**Lenovo Global Technology**

ThinkSystem SR630

(2.50 GHz, Intel Xeon Gold 5215M)

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<td>Not Run</td>
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</tbody>
</table>

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

**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:** 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R, running at 2666)
- **Storage:** 1 x 800 GB SATA SSD
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 12 SP4 (x86_64)
- **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:** No
- **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:** None

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<td>523.xalancbmk_r 40</td>
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<tr>
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## Results Table

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<td>80.5</td>
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</table>

**Submit Notes**

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

**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:

```
LD_LIBRARY_PATH = "/home/cpu2017-1.0.5-ic19.0u1/lib/intel164"
```

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
```

runcpu command invoked through numactl i.e.:

```
numactl --interleave=all runcpu <etc>
```

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.

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

**ThinkSystem SR630**  
(2.50 GHz, Intel Xeon Gold 5215M)

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**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

### General Notes (Continued)

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.

### Platform Notes

**BIOS configuration:**
- Choose Operating Mode set to Maximum Performance
- Choose Operating Mode set to Custom Mode
- C-states set to Legacy
- Trusted Execution Technology set to Enable
- Stale AtoS set to Enable
- LLC dead line alloc set to Disable
- Sysinfo program /home/cpu2017-1.0.5-ic19.0u1/bin/sysinfo

**Rev:** r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
**running on linux-ptrp Fri Apr 12 04:25:48 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

(Continued on next page)
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CPU2017 License: 9017  
Test Sponsor: Lenovo Global Technology  
Tested by: Lenovo Global Technology  
Hardware Availability: Apr-2019  
Software Availability: Dec-2018

Model name: Intel(R) Xeon(R) Gold 5215M CPU @ 2.50GHz  
Stepping: 6  
CPU MHz: 2500.000  
CPU max MHz: 3400.0000  
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 msr pae mce cx8 apic sep mtrr pge mca cmov  
pat pse36 clflush dtsc 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  
aperfmpref perf 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 abhp lms_abm 3nowprefetch cpuid_fault epb cat_l3 cd_l3  
invpcid_single ssbd mba ibrs ibpb tpr_shadow vnmi flexpriority ept vpid  
fsbegbase 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  
xsavesopt xsavec xgetbv1 xsavec xcmllc xcm_occup l1c xcm_mbb_total xcm_mbb_local  
dtherm ida arat pin pts pku ospke avx512_vnni flush_l1d arch_capabilities

/platform/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: 193094 MB  
node 0 free: 192633 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: 193508 MB  
node 1 free: 192948 MB  
node distances:  
node 0 1  
0: 10 21  
1: 21 10

From /proc/meminfo  
MemTotal: 395882008 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR630
(2.50 GHz, Intel Xeon Gold 5215M)

SPECrate2017_int_base = 121
SPECrate2017_int_peak = Not Run

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

Platform Notes (Continued)

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  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 12 04:24

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda2 btrfs 744G 36G 709G 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, configured at 2666

(End of data from sysinfo program)
## Lenovo Global Technology

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

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### Compiler Version Notes

```plaintext
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)  
557.xz_r(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.

CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)  
541.leela_r(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  548.exchange2_r(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:**
```plaintext
icc -m64 -std=c11
```

**C++ benchmarks:**
```plaintext
icpc -m64
```

**Fortran benchmarks:**
```plaintext
ifort -m64
```

### Base Portability Flags

```plaintext
500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64  
502.gcc_r: -DSPEC_LP64  
505.mcf_r: -DSPEC_LP64  
520.omnetpp_r: -DSPEC_LP64
```

(Continued on next page)
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### SPEC CPU2017 Integer Rate Result

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**Lenovo Global Technology**

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

**CPU2017 License:** 9017
**Test Date:** Apr-2019
**Test Sponsor:** Lenovo Global Technology
**Tested by:** Lenovo Global Technology

### Base Portability Flags (Continued)

- 523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
- 525.x264_r: -DSPEC_LP64
- 531.deepsjeng_r: -DSPEC_LP64
- 541.leela_r: -DSPEC_LP64
- 548.exchange2_r: -DSPEC_LP64
- 557.xz_r: -DSPEC_LP64

### Base Optimization Flags

- **C benchmarks:**
  - -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
  - -qopt-mem-layout-trans=4
  - -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
  - -Iqkmalloc

- **C++ benchmarks:**
  - -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
  - -qopt-mem-layout-trans=4
  - -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
  - -Iqkmalloc

- **Fortran benchmarks:**
  - -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
  - -qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
  - -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
  - -Iqkmalloc

The flags files that were used to format this result can be browsed at


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.