# SPEC® CFP2006 Result

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## Supermicro

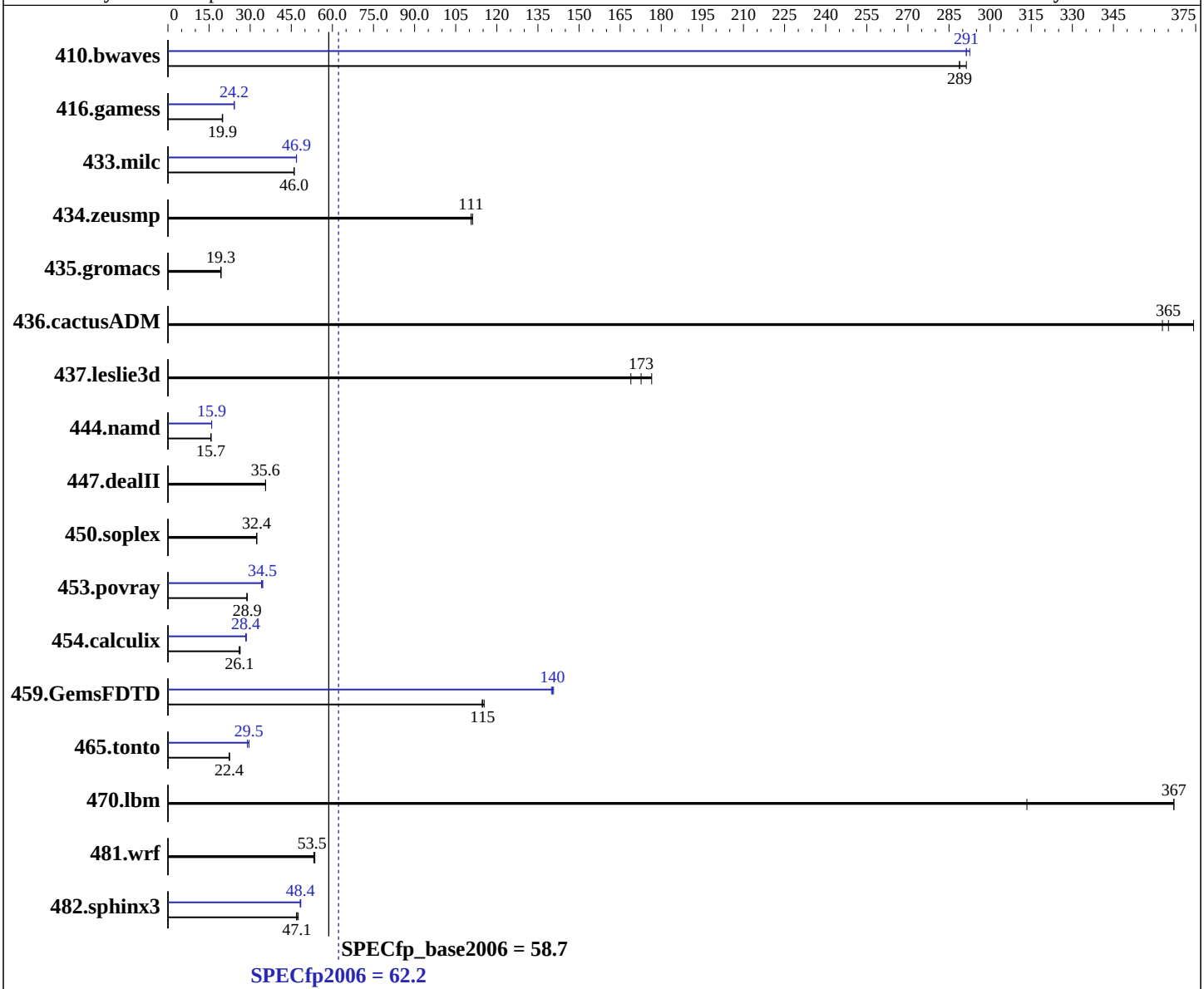
SuperServer 7047R-TRF (X9DRI-F, Intel E5-2650L)

SPECfp®2006 = 62.2

SPECfp_base2006 = 58.7

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

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




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2650L |
| CPU Characteristics: | Intel Turbo Boost Technology up to 2.30 GHz |
| CPU MHz: | 1800 |
| 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 6.1, Kernel 2.6.32-131.0.15.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 2 TB SATA III, 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 | **47.0** | **289** | 47.1 | 289 | 46.7 | 291 | **46.6** | **291** | 46.7 | 291 | 46.4 | 293 |
| 416.gamess | **983** | **19.9** | 989 | 19.8 | 982 | 19.9 | 809 | 24.2 | **809** | **24.2** | 810 | 24.2 |
| 433.milc | **199** | **46.0** | 199 | 46.1 | 200 | 46.0 | **196** | **46.9** | 196 | 46.9 | 196 | 46.9 |
| 434.zeusmp | 81.9 | 111 | **82.3** | **111** | 82.3 | 111 | 81.9 | 111 | **82.3** | **111** | 82.3 | 111 |
| 435.gromacs | 371 | 19.3 | **369** | **19.3** | 368 | 19.4 | 371 | 19.3 | **369** | **19.3** | 368 | 19.4 |
| 436.cactusADM | 31.9 | 374 | 32.9 | 363 | **32.7** | **365** | 31.9 | 374 | 32.9 | 363 | **32.7** | **365** |
| 437.leslie3d | **54.4** | **173** | 55.7 | 169 | 53.3 | 177 | **54.4** | **173** | 55.7 | 169 | 53.3 | 177 |
| 444.namd | **511** | **15.7** | 511 | 15.7 | 511 | 15.7 | 503 | 15.9 | 503 | 16.0 | **503** | **15.9** |
| 447.dealII | 321 | 35.6 | **321** | **35.6** | 321 | 35.6 | 321 | 35.6 | **321** | **35.6** | 321 | 35.6 |
| 450.soplex | 257 | 32.4 | 258 | 32.3 | **258** | **32.4** | 257 | 32.4 | 258 | 32.3 | **258** | **32.4** |
| 453.povray | **184** | **28.9** | 184 | 28.9 | 185 | 28.8 | 154 | 34.6 | **154** | **34.5** | 156 | 34.1 |
| 454.calculix | **316** | **26.1** | 313 | 26.3 | 317 | 26.0 | **290** | **28.4** | 288 | 28.6 | 290 | 28.4 |
| 459.GemsFDTD | **92.4** | **115** | 92.0 | 115 | 92.5 | 115 | **75.6** | **140** | 75.4 | 141 | 75.8 | 140 |
| 465.tonto | 441 | 22.3 | **440** | **22.4** | 437 | 22.5 | **333** | **29.5** | 333 | 29.6 | 340 | 29.0 |
| 470.lbm | **37.4** | **367** | 37.4 | 367 | 43.8 | 313 | **37.4** | **367** | 37.4 | 367 | 43.8 | 313 |
| 481.wrf | 208 | 53.6 | 210 | 53.2 | **209** | **53.5** | 208 | 53.6 | 210 | 53.2 | **209** | **53.5** |
| 482.sphinx3 | **414** | **47.1** | 415 | 46.9 | 410 | 47.6 | 404 | 48.3 | 402 | 48.5 | **403** | **48.4** |

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 = "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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