



# SPEC® CFP2006 Result

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## Supermicro

SuperServer 5019S-M2  
(X11SSZ-QF , Intel Core i5-6500)

SPECfp®2006 = 92.6

SPECfp\_base2006 = 90.4

CPU2006 license: 001176

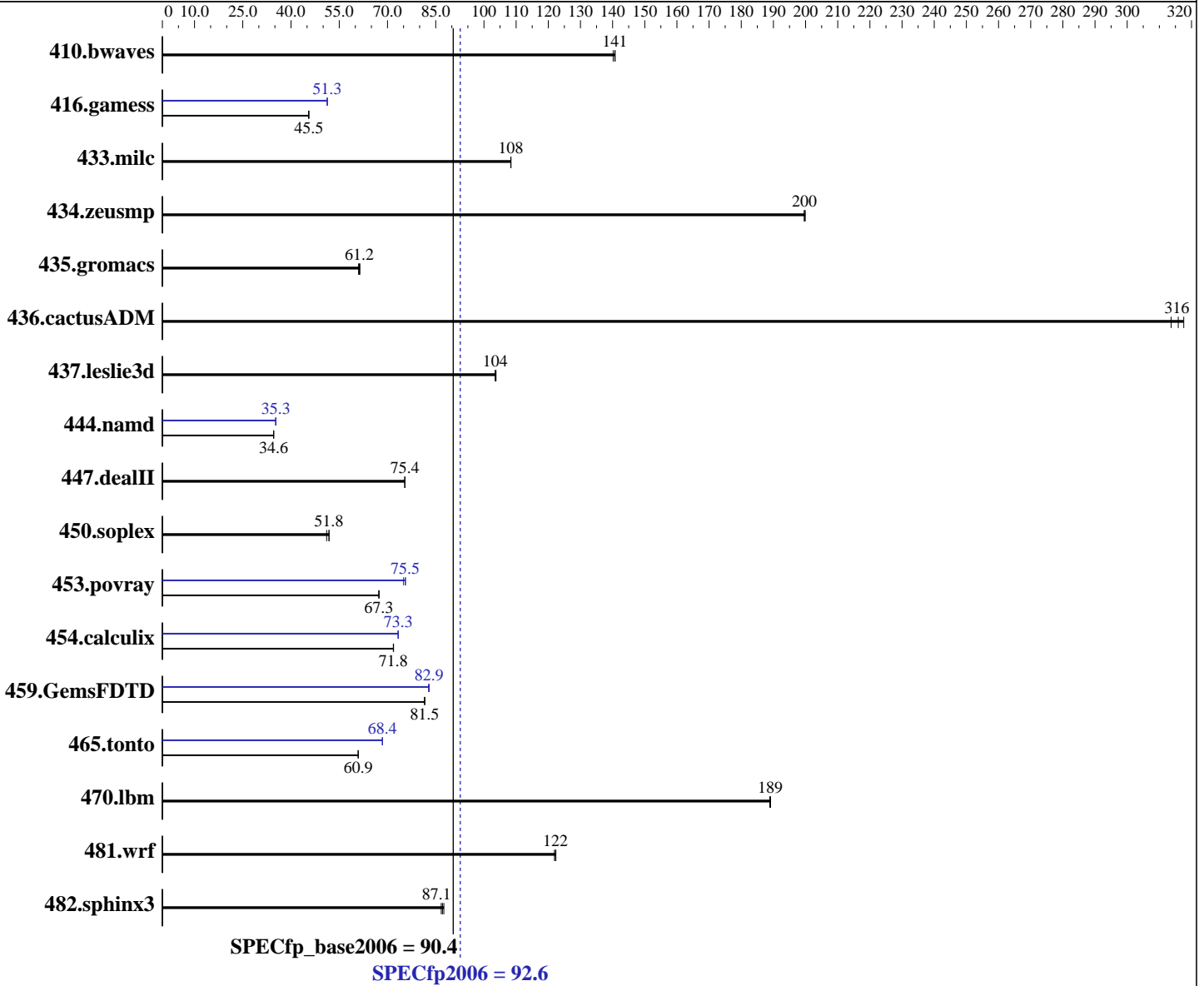
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2015

Hardware Availability: Sep-2015

Software Availability: Sep-2015



SPECfp\_base2006 = 90.4  
SPECfp2006 = 92.6

### Hardware

CPU Name: Intel Core i5-6500  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.60 GHz  
 CPU MHz: 3200  
 FPU: Integrated  
 CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip  
 CPU(s) orderable: 1 chip  
 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 7.1, Kernel 3.10.0-229.el7.x86\_64  
 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: xfs  
 System State: Run level 3 (multi-user)

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L3 Cache: 6 MB I+D on chip per chip  
Other Cache: None  
Memory: 32 GB (4 x 8 GB 2Rx8 PC4-2133P-U)  
Disk Subsystem: 1 x 200 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	97.0	140	<b><u>96.6</u></b>	<b><u>141</u></b>	96.5	141	97.0	140	<b><u>96.6</u></b>	<b><u>141</u></b>	96.5	141
416.gamess	430	45.6	<b><u>430</u></b>	<b><u>45.5</u></b>	431	45.5	382	51.3	<b><u>382</u></b>	<b><u>51.3</u></b>	382	51.2
433.milc	84.7	108	<b><u>84.7</u></b>	<b><u>108</u></b>	84.7	108	84.7	108	<b><u>84.7</u></b>	<b><u>108</u></b>	84.7	108
434.zeusmp	45.6	200	45.5	200	<b><u>45.6</u></b>	<b><u>200</u></b>	45.6	200	45.5	200	<b><u>45.6</u></b>	<b><u>200</u></b>
435.gromacs	116	61.4	117	61.0	<b><u>117</u></b>	<b><u>61.2</u></b>	116	61.4	117	61.0	<b><u>117</u></b>	<b><u>61.2</u></b>
436.cactusADM	37.6	318	38.1	314	<b><u>37.8</u></b>	<b><u>316</u></b>	37.6	318	38.1	314	<b><u>37.8</u></b>	<b><u>316</u></b>
437.leslie3d	90.8	104	<b><u>90.8</u></b>	<b><u>104</u></b>	90.6	104	90.8	104	<b><u>90.8</u></b>	<b><u>104</u></b>	90.6	104
444.namd	232	34.6	<b><u>232</u></b>	<b><u>34.6</u></b>	232	34.6	<b><u>227</u></b>	<b><u>35.3</u></b>	227	35.3	227	35.3
447.dealII	<b><u>152</u></b>	<b><u>75.4</u></b>	152	75.4	152	75.4	<b><u>152</u></b>	<b><u>75.4</u></b>	152	75.4	152	75.4
450.soplex	163	51.1	<b><u>161</u></b>	<b><u>51.8</u></b>	161	51.8	163	51.1	<b><u>161</u></b>	<b><u>51.8</u></b>	161	51.8
453.povray	79.0	67.3	<b><u>79.0</u></b>	<b><u>67.3</u></b>	79.0	67.4	70.4	75.6	71.0	75.0	<b><u>70.5</u></b>	<b><u>75.5</u></b>
454.calculix	115	71.9	115	71.8	<b><u>115</u></b>	<b><u>71.8</u></b>	112	73.4	<b><u>112</u></b>	<b><u>73.3</u></b>	113	73.3
459.GemsFDTD	130	81.5	<b><u>130</u></b>	<b><u>81.5</u></b>	130	81.6	<b><u>128</u></b>	<b><u>82.9</u></b>	128	83.0	128	82.8
465.tonto	162	60.9	161	60.9	<b><u>162</u></b>	<b><u>60.9</u></b>	144	68.5	144	68.4	<b><u>144</u></b>	<b><u>68.4</u></b>
470.lbm	<b><u>72.7</u></b>	<b><u>189</u></b>	72.7	189	72.6	189	<b><u>72.7</u></b>	<b><u>189</u></b>	72.7	189	72.6	189
481.wrf	91.3	122	<b><u>91.4</u></b>	<b><u>122</u></b>	91.6	122	91.3	122	<b><u>91.4</u></b>	<b><u>122</u></b>	91.6	122
482.sphinx3	<b><u>224</u></b>	<b><u>87.1</u></b>	225	86.7	223	87.5	<b><u>224</u></b>	<b><u>87.1</u></b>	225	86.7	223	87.5

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

Sysinfo program /usr/cpu2006/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on X11SSZ-01 Sat Dec 12 03:05:09 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) Core(TM) i5-6500 CPU @ 3.20GHz  
Continued on next page



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Test date: Dec-2015  
Hardware Availability: Sep-2015  
Software Availability: Sep-2015

### Platform Notes (Continued)

```

1 "physical id"s (chips)
4 "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 : 4
  siblings  : 4
  physical 0: cores 0 1 2 3
cache size : 6144 KB

From /proc/meminfo
MemTotal:      32763244 kB
HugePages_Total: 0
Hugepagesize:  2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.1 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.1"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.1 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.1:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.1 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.1:ga:server

uname -a:
Linux X11SSZ-01 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 18:37:38 EST 2015
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 11 22:30

SPEC is set to: /usr/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       xfs   183G   60G  123G  33% /
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. 1.0a 11/09/2015
Memory:
4x Micron 16ATF1G64AZ-2G1A2 8 GB 2 rank 2133 MHz

(End of data from sysinfo program)

```



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## General Notes

Environment variables set by runspec before the start of the run:  
KMP\_AFFINITY = "granularity=fine,compact,1,0"  
LD\_LIBRARY\_PATH = "/usr/cpu2006/libs/32:/usr/cpu2006/libs/64:/usr/cpu2006/sh"  
OMP\_NUM\_THREADS = "4"

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  
482.sphinx3: -DSPEC\_CPU\_LP64



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## 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

470.lbm: basepeak = yes

482.sphinx3: basepeak = yes

C++ benchmarks:

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## Peak Optimization Flags (Continued)

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

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

481.wrf: basepeak = yes



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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>

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For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

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