# SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

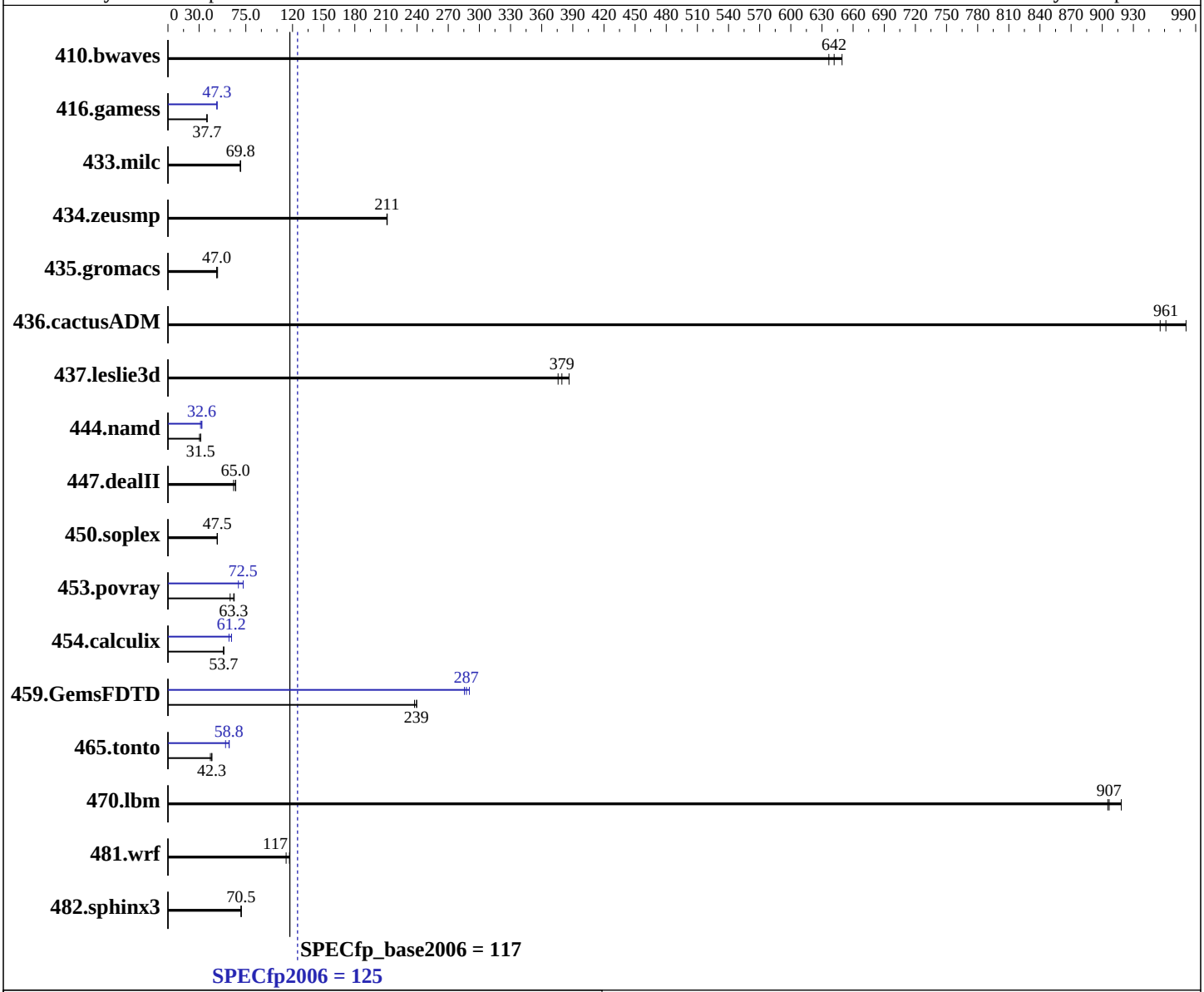
SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2697 v4)

SPECfp®2006 = 125

SPECfp_base2006 = 117

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

**Test date:** Jun-2016
**Hardware Availability:** Mar-2016
**Software Availability:** Sep-2015




## Hardware

| | |
|---|---|
| CPU Name: | Intel Xeon E5-2697 v4 |
| CPU Characteristics: | Intel Turbo Boost Technology up to 3.60 GHz |
| CPU MHz: | 2300 |
| FPU: | Integrated |
| CPU(s) enabled: | 36 cores, 2 chips, 18 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 7.2, Kernel 3.10.0-327.el7.x86_64 |
| Compiler: | C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;<br>Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux |
| Auto Parallel: | Yes |
| File System: | xfs |
| System State: | Run level 3 (multi-user) |

Continued on next page

# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6018R-TDTP
(X10DRD-LTP , Intel Xeon E5-2697 v4)

SPECfp2006 = 125

SPECfp_base2006 = 117

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

**Test date:** Jun-2016
**Hardware Availability:** Mar-2016
**Software Availability:** Sep-2015

L3 Cache: 45 MB I+D on chip per chip
Other Cache: None
Memory: 256 GB (8 x 32 GB 2Rx4 PC4-2400T-R)
Disk Subsystem: 1 x 400 GB SATA III SSD
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 | 20.9 | 649 | **21.2** | **642** | 21.3 | 637 | 20.9 | 649 | **21.2** | **642** | 21.3 | 637 |
| 416.gamess | **520** | **37.7** | 523 | 37.4 | 519 | 37.7 | **414** | **47.3** | 415 | 47.1 | 414 | 47.3 |
| 433.milc | 132 | 69.8 | **131** | **69.8** | 131 | 69.9 | 132 | 69.8 | **131** | **69.8** | 131 | 69.9 |
| 434.zeusmp | **43.1** | **211** | 43.1 | 211 | 43.1 | 211 | **43.1** | **211** | 43.1 | 211 | 43.1 | 211 |
| 435.gromacs | 149 | 47.8 | **152** | **47.0** | 152 | 47.0 | 149 | 47.8 | **152** | **47.0** | 152 | 47.0 |
| 436.cactusADM | 12.5 | 956 | 12.2 | 981 | **12.4** | **961** | 12.5 | 956 | 12.2 | 981 | **12.4** | **961** |
| 437.leslie3d | 25.0 | 376 | **24.8** | **379** | 24.3 | 386 | 25.0 | 376 | **24.8** | **379** | 24.3 | 386 |
| 444.namd | 254 | 31.5 | 264 | 30.4 | **255** | **31.5** | 256 | 31.4 | **246** | **32.6** | 246 | 32.6 |
| 447.dealII | **176** | **65.0** | 181 | 63.2 | 175 | 65.3 | **176** | **65.0** | 181 | 63.2 | 175 | 65.3 |
| 450.soplex | 175 | 47.6 | 176 | 47.5 | **176** | **47.5** | 175 | 47.6 | 176 | 47.5 | **176** | **47.5** |
| 453.povray | 83.3 | 63.8 | 88.8 | 59.9 | **84.1** | **63.3** | 78.4 | 67.8 | **73.4** | **72.5** | 73.4 | 72.5 |
| 454.calculix | 154 | 53.7 | 154 | 53.7 | **154** | **53.7** | 140 | 58.8 | **135** | **61.2** | 135 | 61.3 |
| 459.GemsFDTD | 44.3 | 240 | **44.3** | **239** | 44.7 | 237 | 37.2 | 286 | **36.9** | **287** | 36.5 | 290 |
| 465.tonto | 233 | 42.3 | **233** | **42.3** | 241 | 40.9 | 177 | 55.5 | **167** | **58.8** | 167 | 59.1 |
| 470.lbm | 15.2 | 905 | **15.2** | **907** | 15.0 | 918 | 15.2 | 905 | **15.2** | **907** | 15.0 | 918 |
| 481.wrf | 95.3 | 117 | 98.1 | 114 | **95.3** | **117** | 95.3 | 117 | 98.1 | 114 | **95.3** | **117** |
| 482.sphinx3 | 277 | 70.4 | **276** | **70.5** | 276 | 70.6 | 277 | 70.4 | **276** | **70.5** | 276 | 70.6 |

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"
```

## Platform Notes

```
BIOS Settings:
Early Snoop = Disable
Sysinfo program /home/cpu2006_ic16/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 #$ e3fbb8667b5a285932ceab81e28219e1
running on localhost.localdomain Fri Jun  3 02:59:15 2016

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
```

Continued on next page

## Platform Notes (Continued)

```
From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E5-2697 v4 @ 2.30GHz
      2 "physical id"s (chips)
      72 "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 : 18
      siblings  : 36
      physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
      physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
   cache size : 46080 KB

From /proc/meminfo
   MemTotal:       263856108 kB
   HugePages_Total:       0
   Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
   os-release:
      NAME="Red Hat Enterprise Linux Server"
      VERSION="7.2 (Maipo)"
      ID="rhel"
      ID_LIKE="fedora"
      VERSION_ID="7.2"
      PRETTY_NAME="Red Hat Enterprise Linux Server 7.2 (Maipo)"
      ANSI_COLOR="0;31"
      CPE_NAME="cpe:/o:redhat:enterprise_linux:7.2:GA:server"
   redhat-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release: Red Hat Enterprise Linux Server release 7.2 (Maipo)
   system-release-cpe: cpe:/o:redhat:enterprise_linux:7.2:ga:server

uname -a:
   Linux localhost.localdomain 3.10.0-327.el7.x86_64 #1 SMP Thu Oct 29 17:29:29
   EDT 2015 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Jun 3 02:58

SPEC is set to: /home/cpu2006_ic16
   Filesystem            Type  Size  Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs   216G  4.4G  212G   3% /home
Additional information from dmidecode:

   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. 2.0 02/26/2016
  Memory:
   8x Micron 36ASF4G72PZ-2G3A1 32 GB 2 rank 2400 MHz
```

Continued on next page

## Platform Notes (Continued)

```
(End of data from sysinfo program)
```

## General Notes

```
Environment variables set by runspec before the start of the run:
KMP_AFFINITY = "granularity=fine,compact,1,0"
LD_LIBRARY_PATH = "/home/cpu2006_ic16/libs/32:/home/cpu2006_ic16/libs/64:/home/cpu2006_ic16/sh"
OMP_NUM_THREADS = "36"

 Binaries compiled on a system with 1x Intel Core i5-4670K CPU + 32GB
 memory using RedHat EL 7.1
 Transparent Huge Pages enabled with:
 echo always > /sys/kernel/mm/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
```

Continued on next page

## Base Portability Flags (Continued)

482.sphinx3: `-DSPEC_CPU_LP64`

## Base Optimization Flags

C benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch -ansi-alias`

C++ benchmarks:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -opt-prefetch -ansi-alias`

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

Benchmarks using both Fortran and C:
`-xCORE-AVX2 -ipo -O3 -no-prec-div -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: `basepeak = yes`

Continued on next page

## Peak Optimization Flags (Continued)

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

444.namd: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -fno-alias -auto-ilp32

447.dealII: basepeak = yes

450.soplex: basepeak = yes

453.povray: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll4 -ansi-alias

Fortran benchmarks:

410.bwaves: basepeak = yes

416.gamess: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -scalar-rep-

434.zeusmp: basepeak = yes

437.leslie3d: basepeak = yes

459.GemsFDTD: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -prof-use(pass 2) -unroll2 -inline-level=0 -opt-prefetch -parallel

465.tonto: -xCORE-AVX2(pass 2) -prof-gen:threadsafe(pass 1) -ipo(pass 2) -O3(pass 2) -no-prec-div(pass 2) -par-num-threads=1(pass 1) -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

Continued on next page

## Peak Optimization Flags (Continued)

454.calculix: `-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias`

481.wrf: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.html`
`http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2006/flags/Intel-ic16.0-official-linux64.xml`
`http://www.spec.org/cpu2006/flags/Supermicro-Platform-Settings-V1.2-revH.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 Tue Jul 12 11:04:20 2016 by SPEC CPU2006 PS/PDF formatter v6932.
Originally published on 12 July 2016.