## Lenovo Global Technology

ThinkSystem SR650  
(2.60 GHz, Intel Xeon Gold 6240Y)

### SPEC CPU®2017 Integer Rate Result

**SPEC CPU®2017_int_base = 223**  
**SPEC CPU®2017_int_peak = Not Run**

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

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base (223)</th>
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<tr>
<td>500.perlbench_r 72</td>
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<tr>
<td>557.xz_r 72</td>
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</table>

#### CPU Name:
Intel Xeon Gold 6240Y

- **Max MHz:** 3900
- **Nominal:** 2600
- **Enabled:** 36 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:** 24.75 MB I+D on chip per chip
- **Other:** None
- **Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
- **Storage:** 1 x 800 GB SATA SSD
- **Other:** None

#### Software

- **OS:** Red Hat Enterprise Linux Server release 7.6 (Maipo)  
  Kernel 3.10.0-957.el7.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 IVE142E 2.30 released Aug-2019 tested as IVE135R 2.10 Feb-2019
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** None
- **Power Management:** --
Lenovo Global Technology
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General Notes (Continued)

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.

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
Choose Operating Mode set to Custom Mode
C-states set to Legacy
SNC set to Enable
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-ic19.0ui/bin/sysinfo
Rev: r5974 of 2018-05-19 9bce8f2999c33d61f64985e45859ea9
running on localhost.localdomain Tue Jul 2 15:17:11 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 6240Y CPU @ 2.60GHz
2. "physical id"s (chips)
72. "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: 18
siblings: 36
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 72
On-line CPU(s) list: 0-71
Thread(s) per core: 2
Core(s) per socket: 18
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel

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SPEC CPU®2017 Integer Rate Result

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ThinkSystem SR650
(2.60 GHz, Intel Xeon Gold 6240Y)

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SPECratio®2017_int_base = 223
SPECratio®2017_int_peak = Not Run

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

Test Date: Jul-2019
Hardware Availability: Apr-2019
Software Availability: Nov-2018

Platform Notes (Continued)

CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6240Y CPU @ 2.60GHz
Stepping: 7
CPU MHz: 2600.000
BogoMIPS: 5200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-2, 5, 6, 9, 10, 14, 15, 36-38, 41, 42, 45, 46, 50, 51
NUMA node1 CPU(s): 3, 4, 7, 8, 11-13, 16, 17, 39, 40, 43, 44, 47-49, 52, 53
NUMA node2 CPU(s): 18-20, 23, 24, 27, 28, 32, 33, 34, 54-56, 59, 60, 63, 64, 68, 69
NUMA node3 CPU(s): 21, 22, 25, 26, 29-31, 34, 35, 37, 58, 61, 62, 65-67, 70, 71

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 art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcdm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3nowprefetch epb cat_l3 cdp_13 intel_pt ssbd mbx ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsx_adjust bmi1 hle avx2 smep bmi2 erts invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 cmp_l1l cmp_occup_llc cmp_mbb_total cmp_mbb_local dtherm ida arat pln pts pkup oske avx512_vnni spec_ctrl intel_stibp flush_lid arch_capabilities /proc/cpuinfo cache data
   cache size: 25344 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
   available: 4 nodes (0-3)
   node 0 cpus: 0 1 2 5 6 9 10 14 15 16 36 37 38 41 42 45 46 50 51
   node 0 size: 196220 MB
   node 0 free: 191425 MB
   node 1 cpus: 3 4 7 8 11 12 13 16 17 39 40 43 44 47 48 49 52 53
   node 1 size: 196608 MB
   node 1 free: 191899 MB
   node 2 cpus: 18 19 20 23 24 27 28 32 33 34 35 54 55 56 59 60 63 64 68 69
   node 2 size: 196608 MB
   node 2 free: 191978 MB
   node 3 cpus: 21 22 25 26 29 30 31 34 35 57 58 61 62 65 66 67 70 71
   node 3 size: 196608 MB
   node 3 free: 191636 MB
   node distances:
   node 0 1 2 3

(Continued on next page)
Platform Notes (Continued)

0: 10 11 21 21
1: 11 10 21 21
2: 21 21 10 11
3: 21 21 11 10

From /proc/meminfo

MemTotal: 792178232 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

NAME="Red Hat Enterprise Linux Server"
VERSION="7.6 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VARIANT="Server"
VARIANT_ID="server"
VERSION_ID="7.6"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.6 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)

uname -a:
Linux localhost.localdomain 3.10.0-957.el7.x86_64 #1 SMP Thu Oct 4 20:48:51 UTC 2018
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: Load fences, __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS

run-level 3 Jul 2 10:58

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb2 xfs 689G 139G 550G 21% /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 -[IVE135R-2.10]- 02/27/2019
Memory:
24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

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Platform Notes (Continued)

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
| C         | 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.         |
==============================================================================

==============================================================================
| C++       | 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.        |
==============================================================================

==============================================================================
| Fortran    | 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:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64
LENNOVO GLOBAL TECHNOLOGY
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Test Date: Jul-2019
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Base Portability Flags

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

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:
- -Wl,-z,muldefs -xCORE-AVX512 -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
  -lqkmalloc

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-D.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-D.xml
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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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