# CPU2017 Integer Speed Result

**Supermicro**
SuperServer 5019P-MT (X11SPI-TF, Intel Xeon Silver 4108)

<table>
<thead>
<tr>
<th>Software Availability</th>
<th>Jul-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Date</td>
<td>Sep-2018</td>
</tr>
<tr>
<td>Test Sponsor</td>
<td>Supermicro</td>
</tr>
<tr>
<td>CPU2017 License</td>
<td>001176</td>
</tr>
<tr>
<td>Tested by</td>
<td>Supermicro</td>
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</table>

**CPU2017 License:** 001176  
**Test Sponsor:** Supermicro  
**Test Date:** Sep-2018  
**Hardware Availability:** Jul-2017  
**Software Availability:** Mar-2018

---

## Hardware

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6.62</td>
<td>6.81</td>
</tr>
</tbody>
</table>

### CPU Name:
Intel Xeon Silver 4108

### Max MHz.:
3000

### Nominal:
1800

### Enabled:
8 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:
11 MB I+D on chip per chip

### Other:
None

### 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

<table>
<thead>
<tr>
<th>Software</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS:</td>
<td>SUSE Linux Enterprise Server 12 SP3 (x86_64)</td>
<td></td>
</tr>
<tr>
<td>Compiler:</td>
<td>C/C++: Version 18.0.2.199 of Intel C/C++</td>
<td></td>
</tr>
<tr>
<td>File System:</td>
<td>xfs</td>
<td></td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
<td></td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>64-bit</td>
<td></td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>32/64-bit</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
<td>jemalloc memory allocator library V5.0.1</td>
<td></td>
</tr>
</tbody>
</table>

---

## Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>8</td>
<td>10.7</td>
</tr>
<tr>
<td>gcc_s</td>
<td>8</td>
<td>9.18</td>
</tr>
<tr>
<td>mcf_s</td>
<td>8</td>
<td>9.69</td>
</tr>
<tr>
<td>omnetpp_s</td>
<td>8</td>
<td>10.8</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>8</td>
<td>9.54</td>
</tr>
<tr>
<td>x264_s</td>
<td>8</td>
<td>8.04</td>
</tr>
<tr>
<td>deepsjeng_s</td>
<td>8</td>
<td>4.30</td>
</tr>
<tr>
<td>leela_s</td>
<td>8</td>
<td>3.51</td>
</tr>
<tr>
<td>exchange2_s</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>xz_s</td>
<td>8</td>
<td></td>
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SuperServer 5019P-MT (X11SPi-TF, Intel Xeon Silver 4108)

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SPECspeed2017_int_base = 6.62
SPECspeed2017_int_peak = 6.81

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>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>8</td>
<td>363</td>
<td>4.90</td>
<td>362</td>
<td>4.90</td>
<td>361</td>
<td>4.92</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>8</td>
<td>553</td>
<td>7.20</td>
<td>555</td>
<td>7.17</td>
<td>550</td>
<td>7.24</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>8</td>
<td>503</td>
<td>9.38</td>
<td>504</td>
<td>9.38</td>
<td>508</td>
<td>9.30</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>8</td>
<td>362</td>
<td>4.51</td>
<td>360</td>
<td>4.53</td>
<td>362</td>
<td>4.51</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>8</td>
<td>187</td>
<td>7.60</td>
<td>188</td>
<td>7.54</td>
<td>189</td>
<td>7.51</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>8</td>
<td>192</td>
<td>9.18</td>
<td>192</td>
<td>9.19</td>
<td>192</td>
<td>9.18</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>8</td>
<td>332</td>
<td>4.31</td>
<td>333</td>
<td>4.30</td>
<td>334</td>
<td>4.30</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>8</td>
<td>486</td>
<td>3.51</td>
<td>486</td>
<td>3.51</td>
<td>486</td>
<td>3.51</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>8</td>
<td>276</td>
<td>10.7</td>
<td>276</td>
<td>10.6</td>
<td>276</td>
<td>10.7</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>8</td>
<td>638</td>
<td>9.69</td>
<td>638</td>
<td>9.69</td>
<td>638</td>
<td>9.69</td>
</tr>
</tbody>
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SPECspeed2017_int_base = 6.62
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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System 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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---

**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 Wed Sep 12 14:10:18 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 4108 CPU @ 1.80GHz
  - 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 : 8
  - siblings : 8
  - physical 0: cores 0 1 2 3 4 5 6 7

From lscpu:

- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 8
- On-line CPU(s) list: 0-7
- Thread(s) per core: 1
- Core(s) per socket: 8
- Socket(s): 1
- NUMA node(s): 1
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Silver 4108 CPU @ 1.80GHz
- Stepping: 4
- CPU MHz: 1800.011
- BogoMIPS: 3600.02
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 11264K
- NUMA node0 CPU(s): 0-7
- Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp

(Continued on next page)
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Platform Notes (Continued)

lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperf/merf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xpr pdcm pdcd dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pinn l1t
ldtlm hwp_epp intel_pt rsb_ctxsw spec_ctrl retpoline kaiser tpr_shadow vmm
flexpriority ept vpid fsqsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mpx avx512f avx512q dtes64 adx smap clflushopt clwb avx512cd avx512bw avx512vl
xsaveopt xsave xsaveopt xgetbv1 cqm_llc cqm_occup_llc pku ospke

/proc/cpuinfo cache data
cache size: 11264 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
   available: 1 nodes (0)
   node 0 cpus: 0 1 2 3 4 5 6 7
   node 0 size: 192079 MB
   node 0 free: 191393 MB
   node distances:
   node 0
   0: 10

From /proc/meminfo
MemTotal: 196689752 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
   # 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-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)
x86_64 x86_64 x86_64 GNU/Linux

(Continued on next page)
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---

**Platform Notes (Continued)**

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  Sep 12 14:04

SPEC is set to: /home/cpu2017

```
<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda3</td>
<td>xfs</td>
<td>145G</td>
<td>4.0G</td>
<td>141G</td>
<td>3%</td>
<td>/home</td>
</tr>
</tbody>
</table>
```

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

---

**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) |
==============================================================================
```

**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) |
==============================================================================
```

**icpc (ICC) 18.0.2 20180210**  
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(Continued on next page)
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Compiler Version Notes (Continued)

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
 SPEC CPU2017 Integer Speed Result

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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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**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: basepeak = yes

**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


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-revD.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 2018-09-12 02:10:18-0400.
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