### Lenovo Global Technology

**ThinkSystem SR630**  
(2.10 GHz, Intel Xeon Gold 5218R)

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<tr>
<td>23.6</td>
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</table>

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### Hardware

- **CPU Name:** Intel Xeon Gold 5218R  
- **Max MHz:** 4000  
- **Nominal:** 2100  
- **Enabled:** 40 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:** 27.5 MB I+D on chip per chip  
- **Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R, running at 2666)  
- **Storage:** 1 x 800 GB SATA SSD  
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 SP1 (x86_64)  
  Kernel 4.12.14-195-default  
- **Compiler:**  
  - C/C++: Version 19.1.1.217 of Intel C/C++  
  - Compiler for Linux;  
  - Fortran: Version 19.1.1.217 of Intel Fortran  
- **Parallel:** Yes  
- **Firmware:** Lenovo BIOS Version IVE155L 2.61 released May-2020  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** Not Applicable  
- **Other:** jemalloc memory allocator V5.0.1  
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage
Lenovo Global Technology
ThinkSystem SR630
(2.10 GHz, Intel Xeon Gold 5218R)

SPECspeed®2017_int_base = 11.3
SPECspeed®2017_int_peak = Not Run

Results Table

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<th>Ratio</th>
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SPECspeed®2017_int_base = 11.3
SPECspeed®2017_int_peak = Not Run

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler. The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017-1.1.0-ic19.1.1/lib/intel64:/home/cpu2017-1.1.0-ic19.1.1/jede5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Filesystem page cache synced and cleared with:

(Continued on next page)
## SPEC CPU®2017 Integer Speed Result

**Lenovo Global Technology**  
ThinkSystem SR630  
(2.10 GHz, Intel Xeon Gold 5218R)  

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</table>

### General Notes (Continued)

**sync; echo 3 > /proc/sys/vm/drop_caches**  
NA: 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.  

### Platform Notes

**BIOS configuration:**  
Choose Operating Mode set to Maximum Performance and then set it to Custom Mode  
C-States set to Legacy

**Sysinfo program** /home/cpu2017-1.1.0-ic19.1.1/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7ed1e6e46a485a0011  
running on linux-thtl Fri Jun 26 04:23:35 2020

**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 5218R CPU @ 2.10GHz  
  - 2 "physical id"s (chips)  
  - 80 "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: 20  
    - siblings: 40  
    - physical 0: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28  
    - physical 1: cores 0 1 2 3 4 8 9 10 11 12 16 17 18 19 20 24 25 26 27 28

**From lscpu:**  
Architecture: x86_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
Address sizes: 46 bits physical, 48 bits virtual  
CPU(s): 80  
On-line CPU(s) list: 0-79  
Thread(s) per core: 2  
Core(s) per socket: 20  
Socket(s): 2

(Continued on next page)
**SPEC CPU®2017 Integer Speed Result**

**Lenovo Global Technology**

**ThinkSystem SR630**

(2.10 GHz, Intel Xeon Gold 5218R)

**SPECspeed®2017_int_base = 11.3**

**SPECspeed®2017_int_peak = Not Run**

---

**Platform Notes (Continued)**

- **NUMA node(s):** 2
- **Vendor ID:** GenuineIntel
- **CPU family:** 6
- **Model:** 85
- **Model name:** Intel(R) Xeon(R) Gold 5218R CPU @ 2.10GHz
- **Stepping:** 7
- **CPU MHz:** 2100.000
- **CPU max MHz:** 4000.0000
- **CPU min MHz:** 800.0000
- **BogoMIPS:** 4200.00
- **Virtualization:** VT-x
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 1024K
- **L3 cache:** 28160K
- **NUMA node0 CPU(s):** 0-19,40-59
- **NUMA node1 CPU(s):** 20-39,60-79

**Flags:**

- fpu vme de pse tsc msr pae 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 nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault ept cat_l3 cdp_l3 invpcid_single intel_pni ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves cqm_llc cqm_occgp_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts pkum ospke avx512_vnni md_clear flush_l1d arch_capabilities

/proc/cpuinfo cache data

- **cache size:** 28160 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 10 11 12 13 14 15 16 17 18 19 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59
- node 0 size: 386683 MB
- node 0 free: 386189 MB
- node 1 cpus: 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79
- node 1 size: 387033 MB
- node 1 free: 386357 MB

node distances:

- node 0 1
  - 0: 10 21

(Continued on next page)
Lenovo Global Technology  
ThinkSystem SR630  
(2.10 GHz, Intel Xeon Gold 5218R)  

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<tr>
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<td>Lenovo Global Technology</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

```
1:  21 10
```

From /proc/meminfo

```
MemTotal:       792285784 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

```
/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 15 SP1
```

From /etc/*release* /etc/*version*

```
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"
```

```
uname -a:
Linux linux-thtl 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

```
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
```

```
run-level 3 Jun 26 04:22
```

```
SPEC is set to: /home/cpu2017-1.1.0-ic19.1.1
```

```
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2      xfs   744G  47G  698G   7% /
```

```
From /sys/devices/virtual/dmi/id
BIOS: Lenovo -[IVE155L-2.61]- 05/20/2020
Vendor: Lenovo
Product: ThinkSystem SR630 -[7X01RCZ000]-
Product Family: ThinkSystem
```

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

**ThinkSystem SR630**
(2.10 GHz, Intel Xeon Gold 5218R)

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<table>
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<tr>
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<td>SPECspeak®2017_int_peak =</td>
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**Platform Notes (Continued)**

Serial: 1234567890

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.

Memory:
24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(End of data from sysinfo program)

This system support 12 DIMMs per processor, total 24 DIMMs. 24 DIMM slots installed with 32 GB DIMM for this run, and running at 2666 due to CPU limitation.

---

**Compiler Version Notes**

```
C

600.perlbench_s(base)  602.gcc_s(base)  605.mcf_s(base)
625.x264_s(base)  657.xz_s(base)

------------------------------------------------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------

------------------------------------------------------------------
C++

620.omnetpp_s(base)  623.xalancbmk_s(base)  631.deepsjeng_s(base)
641.leela_s(base)

------------------------------------------------------------------
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------

------------------------------------------------------------------
Fortran

648.exchange2_s(base)

------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.1.1.217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
------------------------------------------------------------------
```
Lenovo Global Technology
ThinkSystem SR630
(2.10 GHz, Intel Xeon Gold 5218R)

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SPECspeed®2017_int_base = 11.3
SPECspeed®2017_int_peak = Not Run

**Base Compiler Invocation**

C benchmarks:
- icc

C++ benchmarks:
- icpc

Fortran benchmarks:
- ifort

**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

(Continued on next page)
# SPEC CPU®2017 Integer Speed Result

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

**Test Date:** Jun-2020  
**Hardware Availability:** Mar-2020  
**Software Availability:** Apr-2020

---

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

- `-mbranches-within-32B-boundaries`

---

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-I.html](http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-I.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-I.xml](http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-I.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 CPU®2017 v1.1.0 on 2020-06-25 16:23:34-0400.  
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