# SPEC® CFP2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

## Supermicro

$SPECfp^{®}\_rate2006 = \quad 812$

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

$SPECfp\_rate\_base2006 = \quad 806$

| **CPU2006 license:** 001176 | **Test date:** Jan-2015 |
|---|---|
| **Test sponsor:** Supermicro | **Hardware Availability:** Sep-2014 |
| **Tested by:** Supermicro | **Software Availability:** Sep-2014 |



SPECfp_rate_base2006 = 806

SPECfp_rate2006 = 812

## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2697 v3 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.60 GHz |
| CPU MHz: | 2600 |
| FPU: | Integrated |
| CPU(s) enabled: | 28 cores, 2 chips, 14 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 |

**Continued on next page**

## Software

| | |
|---|---|
| Operating System: | Red Hat Enterprise Linux Server release 7.0, Kernel 3.10.0-123.el7.x86_64 |
| Compiler: | C/C++: Version 15.0.0.090 of Intel C++ Studio XE for Linux; Fortran: Version 15.0.0.090 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 2006-2015 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

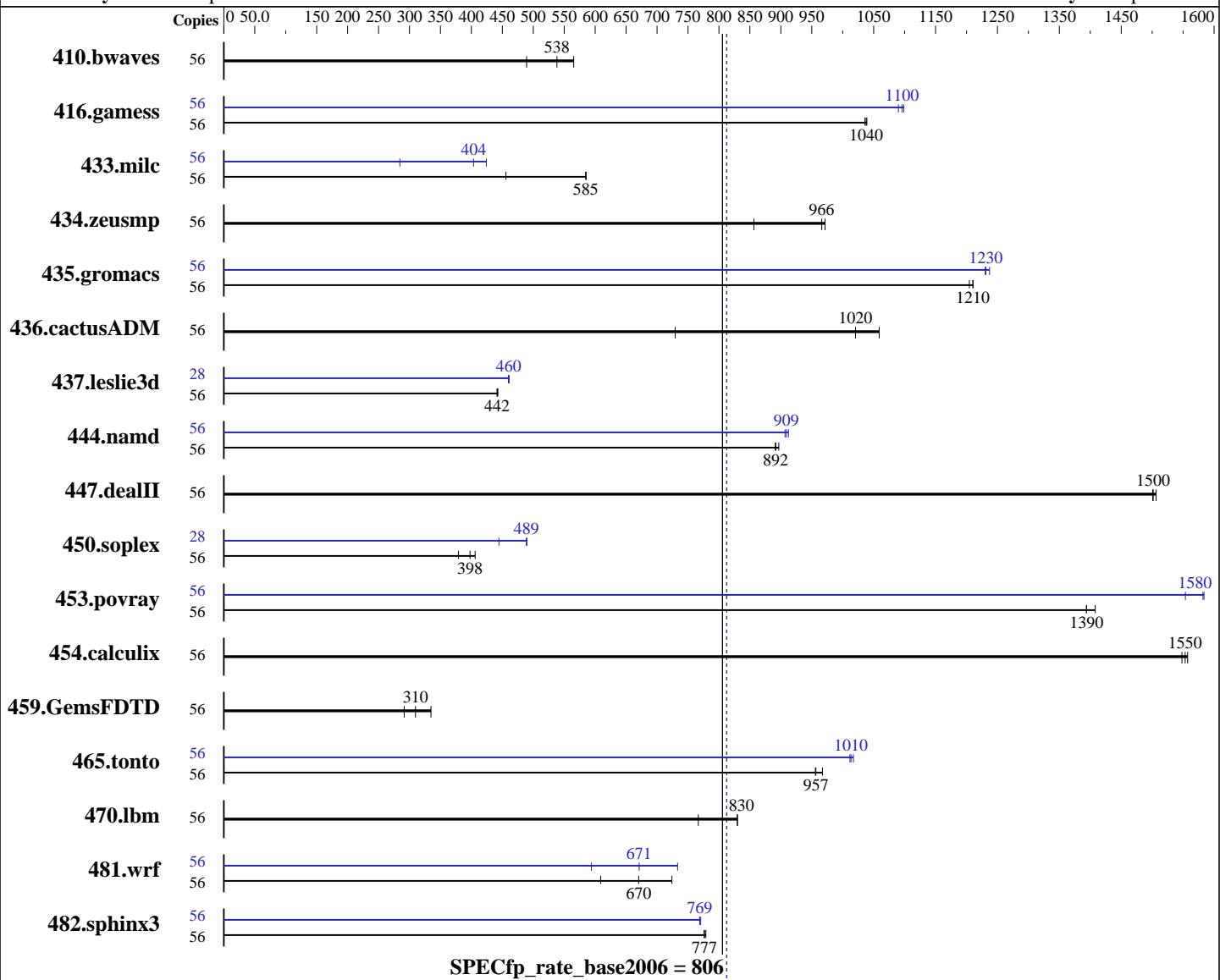$SPECfp\_rate2006 = $ 812

$SPECfp\_rate\_base2006 = $ 806

| | |
|---|---|
| **CPU2006 license:** 001176 | **Test date:** Jan-2015 |
| **Test sponsor:** Supermicro | **Hardware Availability:** Sep-2014 |
| **Tested by:** Supermicro | **Software Availability:** Sep-2014 |

| | | | |
|---|---|---|---|
| L3 Cache: | 35 MB I+D on chip per chip | Base Pointers: | 32/64-bit |
| Other Cache: | None | Peak Pointers: | 32/64-bit |
| Memory: | 128 GB (8 x 16 GB 2Rx4 PC4-2133P-R) | Other Software: | None |
| Disk Subsystem: | 1 x 450 GB SAS, 10000 RPM | | |
| Other Hardware: | None | | |

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 410.bwaves | 56 | 1346 | 565 | 1556 | 489 | **1414** | **538** | 56 | 1346 | 565 | 1556 | 489 | **1414** | **538** |
| 416.gamess | 56 | 1055 | 1040 | **1056** | **1040** | 1058 | 1040 | 56 | 998 | 1100 | 1006 | 1090 | **1001** | **1100** |
| 433.milc | 56 | 878 | 585 | 1128 | 456 | **879** | **585** | 56 | **1274** | **404** | 1807 | 284 | 1212 | 424 |
| 434.zeusmp | 56 | 525 | 971 | 595 | 857 | **528** | **966** | 56 | 525 | 971 | 595 | 857 | **528** | **966** |
| 435.gromacs | 56 | 332 | 1200 | 330 | 1210 | **330** | **1210** | 56 | **325** | **1230** | 325 | 1230 | 323 | 1240 |
| 436.cactusADM | 56 | 632 | 1060 | 918 | 729 | **656** | **1020** | 56 | 632 | 1060 | 918 | 729 | **656** | **1020** |
| 437.leslie3d | 56 | 1192 | 442 | **1192** | **442** | 1189 | 443 | 28 | 571 | 461 | **572** | **460** | 572 | 460 |
| 444.namd | 56 | 504 | 891 | **504** | **892** | 501 | 897 | 56 | 492 | 912 | **494** | **909** | 495 | 907 |
| 447.dealII | 56 | 427 | 1500 | **427** | **1500** | 425 | 1510 | 56 | 427 | 1500 | **427** | **1500** | 425 | 1510 |
| 450.soplex | 56 | 1150 | 406 | 1232 | 379 | **1174** | **398** | 28 | **478** | **489** | 525 | 444 | 477 | 490 |
| 453.povray | 56 | **214** | **1390** | 214 | 1390 | 212 | 1410 | 56 | **188** | **1580** | 188 | 1580 | 192 | 1550 |
| 454.calculix | 56 | **297** | **1550** | 298 | 1550 | 297 | 1560 | 56 | **297** | **1550** | 298 | 1550 | 297 | 1560 |
| 459.GemsFDTD | 56 | **1919** | **310** | 1775 | 335 | 2039 | 291 | 56 | **1919** | **310** | 1775 | 335 | 2039 | 291 |
| 465.tonto | 56 | 577 | 956 | 570 | 967 | **576** | **957** | 56 | 542 | 1020 | 545 | 1010 | **544** | **1010** |
| 470.lbm | 56 | 1004 | 767 | **928** | **830** | 927 | 830 | 56 | 1004 | 767 | **928** | **830** | 927 | 830 |
| 481.wrf | 56 | **933** | **670** | 1027 | 609 | 864 | 724 | 56 | **932** | **671** | 1053 | 594 | 853 | 733 |
| 482.sphinx3 | 56 | 1407 | 776 | **1405** | **777** | 1401 | 779 | 56 | **1419** | **769** | 1416 | 771 | 1420 | 769 |

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

## Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

## Operating System Notes

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

## Platform Notes

BIOS Settings:
Hyper Threading (All) = Enable
Early Snoop = Disabled

Continued on next page

## Supermicro

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

SPECfp_rate2006 =      812

SPECfp_rate_base2006 =  806

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

**Test date:** Jan-2015
**Hardware Availability:** Sep-2014
**Software Availability:** Sep-2014

## Platform Notes (Continued)

```
Enforce POR = Disabled
Sysinfo program /home/SPEC2K6/SPEC2006-V12/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on 21-172.hnet Sat Jan 17 05:52:35 2015

This section contains SUT (System Under Test) info as seen by
some common utilities.  To remove or add to this section, see:
  http://www.spec.org/cpu2006/Docs/config.html#sysinfo

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2697 v3 @ 2.60GHz
      2 "physical id"s (chips)
      56 "processors"
   cores, siblings (Caution: counting these is hw and system dependent.  The
   following excerpts from /proc/cpuinfo might not be reliable.  Use with
   caution.)
      cpu cores : 7
      siblings  : 14
      physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
      physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
   cache size : 17920 KB

From /proc/meminfo
   MemTotal:       131751944 kB
   HugePages_Total:        0
   Hugepagesize:        2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.0 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.0"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.0 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.0:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.0 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.0:ga:server

uname -a:
   Linux 21-172.hnet 3.10.0-123.el7.x86_64 #1 SMP Mon May 5 11:16:57 EDT 2014
   x86_64 x86_64 x86_64 GNU/Linux

run-level 5 Jan 16 18:49

SPEC is set to: /home/SPEC2K6/SPEC2006-V12
   Filesystem                   Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel_21--172-home xfs   364G   55G  309G  16% /home
Additional information from dmidecode:
```

Continued on next page

## Supermicro

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

$SPECfp\_rate2006 = $ 812

$SPECfp\_rate\_base2006 = $ 806

| | | | |
|---|---|---|---|
| **CPU2006 license:** | 001176 | **Test date:** | Jan-2015 |
| **Test sponsor:** | Supermicro | **Hardware Availability:** | Sep-2014 |
| **Tested by:** | Supermicro | **Software Availability:** | Sep-2014 |

### Platform Notes (Continued)

```
   Warning: Use caution when you interpret this section. The 'dmidecode' program
   reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to
   hardware, firmware, and the "DMTF SMBIOS" standard.

 BIOS American Megatrends Inc. 1.0a 12/17/2014
 Memory:
  4x Samsung (date:14/13) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz
  4x Samsung (date:14/17) M393A2G40DB0-CPB 16 GB 2 rank 2133 MHz

 (End of data from sysinfo program)
```

### General Notes

```
Environment variables set by runspec before the start of the run:
LD_LIBRARY_PATH = "/home/SPEC2K6/SPEC2006-V12/libs/32:/home/SPEC2K6/SPEC2006-V12/libs/64:/home/SPEC2K6/SPEC2006-V12/sh"

 Binaries compiled on a system with 1x Core i5-4670K CPU + 16GB
 memory using RedHat EL 7.0
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/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>
```

### 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

# SPEC CFP2006 Result
Copyright 2006-2015 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

$SPECfp\_rate2006 = $ 812

$SPECfp\_rate\_base2006 = $ 806

| | |
|---|---|
| **CPU2006 license:** 001176 | **Test date:** Jan-2015 |
| **Test sponsor:** Supermicro | **Hardware Availability:** Sep-2014 |
| **Tested by:** Supermicro | **Software Availability:** Sep-2014 |

## Base Portability Flags (Continued)

```
    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:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3
```

C++ benchmarks:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3
```

Fortran benchmarks:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch
```

Benchmarks using both Fortran and C:
```
    -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -auto-p32
    -ansi-alias -opt-mem-layout-trans=3
```

## Peak Compiler Invocation

C benchmarks:
```
    icc    -m64
```

C++ benchmarks (except as noted below):
```
    icpc   -m64
```
```
    450.soplex: icpc -m32 -L/opt/intel/composer_xe_2015/lib/ia32
```

Fortran benchmarks:
```
    ifort -m64
```

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

## Supermicro

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

$SPECfp\_rate2006 =$ 812

$SPECfp\_rate\_base2006 =$ 806

| | | | |
|---|---|---|---|
| **CPU2006 license:** 001176 | | **Test date:** | Jan-2015 |
| **Test sponsor:** | Supermicro | **Hardware Availability:** | Sep-2014 |
| **Tested by:** | Supermicro | **Software Availability:** | Sep-2014 |

# 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
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
```

# Peak Optimization Flags

C benchmarks:

```
  433.milc: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2)
          -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
          -auto-ilp32

   470.lbm: basepeak = yes

482.sphinx3: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-mem-layout-trans=3
          -unroll2
```

C++ benchmarks:

```
  444.namd: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2)
          -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -fno-alias
          -auto-ilp32

  447.dealII: basepeak = yes

 450.soplex: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2)
          -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
          -opt-malloc-options=3

 453.povray: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
          -O3(pass 2) -no-prec-div(pass 2)
          -opt-mem-layout-trans=3(pass 2) -prof-use(pass 2) -unroll4
          -ansi-alias
```

## Supermicro

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

$SPECfp\_rate2006 = $ 812

$SPECfp\_rate\_base2006 = $ 806

| | | | |
|---|---|---|---|
| **CPU2006 license:** 001176 | | **Test date:** | Jan-2015 |
| **Test sponsor:** | Supermicro | **Hardware Availability:** | Sep-2014 |
| **Tested by:** | Supermicro | **Software Availability:** | Sep-2014 |

# Peak Optimization Flags (Continued)

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(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-

434.zeusmp: basepeak = yes

437.leslie3d: -xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch

459.GemsFDTD: basepeak = yes

465.tonto: -xCORE-AVX2(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: -xCORE-AVX2(pass 2) -prof-gen(pass 1) -ipo(pass 2)
-O3(pass 2) -no-prec-div(pass 2)
-opt-mem-layout-trans=3(pass 2) -prof-use(pass 2)
-opt-prefetch -auto-ilp32

436.cactusADM: basepeak = yes

454.calculix: basepeak = yes

481.wrf: -xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.html
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2006/flags/Intel-ic15.0-official-linux64.xml
http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revG.20141230.00.xml

# SPEC CFP2006 Result

Copyright 2006-2015 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 2028TR-H72FR
(X10DRT-HIBF , Intel Xeon E5-2697 v3)

$SPECfp\_rate2006 = \quad 812$

$SPECfp\_rate\_base2006 = \quad 806$

| | | | |
|---|---|---|---|
| **CPU2006 license:** 001176 | | **Test date:** | Jan-2015 |
| **Test sponsor:** | Supermicro | **Hardware Availability:** | Sep-2014 |
| **Tested by:** | Supermicro | **Software Availability:** | Sep-2014 |

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 Tue Feb 10 18:30:21 2015 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 10 February 2015.