### SPEC® CFP2006 Result

**Supermicro**

Supermicro C7Z170-M motherboard (C7Z170-M, Intel Core i7-6700T)

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

** SPECfp®2006 = 93.9  **  
** SPECfp_base2006 = 92.0  **

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECfp2006</th>
<th>SPECfp_base2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>410.bwaves</td>
<td>143</td>
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</tr>
<tr>
<td>416.gamess</td>
<td>51.3</td>
<td>46.7</td>
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<tr>
<td>433.milc</td>
<td>107</td>
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<td>434.zeusmp</td>
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<td>435.gromacs</td>
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<tr>
<td>482.sphinx3</td>
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</tr>
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</table>

**Hardware**

- **CPU Name:** Intel Core i7-6700T  
- **CPU Characteristics:** Intel Turbo Boost Technology up to 3.60 GHz  
- **CPU MHz:** 2800  
- **FPU:** Integrated  
- **CPU(s) enabled:** 4 cores, 1 chip, 4 cores/chip, 2 threads/core  
- **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)
Supermicro

Supermicro C7Z170-M motherboard (C7Z170-M, Intel Core i7-6700T)

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro
L3 Cache: 8 MB I+D on chip per chip
Other Cache: None
Memory: 16 GB (4 x 4 GB 1Rx8 PC4-2800R-U, running at 2133 MHz)
Disk Subsystem: 1 x 200 GB SATA III SSD
Other Hardware: None
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other Software: None

SPECfp2006 = 93.9
SPECfp_base2006 = 92.0

Results Table

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<td>95.5</td>
<td>203</td>
<td>95.9</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-731i-300B chassis.
The chassis is configured with a PWS-305-PQ 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 running on C7Z170-01 Sat Dec 12 19:27:47 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
Continued on next page
Supermicro
Supermicro C7Z170-M motherboard
(C7Z170-M, Intel Core i7-6700T)

SPECfp2006 = 93.9
SPECfp_base2006 = 92.0

CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro
Test date: Dec-2015
Hardware Availability: Sep-2015
Software Availability: Sep-2015

Platform Notes (Continued)

From /proc/cpuinfo
  model name: Intel(R) Core(TM) i7-6700T CPU @ 2.80GHz
  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: 16209036 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 C7Z170-01 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 Dec 12 19:23

  SPEC is set to: /usr/cpu2006
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2 xfs 183G 26G 158G 14% /

  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. 1.0c 12/09/2015
  Memory:
  4x 0420 F4-2800C16-4GRK 4 GB 1 rank 2133 MHz

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Supermicro
Supermicro C7Z170-M motherboard
(C7Z170-M, Intel Core i7-6700T)

SPECfp2006 = 93.9
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Tested by: Supermicro
Test date: Dec-2015
Hardware Availability: Sep-2015
Software Availability: Sep-2015

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.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.leshe3d: -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
470.lbm: -DSPEC_CPU_LP64
481.wrf: -DSPEC_CPU_LP64 -DSPEC_CPU_CASE_FLAG -DSPEC_CPU_LINUX
Supermicro C7Z170-M motherboard (C7Z170-M, Intel Core i7-6700T)

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CPU2006 license: 001176
Test date: Dec-2015
Test sponsor: Supermicro
Hardware Availability: Sep-2015
Tested by: Supermicro
Software Availability: Sep-2015

Base Portability Flags (Continued)

482.sphinx3: -DSPEC_CPU_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -parallel -opt-prefetch
-anzi-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
-anzi-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
Supermicro
Supermicro C7Z170-M motherboard
(C7Z170-M, Intel Core i7-6700T)

SPECfp2006 = 93.9
SPECfp_base2006 = 92.0

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

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

Peak Optimization Flags (Continued)

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
436.cactusADM: basepeak = yes

Continued on next page
**Supermicro**

Supermicro C7Z170-M motherboard (C7Z170-M, Intel Core i7-6700T)

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| SPECfp_base2006 = | 92.0 |

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- **Test sponsor**: Supermicro
- **Test date**: Dec-2015
- **Hardware Availability**: Sep-2015
- **Tested by**: Supermicro
- **Software Availability**: Sep-2015

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**Peak Optimization Flags (Continued)**

- 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:


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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