# SPEC® CFP2006 Result

**Supermicro**

Supermicro X11SSM-F motherboard  
(X11SSM-F, Intel Xeon E3-1220 v5)

<table>
<thead>
<tr>
<th>SPECfp®2006</th>
<th>92.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>90.9</td>
</tr>
</tbody>
</table>

- **CPU2006 license**: 001176
- **Test sponsor**: Supermicro
- **Tested by**: Supermicro
- **Test date**: Jan-2016
- **Hardware Availability**: Oct-2015
- **Software Availability**: Sep-2015

### Hardware

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon E3-1220 v5</td>
</tr>
<tr>
<td>CPU Characteristics:</td>
<td>Intel Turbo Boost Technology up to 3.50 GHz</td>
</tr>
<tr>
<td>CPU MHz:</td>
<td>3000</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>Specification</th>
<th>Value</th>
</tr>
</thead>
</table>
| 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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*Continued on next page*
Supermicro (X11SSM-F, Intel Xeon E3-1220 v5)

SPECfp2006 = 92.8
SPECfp_base2006 = 90.9

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro
L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 32 GB (2 x 16 GB 2Rx8 PC4-2133P-E)
Disk Subsystem: 1 x 400 GB SATA III SSD
Other Hardware: None

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>94.3 144</td>
<td>93.6 145</td>
<td>94.2 144</td>
<td>94.3 144</td>
</tr>
<tr>
<td>416.gamess</td>
<td>432 45.3</td>
<td>432 45.4</td>
<td>432 45.3</td>
<td>392 50.0</td>
</tr>
<tr>
<td>433.milc</td>
<td>87.1 105</td>
<td>87.1 105</td>
<td>87.0 106</td>
<td>87.1 105</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>45.0 202</td>
<td>44.9 203</td>
<td>44.9 203</td>
<td>45.0 202</td>
</tr>
<tr>
<td>435.gromacs</td>
<td>117 60.9</td>
<td>116 61.4</td>
<td>117 61.1</td>
<td>117 60.9</td>
</tr>
<tr>
<td>436.cactusADM</td>
<td>34.7 345</td>
<td>34.9 342</td>
<td>34.7 344</td>
<td>34.7 345</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td>88.0 107</td>
<td>87.9 107</td>
<td>88.0 107</td>
<td>88.0 107</td>
</tr>
<tr>
<td>444.namd</td>
<td>238 33.7</td>
<td>238 33.8</td>
<td>237 33.8</td>
<td>234 34.3</td>
</tr>
<tr>
<td>447.dealII</td>
<td>155 73.7</td>
<td>156 73.5</td>
<td>155 73.6</td>
<td>155 73.7</td>
</tr>
<tr>
<td>450.soplex</td>
<td>159 52.3</td>
<td>162 51.4</td>
<td>161 51.9</td>
<td>159 52.3</td>
</tr>
<tr>
<td>453.povray</td>
<td>81.6 65.2</td>
<td>82.2 64.8</td>
<td>81.6 65.2</td>
<td>72.8 73.0</td>
</tr>
<tr>
<td>454.calculix</td>
<td>117 70.8</td>
<td>117 70.8</td>
<td>117 70.8</td>
<td>115 71.5</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>129 82.4</td>
<td>129 82.3</td>
<td>129 82.3</td>
<td>127 83.5</td>
</tr>
<tr>
<td>465.tonto</td>
<td>161 60.9</td>
<td>161 61.0</td>
<td>161 60.9</td>
<td>146 67.3</td>
</tr>
<tr>
<td>470.lbm</td>
<td>75.6 182</td>
<td>75.6 182</td>
<td>75.7 182</td>
<td>75.6 182</td>
</tr>
<tr>
<td>481.wrf</td>
<td>89.7 125</td>
<td>89.7 125</td>
<td>89.7 125</td>
<td>89.7 125</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>210 92.7</td>
<td>210 92.8</td>
<td>210 92.5</td>
<td>210 92.7</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

As tested, the system used a Supermicro CSE-113MFAC2-R606CB chassis. The chassis is configured with 2 PWS-606P-1R redundant power supply, 1 SNK-P0046P heatsink, as well as 4 FAN-0154L4 middle cooling fan.
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $ $e3fbb86d7ba285932c8e81e28219e1 running on X10SRA-01 Sat Jan 23 02:49:38 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

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Supermicro
Supermicro X11SSM-F motherboard
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SPECfp2006 = 92.8
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CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Test date: Jan-2016
Hardware Availability: Oct-2015
Software Availability: Sep-2015

Platform Notes (Continued)

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E3-1220 v5 @ 3.00GHz
  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: 32768808 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

Using /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 X10SRA-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 Jan 22 22:15

  SPEC is set to: /usr/cpu2006

  Filesystem  Type  Size  Used Avail Use% Mounted on
  /dev/sda2    xfs  183G  6.9G  176G  4% /

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. 1.0b 12/22/2015
  Memory:
  2x Not Specified Not Specified
  2x Samsung M391A2K43BB1-CPB 16 GB 2 rank 2133 MHz
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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=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 -nofor_main
447.dealII: -DSPEC_CPU_LP64
450.soplex: -DSPEC_CPU_LP64
453.povray: -DSPEC_CPU_LP64 -nofor_main
454.calculix: -DSPEC_CPU_LP64 -nofor_main
459.GemsFDTD: -DSPEC_CPU_LP64
465.tonto: -DSPEC_CPU_LP64
470.lbm: -DSPEC_CPU_LP64

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Base Portability Flags (Continued)

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

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Supermicro
Supermicro X11SSM-F motherboard
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SPECfp2006 = 92.8
SPECfp_base2006 = 90.9

Peak Optimization Flags (Continued)

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

Benchmarks using both Fortran and C:
435.gromacs: basepeak = yes
**Supermicro**

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(X11SSM-F, Intel Xeon E3-1220 v5)

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| SPECfp_base2006 = | 90.9 |

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

**Test date:** Jan-2016  
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### Peak Optimization Flags (Continued)

- **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


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


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For other inquiries, please contact webmaster@spec.org.

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