# SPEC® CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

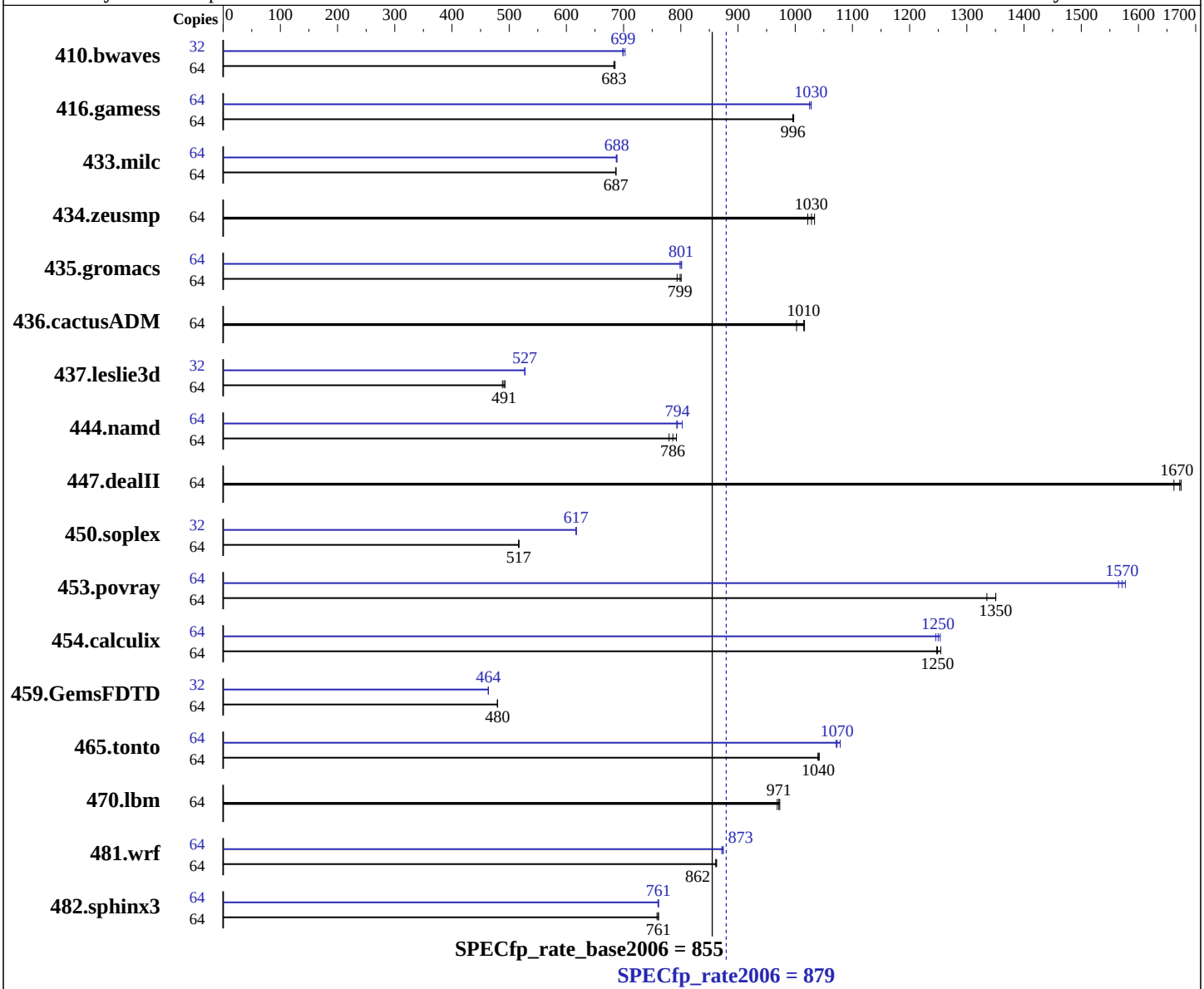
SuperServer SYS-8027R-7RFT+ (X9QR7-TF+, Intel E5-4650)

**SPECfp®_rate2006 = 879**

**SPECfp_rate_base2006 = 855**

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

**Test date:** May-2012
**Hardware Availability:** May-2012
**Software Availability:** Dec-2011




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-4650 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.30 GHz |
| CPU MHz: | 2700 |
| FPU: | Integrated |
| CPU(s) enabled: | 32 cores, 4 chips, 8 cores/chip, 2 threads/core |
| CPU(s) orderable: | 2,4 chips |
| Primary Cache: | 32 KB I + 32 KB D on chip per core |
| Secondary Cache: | 256 KB I+D on chip per core |

Continued on next page

## 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: | No |
| File System: | ext4 |
| System State: | Run level 3 (multi-user) |

Continued on next page

# SPEC CFP2006 Result

Copyright 2006-2014 Standard Performance Evaluation Corporation

## Supermicro

SuperServer SYS-8027R-7RFT+ (X9QR7-TF+, Intel E5-4650)

SPECfp_rate2006 = 879

SPECfp_rate_base2006 = 855

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

**Test date:** May-2012
**Hardware Availability:** May-2012
**Software Availability:** Dec-2011

L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (32 x 8 GB 2Rx4 PC3-12800R-11, ECC)
Disk Subsystem: 1 x 500 GB SAS, 7200 RPM
Other Hardware: None

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

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 64 | 1269 | 685 | **1273** | **683** | 1273 | 683 | 32 | 623 | 699 | 619 | 703 | **622** | **699** |
| 416.gamess | 64 | **1258** | **996** | 1256 | 997 | 1259 | 996 | 64 | 1223 | 1020 | **1219** | **1030** | 1219 | 1030 |
| 433.milc | 64 | 856 | 687 | **856** | **687** | 856 | 686 | 64 | **854** | **688** | 854 | 688 | 855 | 687 |
| 434.zeusmp | 64 | 570 | 1020 | 563 | 1030 | **566** | **1030** | 64 | 570 | 1020 | 563 | 1030 | **566** | **1030** |
| 435.gromacs | 64 | **572** | **799** | 571 | 801 | 576 | 794 | 64 | 572 | 799 | **571** | **801** | 570 | 802 |
| 436.cactusADM | 64 | **754** | **1010** | 753 | 1020 | 763 | 1000 | 64 | **754** | **1010** | 753 | 1020 | 763 | 1000 |
| 437.leslie3d | 64 | 1221 | 493 | **1226** | **491** | 1232 | 488 | 32 | 570 | 528 | **570** | **527** | 571 | 527 |
| 444.namd | 64 | **653** | **786** | 648 | 792 | 659 | 779 | 64 | 640 | 803 | 647 | 793 | **646** | **794** |
| 447.dealII | 64 | 437 | 1670 | **438** | **1670** | 441 | 1660 | 64 | 437 | 1670 | **438** | **1670** | 441 | 1660 |
| 450.soplex | 64 | 1032 | 517 | **1033** | **517** | 1034 | 516 | 32 | **433** | **617** | 432 | 617 | 433 | 617 |
| 453.povray | 64 | **252** | **1350** | 252 | 1350 | 255 | 1340 | 64 | 218 | 1570 | **217** | **1570** | 216 | 1580 |
| 454.calculix | 64 | 423 | 1250 | **423** | **1250** | 421 | 1250 | 64 | 424 | 1250 | 421 | 1250 | **422** | **1250** |
| 459.GemsFDTD | 64 | **1416** | **480** | 1415 | 480 | 1417 | 479 | 32 | **732** | **464** | 733 | 463 | 732 | 464 |
| 465.tonto | 64 | 606 | 1040 | **605** | **1040** | 604 | 1040 | 64 | **587** | **1070** | 584 | 1080 | 588 | 1070 |
| 470.lbm | 64 | 904 | 973 | **905** | **971** | 908 | 969 | 64 | 904 | 973 | **905** | **971** | 908 | 969 |
| 481.wrf | 64 | **830** | **862** | 830 | 861 | 829 | 863 | 64 | 818 | 874 | **819** | **873** | 820 | 872 |
| 482.sphinx3 | 64 | 1639 | 761 | **1639** | **761** | 1645 | 758 | 64 | 1639 | 761 | **1639** | **761** | 1641 | 760 |

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 copies to the cores
```

## Operating System Notes

```
Transparent Huge Pages disabled with:
echo never  > /sys/kernel/mm/redhat_transparent_hugepage/enabled
Filesystem page cache cleared with:
echo 1>       /proc/sys/vm/drop_caches
runspec command invoked through numactl i.e.:
numactl --interleave=all runspec <etc>
```

## General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/cpu2006v120/libs/32:/home/cpu2006v120/libs/64"
```

## 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 -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32
-ansi-alias -opt-mem-layout-trans=3
```

Continued on next page

## Base Optimization Flags (Continued)

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

Benchmarks using both Fortran and C:
`-xAVX -ipo -O3 -no-prec-div -static -opt-prefetch -auto-p32 -ansi-alias -opt-mem-layout-trans=3`

## Peak Compiler Invocation

C benchmarks (except as noted below):
`icc -m64`

482.sphinx3: `icc -m32`

C++ benchmarks (except as noted below):
`icpc -m64`

450.soplex: `icpc -m32`

Fortran benchmarks:
`ifort -m64`

Benchmarks using both Fortran and C:
`icc -m64 ifort -m64`

## Peak 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`
453.povray: `-DSPEC_CPU_LP64`
454.calculix: `-DSPEC_CPU_LP64 -nofor_main`
465.tonto: `-DSPEC_CPU_LP64`
470.lbm: `-DSPEC_CPU_LP64`
481.wrf: `-DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX`

# 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 -opt-mem-layout-trans=3

470.lbm: basepeak = yes

482.sphinx3: -xAVX -ipo -O3 -no-prec-div -unroll2

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: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -static

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: -xAVX -ipo -O3 -no-prec-div -static -opt-prefetch

459.GemsFDTD: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-malloc-options=3

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

Benchmarks using both Fortran and C:

435.gromacs: -xAVX(pass 2) -prof-gen(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -prof-use(pass 2) -opt-prefetch -static -auto-ilp32 -opt-mem-layout-trans=3

Continued on next page

# Peak Optimization Flags (Continued)

436.cactusADM: `basepeak = yes`

454.calculix: `-xAVX -ipo -O3 -no-prec-div -static -auto-ilp32 -opt-mem-layout-trans=3`

481.wrf: `Same as 454.calculix`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.html`
`http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic12.1-official-linux64.20120425.xml`
`http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-revA.xml`


SPEC and SPECfp are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.


For questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

Tested with SPEC CPU2006 v1.2.
Report generated on Thu Jul 24 04:31:22 2014 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 6 June 2012.