Supermicro
SuperWorkstation 5039A-iL
(X11SAE, Intel Core i3-6098P)

SPECfp®2006 = 84.4
SPECfp_base2006 = 83.1

Hardware
CPU Name: Intel Core i3-6098P
CPU Characteristics:
CPU MHz: 3600
FPU: Integrated
CPU(s) enabled: 2 cores, 1 chip, 2 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

Software
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)
### Results Table

| Benchmark      | Base     | Peak      | Base     | Peak      | Base     | Peak      | Base     | Peak      | Base     | Peak      | Base     | Peak      | Base     | Peak      | Base     | Peak      |
|----------------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|-----------|
| 410.bwaves     | 98.8     | 138       | 98.5     | 138       | 98.8     | 138       | 98.8     | 138       | 98.8     | 138       | 98.8     | 138       | 98.8     | 138       | 98.8     | 138       |
| 416.gamess     | 403      | 48.6      | 403      | 48.6      | 403      | 48.6      | 385      | 50.9      | 385      | 50.9      | 385      | 50.9      | 385      | 50.9      | 385      | 50.9      |
| 433.milc       | 86.7     | 106       | 86.5     | 106       | 86.8     | 106       | 86.7     | 106       | 86.5     | 106       | 86.8     | 106       | 86.5     | 106       | 86.8     | 106       |
| 434.zeusmp     | 59.5     | 153       | 59.5     | 153       | 59.6     | 153       | 59.5     | 153       | 59.5     | 153       | 59.5     | 153       | 59.6     | 153       | 59.6     | 153       |
| 435.gromacs    | 119      | 60.1      | 119      | 60.1      | 119      | 60.2      | 119      | 60.1      | 119      | 60.1      | 119      | 60.1      | 119      | 60.1      | 119      | 60.1      |
| 436.cactusADM  | 58.7     | 204       | 58.8     | 203       | 59.0     | 203       | 58.7     | 204       | 58.8     | 203       | 59.0     | 203       | 59.0     | 203       | 59.0     | 203       |
| 437.leslie3d   | 103      | 91.2      | 103      | 91.3      | 103      | 91.2      | 103      | 91.4      | 103      | 91.3      | 103      | 91.2      | 103      | 91.2      | 103      | 91.2      |
| 444.namd       | 234      | 34.3      | 234      | 34.3      | 234      | 34.3      | 229      | 35.0      | 230      | 34.8      | 230      | 34.9      | 230      | 34.9      | 230      | 34.9      |
| 447.dealII     | 154      | 74.1      | 154      | 74.2      | 154      | 74.1      | 154      | 74.2      | 154      | 74.2      | 154      | 74.1      | 154      | 74.1      | 154      | 74.1      |
| 450.soplex     | 185      | 44.6      | 186      | 44.9      | 187      | 44.6      | 185      | 45.0      | 186      | 44.9      | 187      | 44.6      | 187      | 44.6      | 187      | 44.6      |
| 453.povray     | 79.7     | 66.8      | 79.7     | 66.8      | 80.9     | 65.7      | 70.9     | 75.0      | 70.9     | 75.0      | 70.9     | 75.0      | 70.9     | 75.0      | 70.9     | 75.0      |
| 454.calculix   | 113      | 73.3      | 113      | 73.3      | 113      | 73.3      | 114      | 72.4      | 114      | 72.4      | 114      | 72.4      | 114      | 72.4      | 114      | 72.4      |
| 459.GemsFDTD   | 155      | 68.3      | 156      | 68.0      | 155      | 68.4      | 151      | 70.5      | 151      | 70.4      | 150      | 70.8      | 150      | 70.8      | 150      | 70.8      |
| 465.tonto      | 158      | 62.1      | 158      | 62.2      | 158      | 62.1      | 149      | 66.0      | 149      | 66.0      | 150      | 65.7      | 150      | 65.7      | 150      | 65.7      |
| 470.lbm        | 72.9     | 188       | 72.9     | 188       | 72.9     | 188       | 72.9     | 188       | 72.9     | 188       | 72.9     | 188       | 72.9     | 188       | 72.9     | 188       |
| 481.wrf        | 98.0     | 114       | 97.9     | 114       | 98.0     | 114       | 98.0     | 114       | 97.9     | 114       | 98.0     | 114       | 98.0     | 114       | 98.0     | 114       |
| 482.sphinx3    | 278      | 70.1      | 277      | 70.5      | 276      | 70.7      | 278      | 70.1      | 277      | 70.5      | 276      | 70.7      | 276      | 70.7      | 276      | 70.7      |

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 Fri Jan 22 17:22:13 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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CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

Platform Notes (Continued)

From /proc/cpuinfo
model name : Intel(R) Core(TM) i3-6098P CPU @ 3.60GHz
  1 "physical id"s (chips)
  2 "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 : 2
siblings : 2
physical 0: cores 0 1
  cache size : 3072 KB

From /proc/meminfo
 MemTotal: 65581992 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 Jan 22 01:49

SPEC is set to: /home/cpu2006
 Filesystem Type Size Used Avail Use% Mounted on
 /dev/mapper/rhel-home xfs 850G 5.2G 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)
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CPU2006 license: 001176
Test sponsor: Supermicro
Test date: Jan-2016
Tested by: Supermicro
Hardware Availability: Dec-2015
Software Availability: Sep-2015

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 = "2"

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
## SPEC CFP2006 Result

Supermicro  
SuperWorkstation 5039A-iL  
(X11SAE , Intel Core i3-6098P)

<table>
<thead>
<tr>
<th>CPU2006 license: 001176</th>
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</table>

### SPECfp2006 = 84.4  
SPECfp_base2006 = 83.1

### 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:

Continued on next page
**Peak Optimization Flags (Continued)**

<table>
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<th>Flags</th>
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<tr>
<td>444.namd</td>
<td>-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</td>
</tr>
<tr>
<td>447.dealII</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>450.soplex</td>
<td>basepeak = yes</td>
</tr>
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<td>453.povray</td>
<td>-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</td>
</tr>
<tr>
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<td>basepeak = yes</td>
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<tr>
<td>416.gamess</td>
<td>-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-</td>
</tr>
<tr>
<td>434.zeusmp</td>
<td>basepeak = yes</td>
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</tr>
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<td>-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</td>
</tr>
<tr>
<td>465.tonto</td>
<td>-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</td>
</tr>
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**Benchmarks using both Fortran and C:**

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<td>436.cactusADM</td>
<td>basepeak = yes</td>
</tr>
<tr>
<td>454.calculix</td>
<td>-xCORE-AVX2 -ipo -O3 -no-prec-div -auto-ilp32 -ansi-alias</td>
</tr>
<tr>
<td>481.wrf</td>
<td>basepeak = yes</td>
</tr>
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# SPEC CFP2006 Result

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**Test sponsor:** Supermicro  
**Tested by:** Supermicro

**Test date:** Jan-2016  
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**Software Availability:** Sep-2015

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.

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