Supermicro
SuperServer 5018R-M
(X10SRi-F, Intel Xeon E5-2620 v4)

SPECfp®2006 = 93.3
SPECfp_base2006 = 89.0

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

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

Hardware
CPU Name: Intel Xeon E5-2620 v4
CPU Characteristics: Intel Turbo Boost Technology up to 3.00 GHz
CPU MHz: 2100
FPU: Integrated
CPU(s) enabled: 8 cores, 1 chip, 8 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: SUSE Linux Enterprise Server 12 SP1, Kernel 3.12.49-11-default
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: btrfs
System State: Run level 3 (multi-user)
Supermicro
SuperServer 5018R-M
(X10SRi-F, Intel Xeon E5-2620 v4)

CPU2006 license: 001176
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L3 Cache: 20 MB I+D on chip per chip
Other Cache: None
Memory: 128 GB (4 x 32 GB 2Rx4 PC4-2400T-R, running at 2133 MHz)
Disk Subsystem: 1 x 500 GB SATA III, 7200 RPM
Other Hardware: None

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

SPECfp2006 = 93.3
SPECfp_base2006 = 89.0

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

Results Table

<table>
<thead>
<tr>
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<td>64.8</td>
<td>299</td>
<td>65.3</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:
Early Snoop = Disable
Sysinfo program /home/cpu2006_ic16/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
Supermicro
SuperServer 5018R-M
(X10SRi-F, Intel Xeon E5-2620 v4)

SPECfp2006 = 93.3
SPECfp_base2006 = 89.0

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

Platform Notes (Continued)

From /proc/cpuinfo
  model name : Intel(R) Xeon(R) CPU E5-2620 v4 @ 2.10GHz
    1 "physical id"s (chips)
    16 "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 : 8
    siblings : 16
    physical 0: cores 0 1 2 3 4 5 6 7
  cache size : 20480 KB

From /proc/meminfo
  MemTotal:       131999596 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
  SuSE-release:
    SUSE Linux Enterprise Server 12 (x86_64)
    PATCHLEVEL = 1
    # This file is deprecated and will be removed in a future service pack or
      release.
    # Please check /etc/os-release for details about this release.
  os-release:
    NAME="SLES"
    VERSION="12-SP1"
    VERSION_ID="12.1"
    PRETTY_NAME="SUSE Linux Enterprise Server 12 SP1"
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12:sp1"

  uname -a:
      (8d714a0) x86_64 x86_64 x86_64 GNU/Linux

  run-level 3 May 24 11:41

  SPEC is set to: /home/cpu2006_ic16
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/sda1      btrfs  466G   91G  375G  20% /

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. T20160411152121 04/11/2016
  Continued on next page
Supermicro
SuperServer 5018R-M
(X10SRi-F, Intel Xeon E5-2620 v4)

SPEC CFP2006 Result

SPECfp2006 = 93.3
SPECfp_base2006 = 89.0

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

Platform Notes (Continued)

Memory:
4x Micron 36ASF4G72PZ-2G3A1 32 GB 2 rank 2400 MHz, configured at 2133 MHz
4x NO DIMM NO DIMM

(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 = "/home/cpu2006_ic16/libs/32:/home/cpu2006_ic16/libs/64:/home/cpu2006_ic16/sh"
OMP_NUM_THREADS = "8"

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

Continued on next page
### Supermicro

SuperServer 5018R-M (X10SRi-F, Intel Xeon E5-2620 v4)

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### CPU2006 license: 001176

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<tr>
<td>Software Availability:</td>
<td>Sep-2015</td>
</tr>
</tbody>
</table>

#### Base Portability Flags (Continued)

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`

#### 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
Supermicro
SuperServer 5018R-M
(X10SRi-F, Intel Xeon E5-2620 v4)

SPECfp2006 = 93.3
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CPU2006 license: 001176
Test sponsor: Supermicro
Tested by: Supermicro

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

Peak Optimization Flags

C benchmarks:

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

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) -unroll4
-ansi-alias

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 -scalar-rep-

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:

Continued on next page
Supermicro
SuperServer 5018R-M
(X10SRi-F, Intel Xeon E5-2620 v4)

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Peak Optimization Flags (Continued)

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

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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