# SPEC® CFP2006 Result

**Supermicro**

SuperServer 5019S-M2
(X11SSZ-QF, Intel Core i5-6600)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>97.2</th>
</tr>
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<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>95.0</td>
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<thead>
<tr>
<th>CPU2006 license: 001176</th>
<th>Test date: Dec-2015</th>
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<tr>
<td>Test sponsor: Supermicro</td>
<td>Hardware Availability: Sep-2015</td>
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<tr>
<td>Tested by: Supermicro</td>
<td>Software Availability: Sep-2015</td>
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</table>

### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Core i5-6600</td>
</tr>
<tr>
<td>CPU Characteristics</td>
<td>Intel Turbo Boost Technology up to 3.90 GHz</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>3300</td>
</tr>
<tr>
<td>FPU</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled</td>
<td>4 cores, 1 chip, 4 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable</td>
<td>1 chip</td>
</tr>
<tr>
<td>Primary Cache</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache</td>
<td>256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Operating System</th>
<th>Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.el7.x86_64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compiler</td>
<td>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</td>
</tr>
<tr>
<td>Auto Parallel</td>
<td>Yes</td>
</tr>
<tr>
<td>File System</td>
<td>xfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

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Continued on next page
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L3 Cache: 6 MB I+D on chip per chip
Base Pointers: 64-bit
Other Cache: None
Peak Pointers: 32/64-bit
Memory: 32 GB (4 x 8 GB 2Rx8 PC4-2133P-U)
Other Software: None
Disk Subsystem: 1 x 200 GB SATA III SSD
Software Availability: Sep-2015
Other Hardware: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>96.6</td>
<td>141</td>
<td>96.3</td>
<td>141</td>
</tr>
<tr>
<td>416.gamess</td>
<td>395</td>
<td>49.6</td>
<td>395</td>
<td>49.5</td>
</tr>
<tr>
<td>433.milc</td>
<td>81.7</td>
<td>112</td>
<td>81.8</td>
<td>112</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>44.1</td>
<td>206</td>
<td>44.0</td>
<td>207</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>107</td>
<td>66.5</td>
<td>107</td>
<td>66.8</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>37.1</td>
<td>322</td>
<td>36.6</td>
<td>327</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>90.4</td>
<td>104</td>
<td>90.1</td>
<td>104</td>
</tr>
<tr>
<td>444.namd</td>
<td>214</td>
<td>37.5</td>
<td>214</td>
<td>37.5</td>
</tr>
<tr>
<td>447.dealII</td>
<td>141</td>
<td>81.3</td>
<td>141</td>
<td>81.3</td>
</tr>
<tr>
<td>450.soplex</td>
<td>153</td>
<td>54.5</td>
<td>156</td>
<td>53.5</td>
</tr>
<tr>
<td>453.povray</td>
<td>73.2</td>
<td>72.7</td>
<td>74.0</td>
<td>71.9</td>
</tr>
<tr>
<td>454.calculix</td>
<td>106</td>
<td>77.5</td>
<td>106</td>
<td>77.5</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>130</td>
<td>81.9</td>
<td>130</td>
<td>81.8</td>
</tr>
<tr>
<td>465.tonto</td>
<td>149</td>
<td>66.1</td>
<td>149</td>
<td>66.0</td>
</tr>
<tr>
<td>470.lbm</td>
<td>72.9</td>
<td>189</td>
<td>72.8</td>
<td>189</td>
</tr>
<tr>
<td>481.wrf</td>
<td>88.0</td>
<td>127</td>
<td>88.1</td>
<td>127</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>205</td>
<td>95.3</td>
<td>206</td>
<td>94.5</td>
</tr>
</tbody>
</table>

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 Tue Dec 8 00:04:13 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) i5-6600 CPU @ 3.30GHz
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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
cautions.)
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)

uname -a:
Linux X11SSZ-01 3.10.0-229.e17.x86_64 #1 SMP Thu Jan 29 18:37:38 EST 2015
x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Dec 7 19:46

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)
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

dealII: basepeak = yes

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) -unroll14
            -ansi-alias

Fortran benchmarks:

bwaves: basepeak = yes

game5: -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

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

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 -unroll14

Benchmarks using both Fortran and C:

gromacs: basepeak = yes

cactusADM: basepeak = yes

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

wrf: basepeak = yes
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The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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