### Lenovo Global Technology

**ThinkSystem SR630**  
(1.90 GHz, Intel Xeon Bronze 3206R)

| SPECspeed\textsuperscript{®}2017\_int\_peak | Not Run |
| SPECspeed\textsuperscript{®}2017\_int\_base | 5.54 |

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

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</table>

#### Hardware

- **CPU Name:** Intel Xeon Bronze 3206R  
- **Max MHz:** 1900  
- **Nominal:** 1900  
- **Enabled:** 16 cores, 2 chips  
- **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:** 11 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R, running at 2133)  
- **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  
  - Compiler for Linux  
- **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
SPEC CPU®2017 Integer Speed Result

Lenovo Global Technology

ThinkSystem SR630
(1.90 GHz, Intel Xeon Bronze 3206R)

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

Test Date: Jul-2020
Hardware Availability: Mar-2020
Software Availability: Apr-2020

Results Table

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SPECspeed®2017_int_base = 5.54
SPECspeed®2017_int_peak = Not Run

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/j e5.0.1-64"
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)
**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.  
jemalloc, a general purpose malloc implementation  
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5  

**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 295195f888a3d7ed91e6e46a485a0011  
running on linux-thtl Sun Jul 12 23:45:45 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) Bronze 3206R CPU @ 1.90GHz  
2 "physical id"s (chips)  
16 "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  
physical 1: 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  
Address sizes: 46 bits physical, 48 bits virtual  
CPU(s): 16  
On-line CPU(s) list: 0-15  
Thread(s) per core: 1  
Core(s) per socket: 8  
Socket(s): 2  

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

**Lenovo Global Technology**

ThinkSystem SR630  
(1.90 GHz, Intel Xeon Bronze 3206R)

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

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<td>Mar-2020</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Apr-2020</td>
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</table>

**Platform Notes (Continued)**

| NUMA node(s): | 2 |
| Vendor ID: | GenuineIntel |
| CPU family: | 6 |
| Model: | 85 |
| Model name: | Intel(R) Xeon(R) Bronze 3206R CPU @ 1.90GHz |
| Stepping: | 7 |
| CPU MHz: | 1900.000 |
| CPU max MHz: | 1900.0000 |
| CPU min MHz: | 1000.0000 |
| BogoMIPS: | 3800.00 |
| Virtualization: | VT-x |
| L1d cache: | 32K |
| L1i cache: | 32K |
| L2 cache: | 1024K |
| L3 cache: | 11264K |
| NUMA node0 CPU(s): | 0-7 |
| NUMA node1 CPU(s): | 8-15 |

**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 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 ebx cat _l3 cdp _l3 invpcid_single intel_pmlin 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 avx512d q rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup llc cqm_mbm_total cqm_mbm_local dtherm arat pln pke ospke avx512_vnni md_clear flush_l1d arch_capabilities

```
/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: 2 nodes (0-1)  
- node 0 cpus: 0 1 2 3 4 5 6 7  
- node 0 size: 386690 MB  
- node 0 free: 386081 MB  
- node 1 cpus: 8 9 10 11 12 13 14 15  
- node 1 size: 387040 MB  
- node 1 free: 386690 MB  
- node distances:

```
node 0 1  
0: 10 21  
1: 21 10
```
## Lenovo Global Technology

ThinkSystem SR630  
(1.90 GHz, Intel Xeon Bronze 3206R)

### 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:** Jul-2020  
**Hardware Availability:** Mar-2020  
**Software Availability:** Apr-2020

### Platform Notes (Continued)

**From /proc/meminfo**

- MemTotal: 792300428 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

**From /usr/bin/lsb_release -d**

SUSE Linux Enterprise Server 15 SP1

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

- 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 Jul 12 23:39**

**SPEC is set to:** /home/cpu2017-1.1.0-ic19.1.1  
**Filesystem** | **Type** | **Size** | **Used** | **Avail** | **Use%** | **Mounted on**
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<td>43G</td>
<td>701G</td>
<td>6%</td>
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</table>

**From /sys/devices/virtual/dmi/id**

- BIOS: Lenovo -[IVE155L-2.61]- 05/20/2020
- Vendor: Lenovo
- Product: ThinkSystem SR630 -[7X01RCZ000]-
- Product Family: ThinkSystem
- Serial: 1234567890

(Continued on next page)
### Lenovo Global Technology
ThinkSystem SR630
(1.90 GHz, Intel Xeon Bronze 3206R)

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**CPU2017 License:** 9017  
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**Test Date:** Jul-2020  
**Tested by:** Lenovo Global Technology  
**Hardware Availability:** Mar-2020  
**Software Availability:** Apr-2020

#### Platform Notes (Continued)
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)
Memory on this system run at 2133 MHz due to CPU limitation.

#### Compiler Version Notes

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<th>Benchmark(s)</th>
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<td>C++</td>
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**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.

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**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.

#### Base Compiler Invocation

- **C benchmarks:**  
  icc

- **C++ benchmarks:**  
  icpc

(Continued on next page)
**Base Compiler Invocation (Continued)**

Fortran benchmarks:
```plaintext
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

---

**Base Optimization Flags**

C benchmarks:
```plaintext
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-fuse-ld=gold -qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

C++ benchmarks:
```plaintext
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse
-funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc
```

Fortran benchmarks:
```plaintext
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -xCORE-AVX512
-O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-mbranches-within-32B-boundaries
```
Lenovo Global Technology
ThinkSystem SR630
(1.90 GHz, Intel Xeon Bronze 3206R)

SPECspeed®2017_int_base = 5.54
SPECspeed®2017_int_peak = Not Run

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
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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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-I.xml

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Tested with SPEC CPU®2017 v1.1.0 on 2020-07-12 11:45:44-0400.
Report generated on 2020-08-04 14:37:26 by CPU2017 PDF formatter v6255.
Originally published on 2020-08-04.