## SPEC® CPU2017 Integer Speed Result

### Supermicro
SuperServer 5019P-MT (X11SPI-TF, Intel Xeon Silver 4114T)

<table>
<thead>
<tr>
<th>Tests</th>
<th>SPEC2017_int_base</th>
<th>SPEC2017_int_peak</th>
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</thead>
<tbody>
<tr>
<td>perlbench</td>
<td>6.83</td>
<td>7.03</td>
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<tr>
<td>gcc</td>
<td>6.83</td>
<td>7.03</td>
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<td>mcf</td>
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<td>omnet++</td>
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<tr>
<td>xalancbmk</td>
<td>6.83</td>
<td>7.03</td>
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<tr>
<td>x264</td>
<td>6.83</td>
<td>7.03</td>
</tr>
<tr>
<td>deepsjeng</td>
<td>6.83</td>
<td>7.03</td>
</tr>
<tr>
<td>leela</td>
<td>6.83</td>
<td>7.03</td>
</tr>
<tr>
<td>exchange2</td>
<td>6.83</td>
<td>7.03</td>
</tr>
<tr>
<td>xz</td>
<td>6.83</td>
<td>7.03</td>
</tr>
</tbody>
</table>

### Hardware
- **CPU Name:** Intel Xeon Silver 4114T
- **Max MHz.:** 3000
- **Nominal:** 2200
- **Enabled:** 10 cores, 1 chip
- **Orderable:** 1 chip
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 1 MB I+D on chip per core
- **L3:** 13.75 MB I+D on chip per chip
- **Memory:** 192 GB (6 x 32 GB 2Rx4 PC4-2666V-R, running at 2400)
- **Storage:** 1 x 200 GB SATA III SSD
- **Other:** None

### Software
- **OS:** SUSE Linux Enterprise Server 12 SP3 (x86_64)
- **Kernel:** 4.4.114-94.11-default
- **Compiler:** C/C++: Version 18.0.2.199 of Intel C/C++
- **Fortran:** Version 18.0.2.199 of Intel Fortran
- **Compiler for Linux:**
- **Firmware:** Supermicro BIOS version 2.1 released Jun-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other:** jemalloc memory allocator library V5.0.1
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**SPECspeed2017_int_base = 6.83**  
**SPECspeed2017_int_peak = 7.03**

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
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</tbody>
</table>

**SPECspeed2017_int_base = 6.83**  
**SPECspeed2017_int_peak = 7.03**

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"

### General Notes

Environment variables set by runcpu before the start of the run:

- **KMP_AFFINITY** = "granularity=fine,scatter"
- **LD_LIBRARY_PATH** = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
- **OMP_STACKSIZE** = "192M"

Binaries compiled on a system with 1x Intel Core i7-6700K CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5

Transparent Huge Pages enabled by default

Prior to runcpu invocation

Filesystem page cache synced and cleared with:

```
sync; echo 3> /proc/sys/vm/drop_caches
```

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

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CPU2017 License: 001176  
Test Date: Oct-2018  
Test Sponsor: Supermicro  
Tested by: Supermicro  
Hardware Availability: Jul-2017  
Software Availability: Mar-2018

Platform Notes

BIOS Settings:  
Hyper-Threading [ALL] = Disable  
LLC dead line alloc = Disable  
Patrol Scrub = Disable  
Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
running on linux-cyyj Fri Oct 26 10:58:01 2018

SUT (System Under Test) info as seen by some common utilities.  
For more information on this section, see  
https://www.spec.org/cpu2017/Docs/config.html#sysinfo

From /proc/cpuinfo  
model name : Intel(R) Xeon(R) Silver 4114T CPU @ 2.20GHz  
  "physical id"s (chips)  
  10 "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 : 10  
siblings : 10  
physical 0: cores 0 1 2 3 4 8 9 10 11 12

From lscpu:  
Architecture: x86_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
CPU(s): 10  
On-line CPU(s) list: 0-9  
Thread(s) per core: 1  
Core(s) per socket: 10  
Socket(s): 1  
NUMA node(s): 1  
Vendor ID: GenuineIntel  
CPU family: 6  
Model: 85  
Model name: Intel(R) Xeon(R) Silver 4114T CPU @ 2.20GHz  
Stepping: 4  
CPU MHz: 900.000  
CPU max MHz: 2201.0000  
CPU min MHz: 800.0000  
BogoMIPS: 4399.99  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K  
L3 cache: 14080K  
NUMA node0 CPU(s): 0-9

(Continued on next page)
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From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

From /proc/meminfo
MemTotal: 196689132 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release*/etc/*version*
SuSE-release:
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 3

NAME="SLES"
VERSION="12-SP3"
VERSION_ID="12.3"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
Linux linux-cyyj 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)

(Continued on next page)
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Platform Notes (Continued)

x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: Barriers
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

run-level 3 Oct 26 10:14
SPEC is set to: /home/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 145G 66G 79G 46% /home

Additional information from dmidecode follows. 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. 2.1 06/14/2018
Memory:
2x NO DIMM NO DIMM
6x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666, configured at 2400

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base, peak) 657.xz_s(base)
==============================================================================

icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

==============================================================================
CC  600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)
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icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

==============================================================================
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)
==============================================================================
(Continued on next page)
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---

**CPU2017 License:** 001176
**Test Sponsor:** Supermicro
**Tested by:** Supermicro

**Test Date:** Oct-2018
**Hardware Availability:** Jul-2017
**Software Availability:** Mar-2018

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**Compiler Version Notes (Continued)**

icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

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CXXC 620.omnetpp_s(peak) 623.xalancbmk_s(peak) 631.deepsjeng_s(peak)
641.leela_s(peak)
icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

FC 648.exchange2_s(base, peak)
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

**Base Compiler Invocation**

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

---

**Base Portability Flags**

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
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Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-L/usr/local/je5.0.1-64/lib -ljemalloc

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks (except as noted below):
icpc -m64

623.xalancbmk_s: icpc -m32 -L/home/prasadj/specdev/IC18u2_Internal/lin_18_0_20180210/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64

Peak Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
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**Hardware Availability:** Jul-2017  
**Software Availability:** Mar-2018

---

**Peak Optimization Flags**

**C benchmarks:**

600.perlbench_s:
- `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2`
- `-xCORE-AVX512 -qopt-prefetch -ipo -O3`
- `-qopt-mem-layout-trans=3 -no-prec-div`
- `-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP`
- `-fno-strict-overflow -L/usr/local/je5.0.1-64/lib -ljemalloc`

602.gcc_s:
- `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2`
- `-xCORE-AVX512 -qopt-prefetch -ipo -O3`
- `-qopt-mem-layout-trans=3 -no-prec-div`
- `-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP`
- `-L/usr/local/je5.0.1-64/lib -ljemalloc`

605.mcf_s: `basepeak = yes`

625.x264_s: `basepeak = yes`

657.xz_s: Same as 602.gcc_s

**C++ benchmarks:**

620.omnetpp_s: `basepeak = yes`

623.xalancbmk_s:
- `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo`
- `-xCORE-AVX512 -O3 -no-prec-div -qopt-prefetch`
- `-qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp`
- `-DSPEC_OPENMP -L/usr/local/je5.0.1-32/lib -ljemalloc`

631.deepsjeng_s: `basepeak = yes`

641.leela_s:
- `-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo`
- `-xCORE-AVX512 -O3 -no-prec-div -qopt-prefetch`
- `-qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp`
- `-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc`

**Fortran benchmarks:**

- `-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch`
- `-qopt-mem-layout-trans=3 -nostandard-realloc-lhs`
- `-L/usr/local/je5.0.1-64/lib -ljemalloc`

---

The flags files that were used to format this result can be browsed at:

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You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2017-12-21.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-SKL-rev0.xml

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU2017 v1.0.5 on 2018-10-25 22:58:01-0400.