**SPEC® CFP2006 Result**

Supermicro
Supermicro X11SAE-M motherboard
(X11SAE-M, Intel Xeon E3-1245 v5)

<table>
<thead>
<tr>
<th>SPECfp®2006 = 97.4</th>
<th>SPECfp_base2006 = 95.4</th>
</tr>
</thead>
</table>

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

**Hardware**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name:</td>
<td>Intel Xeon E3-1245 v5</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>3500</td>
</tr>
<tr>
<td>FPU:</td>
<td>Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled:</td>
<td>4 cores, 1 chip, 4 cores/chip, 2 threads/core</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>Feature</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System:</td>
<td>Red Hat Enterprise Linux Server release 7.1, Kernel 3.10.0-229.el7.x86_64</td>
</tr>
<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>

Test date: Mar-2016
Hardware Availability: Oct-2015
Software Availability: Sep-2015
Supermicro
Supermicro X11SAE-M motherboard
(X11SAE-M, Intel Xeon E3-1245 v5)

SPECfp2006 = 97.4
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CPU2006 license: 001176
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Results Table

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<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>93.2</td>
<td>146</td>
<td>93.4</td>
<td>145</td>
<td>93.2</td>
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<td>93.4</td>
<td>145</td>
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<tr>
<td>416.gamess</td>
<td>400</td>
<td>48.9</td>
<td>400</td>
<td>49.0</td>
<td>400</td>
<td>48.9</td>
<td>387</td>
<td>50.5</td>
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<td>433.milc</td>
<td>84.1</td>
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<td>84.0</td>
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<td>84.0</td>
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<td>84.1</td>
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<td>434.zeusmp</td>
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<td>209</td>
<td>43.6</td>
<td>209</td>
<td>43.6</td>
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<tr>
<td>435.gromacs</td>
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<td>66.1</td>
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<td>66.1</td>
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<td>65.7</td>
<td>108</td>
<td>66.1</td>
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<td>436.cactusADM</td>
<td>33.6</td>
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<td>33.7</td>
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<td>33.3</td>
<td>359</td>
<td>33.6</td>
<td>356</td>
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<tr>
<td>437.leslie3d</td>
<td>87.4</td>
<td>108</td>
<td>87.8</td>
<td>107</td>
<td>87.5</td>
<td>107</td>
<td>87.4</td>
<td>107</td>
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<tr>
<td>444.namd</td>
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<td>36.7</td>
<td>232</td>
<td>34.6</td>
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<td>36.6</td>
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<td>447.dealII</td>
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<td>79.9</td>
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<td>80.1</td>
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<td>79.9</td>
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<tr>
<td>450.soplex</td>
<td>151</td>
<td>55.1</td>
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<td>54.5</td>
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<td>55.5</td>
<td>151</td>
<td>55.1</td>
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<td>453.povray</td>
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<td>71.1</td>
<td>75.5</td>
<td>70.4</td>
<td>74.2</td>
<td>71.7</td>
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<td>79.9</td>
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<td>454.calculix</td>
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<td>76.5</td>
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<td>76.3</td>
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<td>77.3</td>
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<td>459.GemsFDTD</td>
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<td>82.9</td>
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<td>83.0</td>
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<td>82.9</td>
<td>125</td>
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<td>465.tonto</td>
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<td>65.8</td>
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<td>65.6</td>
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<tr>
<td>470.lbm</td>
<td>76.0</td>
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<td>76.3</td>
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<td>75.9</td>
<td>181</td>
<td>76.0</td>
<td>181</td>
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<tr>
<td>481.wrf</td>
<td>86.5</td>
<td>129</td>
<td>86.6</td>
<td>129</td>
<td>86.9</td>
<td>128</td>
<td>86.5</td>
<td>129</td>
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<tr>
<td>482.sphinx3</td>
<td>197</td>
<td>99.1</td>
<td>197</td>
<td>99.0</td>
<td>196</td>
<td>99.2</td>
<td>197</td>
<td>99.1</td>
</tr>
</tbody>
</table>

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"

Platform Notes
As tested, the system used a Supermicro CSE-731i-300B chassis.
The chassis is configured with 2 PWS-305-PQ redundant power supply, 1 SNK-P0046A4 heatsink, as well as 1 FAN-0108L4 rear cooling fan.
Sysinfo program /usr/cpu2006/config/sysinfo.rev6914
$Rev: 6914 $ $Date:: 2014-06-25 $@ e3fbb8667b5a285932ceab81e28219e1

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
SPEC CFP2006 Result

Supermicro
Supermicro X11SAE-M motherboard (X11SAE-M, Intel Xeon E3-1245 v5)

SPECfp2006 = 97.4
SPECfp_base2006 = 95.4

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

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

Platform Notes (Continued)

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E3-1245 v5 @ 3.50GHz
  1 "physical id"s (chips)
  8 "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 : 8
  physical 0: cores 0 1 2 3
  cache size : 8192 KB

From /proc/meminfo
  MemTotal: 32719192 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 X10SRA-01 3.10.0-229.el7.x86_64 #1 SMP Thu Jan 29 10:37:38 EST 2015
  x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 Mar 18 19:23

  SPEC is set to: /usr/cpu2006

  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2 xfs 183G 5.3G 178G 3% /

  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 12/21/2015
  Memory:
  2x Not Specified Not Specified
  2x Samsung M391A2K43BB1-CPB 16 GB 2 rank 2133 MHz

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Supermicro
Supermicro X11SAE-M motherboard
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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 = "/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.game8s: -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

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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:

Continued on next page
**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

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Tested by: Supermicro

Test date: Mar-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
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 questions about this result, please contact the tester.
For other inquiries, please contact webmaster@spec.org.

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