### SPEC® CFP2006 Result

#### Supermicro

**SuperWorkstation 5039A-iL**  
(X11SAE, Intel Core i7-6700K)

<table>
<thead>
<tr>
<th>SPECfp2006</th>
<th>102</th>
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</thead>
<tbody>
<tr>
<td>SPECfp_base2006</td>
<td>100</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td>410.bwaves</td>
<td>138</td>
</tr>
<tr>
<td>416.gamess</td>
<td>58.9</td>
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<tr>
<td>433.milc</td>
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<tr>
<td>434.zeusmp</td>
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<tr>
<td>435.gromacs</td>
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<tr>
<td>436.cactusADM</td>
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<tr>
<td>444.namd</td>
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<tr>
<td>447.dealII</td>
<td>85.7</td>
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<tr>
<td>450.soplex</td>
<td>57.4</td>
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<td>453.povray</td>
<td>87.0</td>
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<tr>
<td>454.calculix</td>
<td>76.8</td>
</tr>
<tr>
<td>459.GemsFDTD</td>
<td>83.2</td>
</tr>
<tr>
<td>465.tonto</td>
<td>82.5</td>
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<tr>
<td>470.lbm</td>
<td>72.2</td>
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<tr>
<td>481.wrf</td>
<td>186</td>
</tr>
<tr>
<td>482.sphinx3</td>
<td>110</td>
</tr>
</tbody>
</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)

#### Hardware

- **CPU Name:** Intel Core i7-6700K  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 4.20 GHz  
- **CPU MHz:** 4000  
- **FPU:** Integrated  
- **CPU(s) enabled:** 4 cores, 1 chip, 4 cores/chip  
- **Primary Cache:** 32 KB I + 32 KB D on chip per core  
- **Secondary Cache:** 256 KB I+D on chip per core

Continued on next page

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**Note:** The table above summarizes the performance of the Supermicro SuperWorkstation 5039A-iL, equipped with an Intel Core i7-6700K CPU, in the SPECfp2006 benchmark. The results indicate that the system achieved a score of 102 SPECfp2006, which is 100 SPECfp_base2006.
Supermicro
SuperWorkstation 5039A-iL
(X11SAE, Intel Core i7-6700K)

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

L3 Cache: 8 MB I+D on chip per chip
Memory: 64 GB (4 x 16 GB 2Rx8 PC4-2133P-E)
Disk Subsystem: 1 x 1000 GB SATA III, 7200 RPM

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
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<td>77.3</td>
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<td>454.calculix</td>
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<td>82.7</td>
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<td>135</td>
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<tr>
<td>482.sphinx3</td>
<td>176</td>
<td>111</td>
<td>179</td>
<td>109</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
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 15 09:43:55 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
SuperWorkstation 5039A-iL
(X11SAE, Intel Core i7-6700K)

SPEC CFP2006 Result

SPECfp2006 = 102
SPECfp_base2006 = 100

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

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

Platform Notes (Continued)

From /proc/cpuinfo
model name : Intel(R) Core(TM) i7-6700K CPU @ 4.00GHz
  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
cautions.)
cpu cores : 4
siblings : 4
physical 0: cores 0 1 2 3
cache size : 8192 KB

From /proc/meminfo
MemTotal: 65581696 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 Feb 15 05:47

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)
**SPEC CFP2006 Result**

**Supermicro**
SuperWorkstation 5039A-iL (X11SAE, Intel Core i7-6700K)

| SPECfp2006 = | 102 |
| SPECfp_base2006 = | 100 |

| CPU2006 license: | 001176 |
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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
- 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
Supermicro
SuperWorkstation 5039A-iL
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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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Supermicro
SuperWorkstation 5039A-iL
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SPECfp2006 = 102
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CPU2006 license: 001176
Test date: Jan-2016
Test sponsor: Supermicro
Hardware Availability: Aug-2015
Tested by: Supermicro
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
-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

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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SuperWorkstation 5039A-iL
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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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For other inquiries, please contact webmaster@spec.org.

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