## SPEC® CPU2017 Integer Speed Result

**Lenovo Global Technology**

**ThinkSystem SR630**

*(2.10 GHz, Intel Xeon Gold 6252)*

**Copyright 2017-2019 Standard Performance Evaluation Corporation**

### Lenovo Global Technology

**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

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Jobs</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>96</td>
<td>6.45</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96</td>
<td>9.59</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96</td>
<td>12.1</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96</td>
<td>8.76</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>96</td>
<td>11.9</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>96</td>
<td>13.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96</td>
<td>5.20</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96</td>
<td>4.52</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96</td>
<td>13.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96</td>
<td>23.7</td>
</tr>
</tbody>
</table>

### SPECspeed2017_int_base = 9.77

### SPECspeed2017_int_peak = Not Run

### Hardware

**CPU Name:** Intel Xeon Gold 6252

**Max MHz.:** 3700

**Nominal:** 2100

**Enabled:** 48 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:** 35.75 MB I+D on chip per chip

**Other:** None

**Memory:** 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R)

**Storage:** 1 x 800 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
- Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux

**Parallel:** Yes

**Firmware:** Lenovo BIOS Version IVE135P 2.10 released Feb-2019

**File System:** btrfs

**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 SR630
(2.10 GHz, Intel Xeon Gold 6252)

**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>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>96</td>
<td>275</td>
<td>6.45</td>
<td>274</td>
<td>6.48</td>
<td>276</td>
<td>6.44</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96</td>
<td>416</td>
<td>9.58</td>
<td>416</td>
<td>9.59</td>
<td>415</td>
<td>9.59</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96</td>
<td>390</td>
<td>12.1</td>
<td>393</td>
<td>12.0</td>
<td>392</td>
<td>12.1</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96</td>
<td>185</td>
<td>8.84</td>
<td>186</td>
<td>8.76</td>
<td>187</td>
<td>8.70</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>96</td>
<td>119</td>
<td>11.9</td>
<td>119</td>
<td>11.9</td>
<td>119</td>
<td>11.9</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>96</td>
<td>128</td>
<td>13.8</td>
<td>128</td>
<td>13.7</td>
<td>128</td>
<td>13.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96</td>
<td>276</td>
<td>5.19</td>
<td>276</td>
<td>5.20</td>
<td>276</td>
<td>5.20</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96</td>
<td>377</td>
<td>4.52</td>
<td>378</td>
<td>4.52</td>
<td>378</td>
<td>4.52</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96</td>
<td>220</td>
<td>13.3</td>
<td>221</td>
<td>13.3</td>
<td>220</td>
<td>13.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96</td>
<td>261</td>
<td>23.7</td>
<td>261</td>
<td>23.7</td>
<td>261</td>
<td>23.7</td>
</tr>
</tbody>
</table>

**SPECspeed2017_int_base =** 9.77
**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
Lenovo Global Technology
ThinkSystem SR630
(2.10 GHz, Intel Xeon Gold 6252)

Lenovo Global Technology
ThinkSystem SR630
(2.10 GHz, Intel Xeon Gold 6252)

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

SPECspeed2017_int_base = 9.77
SPECspeed2017_int_peak = Not Run

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

General Notes (Continued)

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
Choose Operating Mode set to Custom Mode
C-states set to Legacy

Sysinfo program /home/cpu2017-1.0.5-ic19.0u1/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcede8f2999c33d61f64985e45859ea9
running on linux-v7my Wed Apr 24 02:16:16 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 6252 CPU @ 2.10GHz
2 "physical id"s (chips)
96 "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 : 24
siblings : 48
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6252 CPU @ 2.10GHz
Stepping: 6
CPU MHz: 2100.000
CPU max MHz: 3700.0000
CPU min MHz: 1000.0000
BogoMIPS: 4200.00

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR630
(2.10 GHz, Intel Xeon Gold 6252)

**SPECspeed2017_int_base** = 9.77
**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

**Platform Notes (Continued)**

- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 36608K
- NUMA node 0 CPU(s): 0-23, 48-71
- NUMA node 1 CPU(s): 24-47, 72-95
- Flags: fpu vme de pse sse cx8 apic sep mtrr pge mca cmov
- status 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
- lm constant tsc art arch_perfmon pebs bts rep_good noapic xtopology nonstop_tsc cpuid
- aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
- xtrn pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave
- avx f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 dcp_l3
- invpcid_single ssbd mba ibrs ibrs ibp bl stibp tpr_shadow vmm flexpriority ept vpid
- fsgsbase tsc_adjust bml1 hle avx2 smep bmi2 erts invpdml rtm cgdm mpx rdt_a avx512f
- avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
- xsaveopt xsavec xgetbv1 xsavec cgmi lgcm_llc cgmi_mbm_total cgmi_mbm_local
- dtherm ida arat pin pts pku oskpe avx512_vnni flush_l1d arch_capabilities

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 10 11 12 13 14 15 16 17 18 19 20 21 22 23 48 49 50 51
- 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
- node 0 size: 193088 MB
- node 0 free: 192226 MB
- node 1 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 72
- 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
- node 1 size: 193503 MB
- node 1 free: 193168 MB
- node distances:
- node 0 1
- 0: 10 21
- 1: 21 10

From `/proc/meminfo`
- MemTotal: 395870804 kB
- HugePages_Total: 0
- Hugepagesize: 4096 kB

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

(Continued on next page)
## Lenovo Global Technology

**ThinkSystem SR630**  
(2.10 GHz, Intel Xeon Gold 6252)

<table>
<thead>
<tr>
<th>CPU2017 License: 9017</th>
<th>Test Date: Apr-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Lenovo Global Technology</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
<tr>
<td>Tested by: Lenovo Global Technology</td>
<td>Software Availability: Dec-2018</td>
</tr>
</tbody>
</table>

### SPEC CPU2017 Integer Speed Result

| SPECspeed2017_int_base = 9.77 | SPECspeed2017_int_peak = Not Run |

### Platform Notes (Continued)

```
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 24 02:14**

```
SPEC is set to: /home/cpu2017-1.0.5-1c19.0u1
  Filesystem Type  Size  Used  Avail Use% Mounted on
  /dev/sdb3  btrfs  740G  33G  708G   5%  /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 Lenovo -[IVE135P-2.10]- 02/13/2019
- Memory: 24x Samsung M393A2K43CB2-CVF 16 GB 2 rank 2933

(End of data from sysinfo program)

### Compiler Version Notes

```
CCC 600.perlibench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base)
657.xz_s(base)
```

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Lenovo Global Technology
ThinkSystem SR630 (2.10 GHz, Intel Xeon Gold 6252)

SPECspeed2017_int_base = 9.77
SPECspeed2017_int_peak = Not Run

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

Compiler Version Notes (Continued)
Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

Compiler Version Notes (Continued)
Version 19.0.1.144 Build 20181018
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

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR630
(2.10 GHz, Intel Xeon Gold 6252)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>9.77</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

Base Portability Flags (Continued)

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 2019-04-23 14:16:16-0400.