
| CPU MHz: | 2700 |
| FPU: | Integrated |
| CPU(s) enabled: | 16 cores, 2 chips, 8 cores/chip, 2 threads/core |
| CPU(s) orderable: | 1,2 chips |
| 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 6.2, Kernel 2.6.32-220.el6.x86_64 |
| Compiler: | C/C++: Version 12.1.0.225 of Intel C++ Studio XE for Linux;<br>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: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (16 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 1 TB 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 | 39.4 | 345 | 39.2 | 346 | **39.4** | **345** | 40.2 | 338 | 38.6 | 352 | **39.6** | **343** |
| 416.gamess | 648 | 30.2 | **649** | **30.2** | 649 | 30.2 | **531** | **36.8** | 536 | 36.5 | 531 | 36.9 |
| 433.milc | 143 | 64.2 | **143** | **64.1** | 143 | 64.0 | 141 | 65.1 | **141** | **65.1** | 141 | 65.2 |
| 434.zeusmp | 59.2 | 154 | **59.4** | **153** | 59.6 | 153 | 59.2 | 154 | **59.4** | **153** | 59.6 | 153 |
| 435.gromacs | 244 | 29.3 | **244** | **29.2** | 244 | 29.2 | 244 | 29.3 | **244** | **29.2** | 244 | 29.2 |
| 436.cactusADM | **24.5** | **489** | 24.1 | 497 | 25.1 | 477 | **24.5** | **489** | 24.1 | 497 | 25.1 | 477 |
| 437.leslie3d | **47.9** | **196** | 48.7 | 193 | 46.2 | 203 | **47.9** | **196** | 48.7 | 193 | 46.2 | 203 |
| 444.namd | 336 | 23.9 | **336** | **23.9** | 336 | 23.9 | **330** | **24.3** | 330 | 24.3 | 330 | 24.3 |
| 447.dealII | **216** | **53.1** | 215 | 53.1 | 216 | 53.0 | **216** | **53.1** | 215 | 53.1 | 216 | 53.0 |
| 450.soplex | 184 | 45.4 | 183 | 45.5 | **183** | **45.5** | 184 | 45.4 | 183 | 45.5 | **183** | **45.5** |
| 453.povray | **120** | **44.5** | 120 | 44.2 | 119 | 44.6 | **102** | **52.3** | 102 | 52.4 | 105 | 50.9 |
| 454.calculix | 210 | 39.3 | **210** | **39.3** | 212 | 38.9 | 191 | 43.3 | 192 | 43.0 | **191** | **43.2** |
| 459.GemsFDTD | 73.0 | 145 | **72.8** | **146** | 72.6 | 146 | 62.2 | 171 | **62.2** | **171** | 62.4 | 170 |
| 465.tonto | 287 | 34.3 | **285** | **34.5** | 284 | 34.6 | **219** | **44.9** | 219 | 45.0 | 219 | 44.8 |
| 470.lbm | 30.6 | 449 | 33.4 | 411 | **33.4** | **411** | 30.6 | 449 | 33.4 | 411 | **33.4** | **411** |
| 481.wrf | **151** | **74.0** | 151 | 74.0 | 153 | 72.9 | **151** | **74.0** | 151 | 74.0 | 153 | 72.9 |
| 482.sphinx3 | 265 | 73.5 | **268** | **72.7** | 272 | 71.7 | 266 | 73.3 | 269 | 72.5 | **267** | **72.9** |

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 = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64"
OMP_NUM_THREADS = "16"

 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:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch -ansi-alias

C++ benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -ansi-alias

Fortran benchmarks:
-xAVX -ipo -O3 -no-prec-div -static -parallel -opt-prefetch

Benchmarks using both Fortran and C:
-xAVX -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: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -unroll2 -ansi-alias -parallel

C++ benchmarks:

444.namd: -xAVX(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: -xAVX(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: -xAVX -ipo -O3 -no-prec-div -opt-prefetch -parallel -static

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# Peak Optimization Flags (Continued)

416.gamess: -xAVX(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: -xAVX(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: -xAVX(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: -xAVX -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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For other inquiries, please contact webmaster@spec.org.

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