<table>
<thead>
<tr>
<th>SPEC® CPU2017 Integer Speed Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lenovo Global Technology</strong></td>
</tr>
<tr>
<td>ThinkSystem SR590</td>
</tr>
<tr>
<td>(2.50 GHz, Intel Xeon Gold 5215M)</td>
</tr>
</tbody>
</table>

**SPECspeed2017_int_base = 8.52**

**SPECspeed2017_int_peak = Not Run**

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology  
**Test Date:** Apr-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Dec-2018

| Threads | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 600.perlbench_s   | 40| 5.83| | | | | | | | | | | | | | | | | | | | |
| 602.gcc_s         | 40| 8.52| | | | | | | | | | | | | | | | | | | | |
| 605.mcf_s         | 40| 11.3| | | | | | | | | | | | | | | | | | | | |
| 620.omnetpp_s     | 40| 5.59| | | | | | | | | | | | | | | | | | | | |
| 623.xalancbmk_s   | 40| 11.0| | | | | | | | | | | | | | | | | | | | |
| 625.x264_s        | 40| 11.8| | | | | | | | | | | | | | | | | | | | |
| 631.deepsjeng_s   | 40| 4.85| | | | | | | | | | | | | | | | | | | | |
| 641.leela_s       | 40| 4.16| | | | | | | | | | | | | | | | | | | | |
| 648.exchange2_s   | 40| 12.3| | | | | | | | | | | | | | | | | | | | |
| 657.xz_s          | 40| 20.1| | | | | | | | | | | | | | | | | | | | |

| **Threads** |

---

**Hardware**

**CPU Name:** Intel Xeon Gold 5215M  
**Max MHz.:** 3400  
**Nominal:** 2500  
**Enabled:** 20 cores, 2 chips, 2 threads/core  
**Orderable:** 1,2 chips  
**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 (12 x 16 GB 2Rx8 PC4-2933Y-R, running at 2666)  
**Storage:** 1 x 960 GB SATA SSD  
**Other:** None

**Software**

**OS:** SUSE Linux Enterprise Server 12 SP4 (x86_64)  
**Kernel:** 4.12.14-94.41-default  
**Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++  
**Compiler Build:** 20181018 for Linux  
**Compiler Build:** 20181018 for Linux  
**Optimize:** Yes  
**Firmware:** Lenovo BIOS Version TEE135L 2.10 released Jan-2019  
**System State:** Run level 3 (multi-user)  
**Base Pointers:** 64-bit  
**Peak Pointers:** Not Applicable  
**Other:** jemalloc memory allocator V5.0.1
SPEC CPU2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SR590
(2.50 GHz, Intel Xeon Gold 5215M)

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</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>40</td>
<td>304</td>
<td>5.83</td>
<td>305</td>
<td>5.82</td>
<td>304</td>
<td>5.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>40</td>
<td>467</td>
<td>8.52</td>
<td>473</td>
<td>8.42</td>
<td>466</td>
<td>8.54</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>40</td>
<td>417</td>
<td>11.3</td>
<td>418</td>
<td>11.3</td>
<td>418</td>
<td>11.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>40</td>
<td>292</td>
<td>5.59</td>
<td>297</td>
<td>5.49</td>
<td>291</td>
<td>5.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>40</td>
<td>129</td>
<td>11.0</td>
<td>129</td>
<td>11.0</td>
<td>129</td>
<td>11.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>40</td>
<td>150</td>
<td>11.8</td>
<td>150</td>
<td>11.8</td>
<td>150</td>
<td>11.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>40</td>
<td>295</td>
<td>4.86</td>
<td>295</td>
<td>4.85</td>
<td>296</td>
<td>4.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>40</td>
<td>410</td>
<td>4.16</td>
<td>410</td>
<td>4.16</td>
<td>410</td>
<td>4.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>40</td>
<td>240</td>
<td>12.3</td>
<td>240</td>
<td>12.2</td>
<td>239</td>
<td>12.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>40</td>
<td>307</td>
<td>20.1</td>
<td>307</td>
<td>20.1</td>
<td>307</td>
<td>20.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed2017_int_base = 8.52
SPECspeed2017_int_peak = Not Run

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/cpu2017-1.0.5-ic19.0u1/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017-1.0.5-ic19.0u1/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-7900X 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.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3640 (Spectre variant 3a)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4)
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

(Continued on next page)
Lenovo Global Technology

ThinkSystem SR590
(2.50 GHz, Intel Xeon Gold 5215M)

SPECspeed2017_int_base = 8.52
SPECspeed2017_int_peak = Not Run

General Notes (Continued)


BIOS configuration:
Choose Operating Mode set to Maximum Performance
Choose Operating Mode set to Custom Mode
Memory Power Management set to Automatic
CPU P-state Control set to Cooperative
MONITOR/MWAIT set to Enable
Sysinfo program /home/cpu2017-1.0.5-ic19.0u1/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-2uov Sun Apr 14 08:59:28 2019

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) Gold 5215M CPU @ 2.50GHz
  2 "physical id"s (chips)
  40 "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 : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: 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): 40
On-line CPU(s) list: 0-39
Thread(s) per core: 2
Core(s) per socket: 10
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 5215M CPU @ 2.50GHz
Stepping: 6
CPU MHz: 2500.000
CPU max MHz: 3400.0000

(Continued on next page)
**Platform Notes (Continued)**

CPU min MHz: 1000.0000
BogoMIPS: 5000.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 14080K
NUMA node0 CPU(s): 0-9,20-29
NUMA node1 CPU(s): 10-19,30-39
Flags: fpu vme de pse tsc msr pae mce cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc

From /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: 2 nodes (0-1)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 20 21 22 23 24 25 26 27 28 29
node 0 size: 96327 MB
node 0 free: 95932 MB
node 1 cpus: 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39
node 1 size: 96741 MB
node 1 free: 96126 MB
node distances:
0: 10 21
1: 21 10

From /proc/meminfo
MemTotal: 197702268 KB
HugePages_Total: 0
Hugepagesize: 2048 KB

From /etc/*release* /etc/*version*
SuSE-release: SUSE Linux Enterprise Server 12 (x86_64)
Lenovo Global Technology
ThinkSystem SR590
(2.50 GHz, Intel Xeon Gold 5215M)

SPECspeed2017_int_base = 8.52
SPECspeed2017_int_peak = Not Run

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Platform Notes (Continued)

VERSION = 12
PATCHLEVEL = 4
# 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-SP4"
VERSION_ID="12.4"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp4"

uname -a:
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown): Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Indirect Branch Restricted Speculation, IBPB, IBRS_FW

run-level 3 Apr 14 08:57

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1

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 Lenovo -[TEE135L-2.10]- 01/10/2019
Memory:
  4x NO DIMM NO DIMM
  12x SK Hynix HMA82GR7CJR8N-WM 16 GB 2 rank 2933, configured at 2666

(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)
  657.xz_s(base)

(Continued on next page)
### Lenovo Global Technology

**ThinkSystem SR590**  
(2.50 GHz, Intel Xeon Gold 5215M)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.52</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Apr-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Dec-2018

### Compiler Version Notes (Continued)

---

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.1.144 Build 20181018  
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)

---

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

FC  648.exchange2_s(base)

---

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
64, Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

---

### Base Compiler Invocation

C benchmarks:

```bash
icc -m64 -std=c11
```

C++ benchmarks:

```bash
icpc -m64
```

Fortran benchmarks:

```bash
ifort -m64
```

### Base Portability Flags

```bash
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
```

(Continued on next page)
Lenovo Global Technology

ThinkSystem SR590
(2.50 GHz, Intel Xeon Gold 5215M)

SPECspeed2017_int_base = 8.52
SPECspeed2017_int_peak = Not Run

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology

Test Date: Apr-2019
Hardware Availability: Apr-2019
Software Availability: Dec-2018

Base Portability Flags (Continued)

641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -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=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc

Fortran benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-A.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-A.xml

SPEC is a registered trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 2019-04-13 20:59:28-0400.