### Lenovo Global Technology

ThinkSystem SR630  
(2.20 GHz, Intel Xeon Silver 4214Y)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>48</td>
<td>5.60</td>
<td>Not Run</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>48</td>
<td>8.17</td>
<td>Not Run</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>48</td>
<td>10.7</td>
<td>Not Run</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>48</td>
<td>5.79</td>
<td>Not Run</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>48</td>
<td>10.3</td>
<td>Not Run</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>48</td>
<td>11.7</td>
<td>Not Run</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>48</td>
<td>4.58</td>
<td>Not Run</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>48</td>
<td>3.87</td>
<td>Not Run</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>48</td>
<td>14.0</td>
<td>Not Run</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>48</td>
<td>19.3</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name**: Intel Xeon Silver 4214Y  
- **Max MHz.**: 3200  
- **Nominal**: 2200  
- **Enabled**: 24 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**: 16.5 MB I+D on chip per chip  
- **Orderable**: None  
- **Memory**: 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R, running at 2400)  
- **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 19.0.4.227 of Intel  
- **Compiler for Linux**: C/C++  
- **Fortran**: Version 19.0.4.227 of Intel Fortran  
- **Compiler for Linux**: Compiler 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
Lenovo Global Technology

ThinkSystem SR630
(2.20 GHz, Intel Xeon Silver 4214Y)

SPECspeed2017_int_base = 8.34
SPECspeed2017_int_peak = Not Run

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>
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<tbody>
<tr>
<td>600.perlbench_s</td>
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<td>318</td>
<td>5.59</td>
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<td>484</td>
<td>8.23</td>
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<td>8.17</td>
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<tr>
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<td>5.78</td>
<td>280</td>
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<td>139</td>
<td>10.2</td>
<td>138</td>
<td>10.3</td>
<td>138</td>
<td>10.3</td>
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<tr>
<td>625.x264_s</td>
<td>48</td>
<td>151</td>
<td>11.7</td>
<td>151</td>
<td>11.7</td>
<td>151</td>
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<td>4.58</td>
<td>313</td>
<td>4.58</td>
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<tr>
<td>641.leela_s</td>
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<td>440</td>
<td>3.87</td>
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<tr>
<td>648.exchange2_s</td>
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<td>210</td>
<td>14.0</td>
<td>211</td>
<td>13.9</td>
<td>209</td>
<td>14.1</td>
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<tr>
<td>657.xz_s</td>
<td>48</td>
<td>321</td>
<td>19.3</td>
<td>321</td>
<td>19.3</td>
<td>321</td>
<td>19.3</td>
</tr>
</tbody>
</table>

SPECspeed2017_int_base = 8.34
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-ic19.0u4/lib/intel64"
LD_LIBRARY_PATH = "/$LD_LIBRARY_PATH:/home/cpu2017-1.0.5-ic19.0u4/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-799X 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

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.
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

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SR630
(2.20 GHz, Intel Xeon Silver 4214Y)

SPECspeed2017_int_base = 8.34
SPECspeed2017_int_peak = Not Run

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

Test Date: Jun-2019
Hardware Availability: Apr-2019
Software Availability: May-2019

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-ic19.0u4/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcede8f2999c33d61f64985e45859ea9
running on linux-ptrp Sat Jun 8 23:44:50 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) Silver 4214C CPU @ 2.20GHz
  2 "physical id"s (chips)
  48 "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 : 12
siblings : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 48
On-line CPU(s) list: 0-47
Thread(s) per core: 2
Core(s) per socket: 12
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Silver 4214C CPU @ 2.20GHz
Stepping: 6
CPU MHz: 2200.000
CPU max MHz: 3200.0000
CPU min MHz: 1000.0000
BogoMIPS: 4400.00

(Continued on next page)
Platform Notes (Continued)

VT-x
32K
32K
1024K
16896K
0-11,24-35
12-23,36-47
fpu vme de pse tsc 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 rdtscl
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
xtrp 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 cd_l3
xvpcid_single ssbd mba ibrs ibpb stibp tpr_shadow vni flexpriority ept vpid
fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 etsm invpcid rtm cqm mpx rdt_a avx512f
avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
xsaveopt xsaves xsavec xgetbv1 xsaves cqm_llc cqm_occup_l1l cqm_mbb_total cqm_mbb_local
dtherm ida arat pin pts pku ospke avx512_vnni flush_l1d arch_capabilities

(calendar page)

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 24 25 26 27 28 29 30 31 32 33 34 35
 node 0 size: 193123 MB
 node 0 free: 192415 MB
 node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23 36 37 38 39 40 41 42 43 44 45 46 47
 node 1 size: 193479 MB
 node 1 free: 192374 MB
 node distances:
 node 0 1
 0: 10 21
 1: 21 10

From /proc/meminfo

MemTotal: 3958808888 KB
HugePages_Total: 0
Hugepagesize: 2048 KB

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.

(Continued on next page)
Platform Notes (Continued)

# Please check /etc/os-release for details about this release.

```bash
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 Jun 8 18:05
```

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u4

```
Filesystem    Type  Size  Used Avail Use% Mounted on
/dev/sdb2     btrfs  744G   46G  697G   7% /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 2400

(End of data from sysinfo program)

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Compiler Version Notes

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

```bash
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
```
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Compiler Version Notes (Continued)

==============================================================================
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
  641.leela_s(base)
==============================================================================
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
==============================================================================
FC  648.exchange2_s(base)
==============================================================================
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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
657.xz_s: -DSPEC_LP64
SPEC CPU2017 Integer Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

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CPU2017 License: 9017
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Base Optimization Flags

C benchmarks:
-WL,-z,muldefs -xCORE-AVX2 -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-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

Fortran benchmarks:
-xCORE-AVX2 -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

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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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