



# SPEC® CFP2006 Result

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## Supermicro

SuperServer 5019S-M  
(X11SSH-F, Intel Xeon E3-1240 v5)

SPECfp®2006 = 100

SPECfp\_base2006 = 98.1

CPU2006 license: 001176

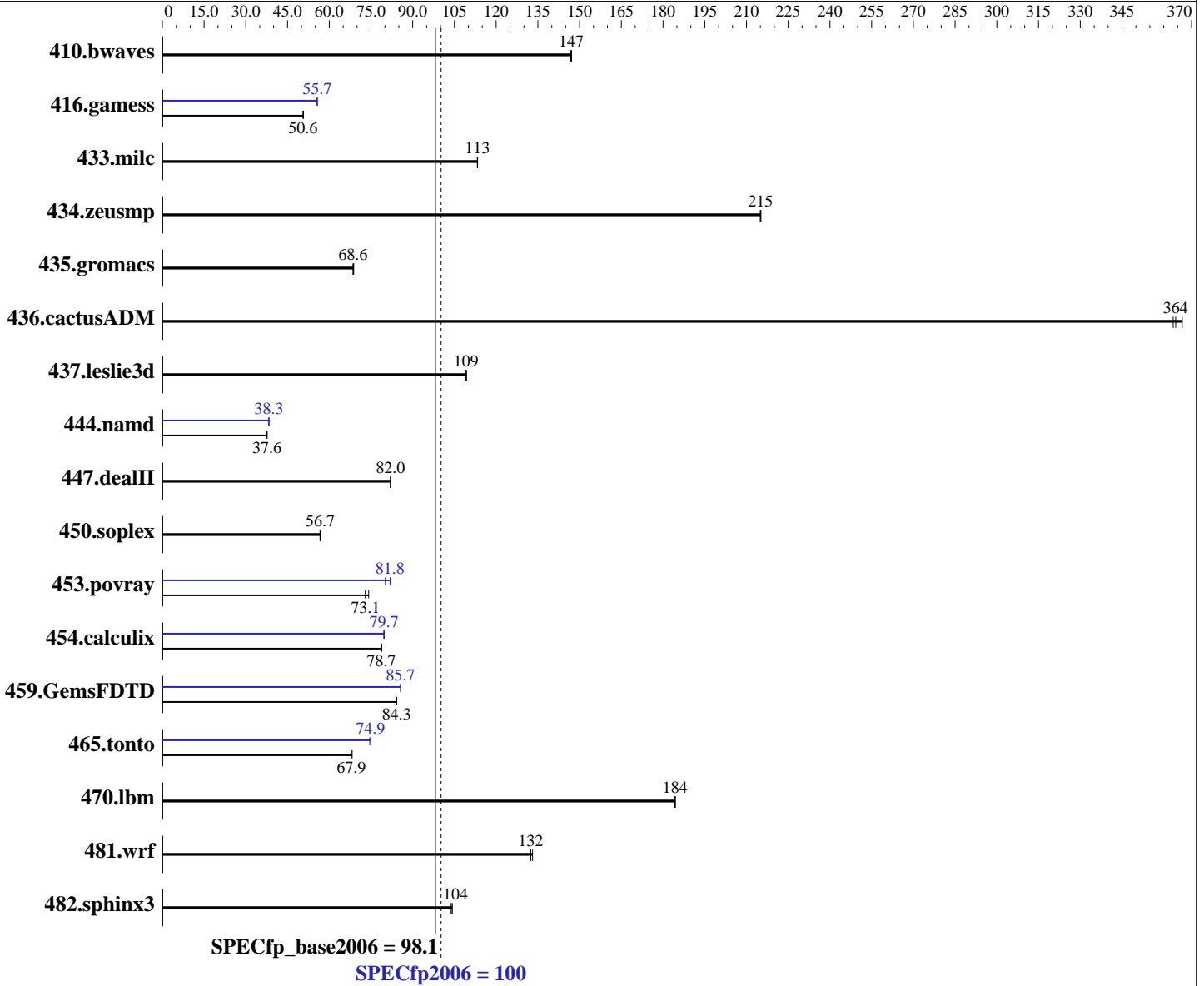
Test sponsor: Supermicro

Tested by: Supermicro

Test date: Dec-2015

Hardware Availability: Oct-2015

Software Availability: Sep-2015



### Hardware

CPU Name: Intel Xeon E3-1240 v5  
 CPU Characteristics: Intel Turbo Boost Technology up to 3.90 GHz  
 CPU MHz: 3500  
 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

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;  
 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



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L3 Cache: 8 MB I+D on chip per chip  
Other Cache: None  
Memory: 16 GB (2 x 8 GB 2Rx8 PC4-2133P-U)  
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	92.6	147	92.4	147	<u>92.4</u>	<u>147</u>	92.6	147	92.4	147	<u>92.4</u>	<u>147</u>
416.gamess	<u>387</u>	<u>50.6</u>	387	50.6	386	50.7	352	55.7	352	55.6	<u>352</u>	<u>55.7</u>
433.milc	<u>81.0</u>	<u>113</u>	81.1	113	81.0	113	<u>81.0</u>	<u>113</u>	81.1	113	81.0	113
434.zeusmp	<u>42.3</u>	<u>215</u>	42.3	215	42.3	215	<u>42.3</u>	<u>215</u>	42.3	215	42.3	215
435.gromacs	<u>104</u>	<u>68.6</u>	104	68.8	104	68.6	<u>104</u>	<u>68.6</u>	104	68.8	104	68.6
436.cactusADM	32.6	367	32.9	363	<u>32.8</u>	<u>364</u>	32.6	367	32.9	363	<u>32.8</u>	<u>364</u>
437.leslie3d	86.1	109	86.0	109	<u>86.1</u>	<u>109</u>	86.1	109	86.0	109	<u>86.1</u>	<u>109</u>
444.namd	213	37.6	213	37.6	<u>213</u>	<u>37.6</u>	209	38.3	<u>209</u>	<u>38.3</u>	210	38.2
447.dealII	139	82.0	139	82.1	<u>139</u>	<u>82.0</u>	139	82.0	139	82.1	<u>139</u>	<u>82.0</u>
450.soplex	147	56.7	147	56.8	<u>147</u>	<u>56.7</u>	147	56.7	147	56.8	<u>147</u>	<u>56.7</u>
453.povray	72.9	73.0	71.7	74.2	<u>72.8</u>	<u>73.1</u>	66.4	80.2	<u>65.0</u>	<u>81.8</u>	64.8	82.1
454.calculix	105	78.8	<u>105</u>	<u>78.7</u>	105	78.7	104	79.6	103	79.8	<u>103</u>	<u>79.7</u>
459.GemsFDTD	126	84.2	126	84.3	<u>126</u>	<u>84.3</u>	<u>124</u>	<u>85.7</u>	124	85.6	124	85.7
465.tonto	<u>145</u>	<u>67.9</u>	144	68.2	145	67.9	131	75.0	132	74.5	<u>131</u>	<u>74.9</u>
470.lbm	74.5	184	<u>74.5</u>	<u>184</u>	74.5	184	74.5	184	<u>74.5</u>	<u>184</u>	74.5	184
481.wrf	84.4	132	<u>84.3</u>	<u>132</u>	83.9	133	84.4	132	<u>84.3</u>	<u>132</u>	83.9	133
482.sphinx3	187	104	188	104	<u>188</u>	<u>104</u>	187	104	188	104	<u>188</u>	<u>104</u>

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:  
Hyper-threading = Disabled  
Sysinfo program /home/cpu2006/config/sysinfo.rev6914  
\$Rev: 6914 \$ \$Date:: 2014-06-25 #\$ e3fbb8667b5a285932ceab81e28219e1  
running on localhost.localdomain Mon Dec 28 21:31:27 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>

Continued on next page



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### Platform Notes (Continued)

```

From /proc/cpuinfo
model name : Intel(R) Xeon(R) CPU E3-1240 v5 @ 3.50GHz
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 : 8192 KB

```

```

From /proc/meminfo
MemTotal: 16088756 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 Dec 28 17:21

```

SPEC is set to: /home/cpu2006
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 280G  26G 254G  10% /

```

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 11/13/2015
Memory:
2x Micron 16ATF1G64AZ-2G1A2 8 GB 2 rank 2133 MHz
2x Not Specified Not Specified

```

Continued on next page



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## 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/libs/32:/home/cpu2006/libs/64:/home/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
```

Continued on next page



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## 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



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**SPECfp\_base2006 = 98.1**

**CPU2006 license:** 001176

**Test sponsor:** Supermicro

**Tested by:** Supermicro

**Test date:** Dec-2015

**Hardware Availability:** Oct-2015

**Software Availability:** Sep-2015

## 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



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## 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>

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

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