## SPEC® CFP2006 Result

**Supermicro**

SuperWorkstation 5039A-iL (X11SAE, Intel Xeon E3-1230 v5)

<table>
<thead>
<tr>
<th>SPECfp®2006 = 96.4</th>
<th>SPECfp_base2006 = 94.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2006 license: 001176</td>
<td>Test date: Dec-2015</td>
</tr>
<tr>
<td>Test sponsor: Supermicro</td>
<td>Hardware Availability: Oct-2015</td>
</tr>
<tr>
<td>Tested by: Supermicro</td>
<td>Software Availability: Sep-2015</td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>CPU Name: Intel Xeon E3-1230 v5</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Characteristics: Intel Turbo Boost Technology up to 3.80 GHz</td>
</tr>
<tr>
<td>CPU MHZ: 3400</td>
</tr>
<tr>
<td>FPU: Integrated</td>
</tr>
<tr>
<td>CPU(s) enabled: 4 cores, 1 chip, 4 cores/chip</td>
</tr>
<tr>
<td>CPU(s) orderable: 1 chip</td>
</tr>
<tr>
<td>Primary Cache: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Secondary Cache: 256 KB I+D on chip per core</td>
</tr>
</tbody>
</table>

### Software

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

### SPECfp2006 Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>53.4</td>
<td></td>
</tr>
<tr>
<td>416.gamess</td>
<td>48.8</td>
<td></td>
</tr>
<tr>
<td>433.milc</td>
<td></td>
<td>206</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>435.gromacs</td>
<td>66.2</td>
<td></td>
</tr>
<tr>
<td>436.cactusADM</td>
<td></td>
<td>355</td>
</tr>
<tr>
<td>437.leslie3d</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>444.namd</td>
<td>36.7</td>
<td></td>
</tr>
<tr>
<td>447.dealII</td>
<td></td>
<td>78.2</td>
</tr>
<tr>
<td>450.soplex</td>
<td>53.4</td>
<td></td>
</tr>
<tr>
<td>453.povray</td>
<td></td>
<td>79.1</td>
</tr>
<tr>
<td>454.calculix</td>
<td></td>
<td>69.8</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td></td>
<td>75.5</td>
</tr>
<tr>
<td>465.tonto</td>
<td></td>
<td>82.0</td>
</tr>
<tr>
<td>470.lbm</td>
<td></td>
<td>65.3</td>
</tr>
<tr>
<td>481.wrf</td>
<td></td>
<td>128</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td></td>
<td>99.0</td>
</tr>
</tbody>
</table>

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info@spec.org

http://www.spec.org/
Supermicro

SuperWorkstation 5039A-iL (X11SAE, Intel Xeon E3-1230 v5)

SPEC CFP2006 Result

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SPECfp2006 = 96.4
SPECfp_base2006 = 94.4

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

L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)
Disk Subsystem: 1 x 1000 GB SATA III, 7200 RPM
Other Hardware: None

Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

Results Table

Benchmark | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio
--- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | ---
410.bwaves | 98.8 | 138 | 99.0 | 137 | 98.6 | 138 | 98.8 | 138 | 99.0 | 137 | 98.6 | 138
416.gamess | 401 | 48.9 | 401 | 48.8 | 401 | 48.8 | 367 | 53.4 | 367 | 53.4 | 367 | 53.4
433.milc | 84.5 | 109 | 84.7 | 108 | 84.7 | 108 | 84.5 | 109 | 84.7 | 108 | 84.7 | 108
434.eusmp | 44.1 | 206 | 44.1 | 206 | 44.1 | 206 | 44.1 | 206 | 44.1 | 206 | 44.1 | 206
435.gromacs | 108 | 66.0 | 108 | 66.2 | 108 | 66.2 | 108 | 66.0 | 108 | 66.2 | 108 | 66.2
436.cactusADM | 34.1 | 351 | 33.6 | 356 | 33.7 | 355 | 34.1 | 351 | 33.6 | 356 | 33.7 | 355
437.leslie3d | 88.2 | 107 | 88.1 | 107 | 88.3 | 106 | 88.2 | 107 | 88.1 | 107 | 88.3 | 106
444.namd | 222 | 36.1 | 222 | 36.1 | 222 | 36.1 | 218 | 36.7 | 218 | 36.7 | 218 | 36.7
447.dealII | 146 | 78.2 | 146 | 78.2 | 146 | 78.2 | 146 | 78.2 | 146 | 78.2 | 146 | 78.2
450.soplex | 156 | 53.6 | 156 | 53.4 | 156 | 53.4 | 156 | 53.6 | 156 | 53.4 | 156 | 53.4
453.povray | 76.9 | 69.1 | 76.0 | 70.0 | 76.2 | 69.8 | 67.2 | 79.1 | 68.0 | 78.3 | 67.3 | 79.1
454.calculix | 109 | 75.5 | 109 | 75.5 | 109 | 75.6 | 108 | 76.1 | 108 | 76.1 | 108 | 76.1
459.GemsFDTD | 130 | 81.9 | 129 | 82.0 | 129 | 82.0 | 127 | 83.3 | 127 | 83.2 | 127 | 83.4
465.tonto | 150 | 65.5 | 151 | 65.2 | 151 | 65.3 | 138 | 71.5 | 138 | 71.4 | 138 | 71.2
470.lbm | 73.8 | 186 | 73.9 | 186 | 73.8 | 186 | 73.8 | 186 | 73.9 | 186 | 73.8 | 186
481.wrf | 87.0 | 128 | 86.9 | 128 | 86.9 | 129 | 87.0 | 128 | 86.9 | 128 | 86.9 | 129
482.sphinx3 | 197 | 99.0 | 197 | 98.9 | 194 | 100 | 197 | 99.0 | 197 | 98.9 | 194 | 100

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 Wed Dec 30 01:30:32 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

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Supermicro
SuperWorkstation 5039A-iL
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CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

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

Platform Notes (Continued)

From /proc/cpuinfo
   model name : Intel(R) Xeon(R) CPU E3-1230 v5 @ 3.40GHz
                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: 65622656 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 localhost.localdomain 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 29 21:03

   SPEC is set to: /home/cpu2006
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/mapper/rhel-home xfs 850G 5.1G 845G 1% /home

   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 12/01/2015
   Memory:
      4x Samsung M391A2K43BB1-CPB 16 GB 2 rank 2133 MHz

(End of data from sysinfo program)
Supermicro
SuperWorkstation 5039A-iL (X11SAE, Intel Xeon E3-1230 v5)

SPECfp2006 = 96.4
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CPU2006 license: 001176
Test date: Dec-2015
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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 = ":/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 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
465.tonto: -DSPEC_CPU_LP64
466.lbm: -DSPEC_CPU_LP64
481.wrf:  -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
482.sphinx3: -DSPEC_CPU_LP64
**Supermicro**

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CPU2006 license: 001176  
Test sponsor: Supermicro  
Test date: Dec-2015

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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

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### Peak Optimization Flags

- **C benchmarks:**
  433.milc: basepeak = yes
  470.lbm: basepeak = yes
  482.sphinx3: basepeak = yes

- **C++ benchmarks:**

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Test sponsor: Supermicro
Tested by: Supermicro

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

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) -unroll14
-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
-inl-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
-inl-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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