**SPEC® CPU2017 Integer Speed Result**

---

**Supermicro**  
SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
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<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
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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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<thead>
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<th>Threads</th>
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<tr>
<td>600.perlbench_s</td>
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<tr>
<td>623.xalancbmk_s</td>
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<td>9.51</td>
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<tr>
<td>625.x264_s</td>
<td>4.31</td>
<td>9.28</td>
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<td>631.deepsjeng_s</td>
<td>10.6</td>
<td>10.8</td>
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<tr>
<td>641.leela_s</td>
<td>11.2</td>
<td>11.5</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>10.6</td>
<td>10.8</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>11.2</td>
<td>11.5</td>
</tr>
</tbody>
</table>

### Hardware

**CPU Name:** Intel Xeon Silver 4114  
**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  
**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

**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++  
**Compiler for Linux:** Fortran: Version 18.0.2.199 of Intel Fortran  
**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
Supermicro
SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114)

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

SPECspeed2017_int_base = 6.83
SPECspeed2017_int_peak = 7.02

Results Table

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<td>541</td>
<td>11.4</td>
<td>539</td>
<td>11.5</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"

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.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
SPEC CPU2017 Integer Speed Result

Supermicro
SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114)

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

SPECspeed2017_int_base = 6.83
SPECspeed2017_int_peak = 7.02

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

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-52ma Fri Oct 12 18:02:54 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 4114 CPU @ 2.20GHz
  1 "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 4114 CPU @ 2.20GHz
Stepping: 4
CPU MHz: 1000.000
CPU max MHz: 2201.0000
CPU min MHz: 800.0000
BogoMIPS: 4399.98
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)
SPEC CPU2017 Integer Speed Result

Supermicro
SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114)

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SPECspeed2017_int_base = 6.83
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CPU2017 License: 001176
Test Sponsor: Supermicro
Test Date: Oct-2018
Tested by: Supermicro
Hardware Availability: Jul-2017
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Platform Notes (Continued)

Flags:                 fpu vme de pse mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtsscp
lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
aperfmrperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtrm pdcm pcid 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 pln pts
dtherm intel_pt rsb_ctxsw spec_ctrl retprobe kaiser tpr_shadow vnmi flexpriority
epi vpid fsgsbase tsc_adjust bni hle avx2 smep bmi2 ersed invpcid rtm cqm mpx
avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt
xsavec xgetbv1 cqm_llc cqm_occup_llc pkp ospke

/proc/cpuinfo cache data
    cache size: 14080 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 8 9
    node 0 size: 192076 MB
    node 0 free: 191159 MB
    node distances:
        node 0
        0: 10

From /proc/meminfo
    MemTotal:       196686636 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-52ma 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)

(Continued on next page)
**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 12 17:13

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/sda4</td>
<td>xfs</td>
<td>145G</td>
<td>48G</td>
<td>97G</td>
<td>33%</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 06/15/2018

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)
```

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)
### SPEC CPU2017 Integer Speed Result

**Supermicro**  
SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114)  

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<td>Hardware Availability: Jul-2017</td>
</tr>
<tr>
<td>Tested by: Supermicro</td>
<td>Software Availability: Mar-2018</td>
</tr>
</tbody>
</table>

---

#### Compiler Version Notes (Continued)

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

```
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.

\[--------------------------\]

\[--------------------------\]

```
PC 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

Supermicro
SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114)

SPECspeed2017_int_base = 6.83
SPECspeed2017_int_peak = 7.02

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

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-fflag -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
-fflag -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
**SPEC CPU2017 Integer Speed Result**

---

**Supermicro**

SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
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<tr>
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<td>Supermicro</td>
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<td>Mar-2018</td>
</tr>
</tbody>
</table>

---

**SPECspeed2017_int_base** = 6.83

**SPECspeed2017_int_peak** = 7.02

---

**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: -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

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


### SPEC CPU2017 Integer Speed Result

| Supermicro SuperStorage 5049P-E1CR45H (X11SPL-F, Intel Xeon Silver 4114) | SPECspeed2017_int_base = 6.83 |
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| CPU2017 License: 001176 | Test Date: Oct-2018 |
| Test Sponsor: Supermicro | Hardware Availability: Jul-2017 |
| Tested by: Supermicro | Software Availability: Mar-2018 |

You can also download the XML flags sources by saving the following links:

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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 2018-10-12 06:02:54-0400.
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