



# SPEC® CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6028TP-HTFR  
(X10DRT-PIBF, Intel Xeon E5-2699 v4)

SPECfp®2006 = **126**

SPECfp\_base2006 = **118**

CPU2006 license: 001176

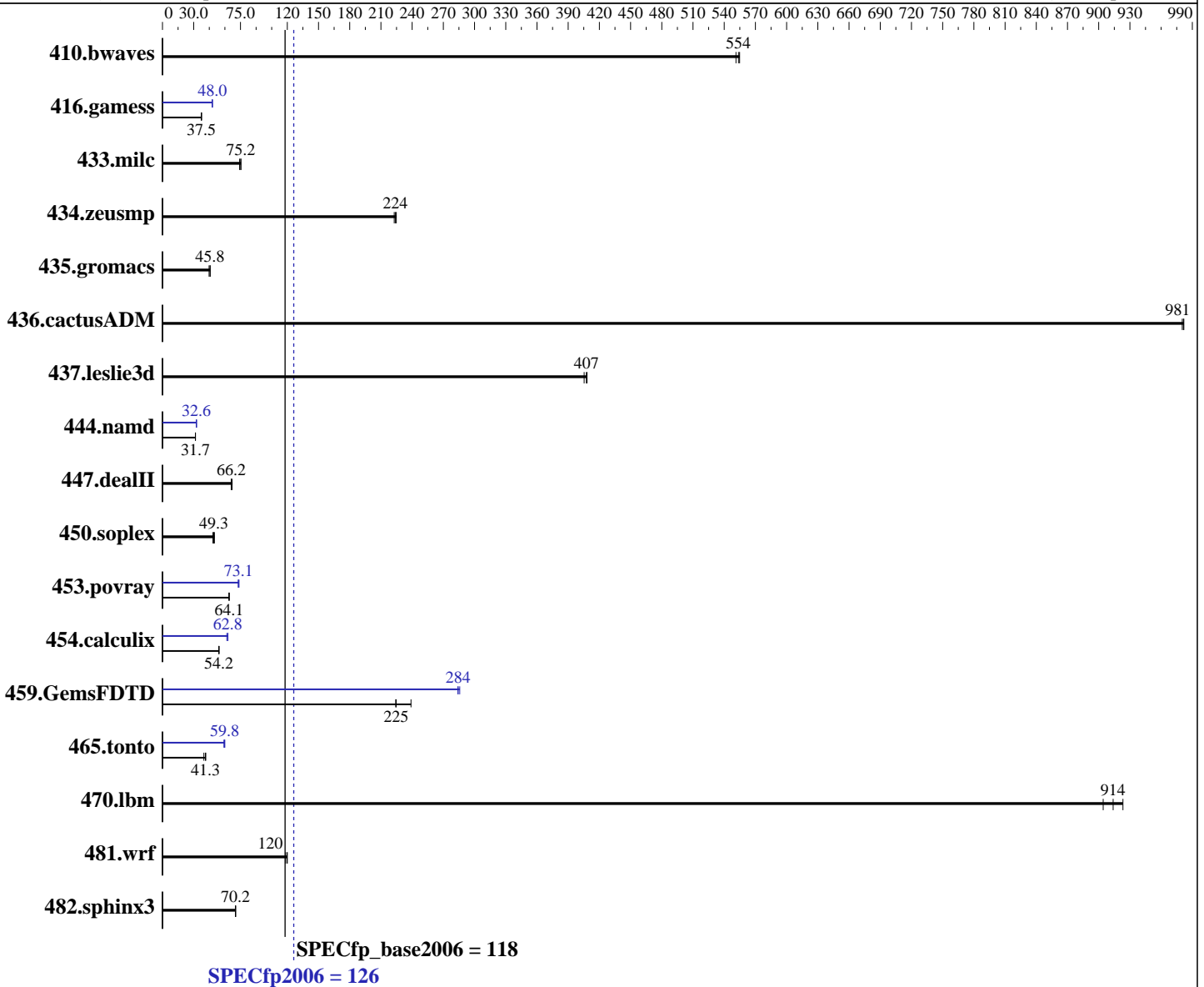
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015



### Hardware

CPU Name: Intel Xeon E5-2699 v4  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 2200  
 FPU: Integrated  
 CPU(s) enabled: 44 cores, 2 chips, 22 cores/chip  
 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: SUSE Linux Enterprise Server 12, Kernel 3.12.28-4-default  
 Compiler: C/C++: Version 16.0.0.101 of Intel C++ Studio XE for Linux;  
 Fortran: Version 16.0.0.101 of Intel Fortran Studio XE for Linux  
 Auto Parallel: Yes  
 File System: ext4  
 System State: Run level 3 (multi-user)

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6028TP-HTFR  
(X10DRT-PIBF, Intel Xeon E5-2699 v4)

SPECfp2006 = **126**

SPECfp\_base2006 = **118**

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

L3 Cache: 55 MB I+D on chip per chip  
Other Cache: None  
Memory: 256 GB (16 x 16 GB 2Rx4 PC4-2400P-R)  
Disk Subsystem: 1 x 600 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	24.7	551	<u>24.5</u>	<u>554</u>	24.5	555	24.7	551	<u>24.5</u>	<u>554</u>	24.5	555
416.gamess	524	37.3	<u>522</u>	<u>37.5</u>	522	37.5	408	48.0	<u>408</u>	<u>48.0</u>	409	47.8
433.milc	<u>122</u>	<u>75.2</u>	122	75.4	124	74.1	<u>122</u>	<u>75.2</u>	122	75.4	124	74.1
434.zeusmp	40.5	225	<u>40.6</u>	<u>224</u>	40.8	223	40.5	225	<u>40.6</u>	<u>224</u>	40.8	223
435.gromacs	156	45.8	159	44.8	<u>156</u>	<u>45.8</u>	156	45.8	159	44.8	<u>156</u>	<u>45.8</u>
436.cactusADM	<u>12.2</u>	<u>981</u>	12.2	980	12.2	982	<u>12.2</u>	<u>981</u>	12.2	980	12.2	982
437.leslie3d	23.0	408	<u>23.1</u>	<u>407</u>	23.2	405	23.0	408	<u>23.1</u>	<u>407</u>	23.2	405
444.namd	253	31.7	253	31.7	<u>253</u>	<u>31.7</u>	<u>246</u>	<u>32.6</u>	246	32.7	246	32.6
447.dealII	173	66.1	<u>173</u>	<u>66.2</u>	171	67.0	173	66.1	<u>173</u>	<u>66.2</u>	171	67.0
450.soplex	<u>169</u>	<u>49.3</u>	172	48.5	167	49.9	<u>169</u>	<u>49.3</u>	172	48.5	167	49.9
453.povray	83.0	64.1	83.2	63.9	<u>83.0</u>	<u>64.1</u>	<u>72.7</u>	<u>73.1</u>	73.1	72.8	72.3	73.6
454.calculix	152	54.4	<u>152</u>	<u>54.2</u>	152	54.2	131	62.9	<u>131</u>	<u>62.8</u>	133	61.8
459.GemsFDTD	47.3	224	44.4	239	<u>47.2</u>	<u>225</u>	<u>37.3</u>	<u>284</u>	37.1	286	37.4	284
465.tonto	<u>239</u>	<u>41.3</u>	247	39.8	236	41.6	164	59.9	167	59.1	<u>165</u>	<u>59.8</u>
470.lbm	14.9	923	15.2	904	<u>15.0</u>	<u>914</u>	14.9	923	15.2	904	<u>15.0</u>	<u>914</u>
481.wrf	94.5	118	<u>93.4</u>	<u>120</u>	93.1	120	94.5	118	<u>93.4</u>	<u>120</u>	93.1	120
482.sphinx3	<u>278</u>	<u>70.2</u>	278	70.1	277	70.4	<u>278</u>	<u>70.2</u>	278	70.1	277	70.4

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"

## Platform Notes

BIOS Settings:  
COD Enable = Disable  
Early Snoop = Disable  
Hyper-Threading (ALL) = Disable  
Enforce POR = Disabled  
Sysinfo program /home/SPEC2K6/SPEC2006-V12/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 # \$ e3fbb8667b5a285932ceab81e28219e1  
running on 30-113 Sat Mar 5 11:32:22 2016

This section contains SUT (System Under Test) info as seen by  
Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6028TP-HTFR  
(X10DRT-PIBF, Intel Xeon E5-2699 v4)

SPECfp2006 = 126

SPECfp\_base2006 = 118

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

### Platform Notes (Continued)

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 E5-2699 v4 @ 2.20GHz
  2 "physical id"s (chips)
  44 "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 : 22
    siblings  : 22
    physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
    28
    physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27
    28
  cache size : 56320 KB

```

```

From /proc/meminfo
MemTotal:      264563328 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12

```

```

From /etc/*release* /etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 0
# This file is deprecated and will be removed in a future service pack or
release.
# Please check /etc/os-release for details about this release.
os-release:
NAME="SLES"
VERSION="12"
VERSION_ID="12"
PRETTY_NAME="SUSE Linux Enterprise Server 12"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12"

```

```

uname -a:
Linux 30-113 3.12.28-4-default #1 SMP Thu Sep 25 17:02:34 UTC 2014 (9879bd4)
x86_64 x86_64 x86_64 GNU/Linux

```

run-level 3 Mar 5 06:41

```

SPEC is set to: /home/SPEC2K6/SPEC2006-V12
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda5       ext4  497G  11G  486G   3% /home

```

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6028TP-HTFR  
(X10DRT-PIBF, Intel Xeon E5-2699 v4)

SPECfp2006 = 126

SPECfp\_base2006 = 118

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

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

### Platform Notes (Continued)

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 12/18/2015

Memory:

16x Samsung M393A2G40DB1-CRC 16 GB 2 rank 2400 MHz

(End of data from sysinfo program)

### General Notes

Environment variables set by runspec before the start of the run:

KMP\_AFFINITY = "granularity=fine,compact,0,1"

LD\_LIBRARY\_PATH = "/home/SPEC2K6/SPEC2006-V12/libs/32:/home/SPEC2K6/SPEC2006-V12/libs/64:/home/SPEC2K6/SPEC2006-V12/sh"

OMP\_NUM\_THREADS = "44"

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6028TP-HTFR  
(X10DRT-PIBF, Intel Xeon E5-2699 v4)

SPECfp2006 = 126

SPECfp\_base2006 = 118

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

## Base Portability Flags (Continued)

```

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 -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

```



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6028TP-HTFR  
(X10DRT-PIBF, Intel Xeon E5-2699 v4)

SPECfp2006 = 126

SPECfp\_base2006 = 118

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

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

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

433.milc: basepeak = yes

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

Continued on next page



# SPEC CFP2006 Result

Copyright 2006-2016 Standard Performance Evaluation Corporation

## Supermicro

SuperServer 6028TP-HTFR  
(X10DRT-PIBF, Intel Xeon E5-2699 v4)

SPECfp2006 = 126

SPECfp\_base2006 = 118

CPU2006 license: 001176

Test sponsor: Supermicro

Tested by: Supermicro

Test date: Mar-2016

Hardware Availability: Mar-2016

Software Availability: Sep-2015

## Peak Optimization Flags (Continued)

465.tonto (continued):

`-opt-malloc-options=3 -auto -unroll4`

Benchmarks using both Fortran and C:

435.gromacs: basepeak = yes

436.cactusADM: basepeak = yes

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](mailto:webmaster@spec.org).

Tested with SPEC CPU2006 v1.2.

Report generated on Thu Jun 30 12:43:46 2016 by SPEC CPU2006 PS/PDF formatter v6932.

Originally published on 4 April 2016.