## Lenovo Global Technology

**ThinkSystem SR630**  
(2.20 GHz, Intel Xeon Platinum 8253)

<table>
<thead>
<tr>
<th>Software</th>
<th>CPU Name: Intel Xeon Platinum 8253</th>
<th>Max MHz.: 3000</th>
<th>Nominal: 2200</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS:</td>
<td>SUSE Linux Enterprise Server 12 SP4 (x86_64)</td>
<td>Compiler: C/C++: Version 19.0.1.144 of Intel C/C++</td>
<td></td>
</tr>
<tr>
<td>Compiler:</td>
<td>Compiler Build 20181018 for Linux; Fortran: Version 19.0.1.144 of Intel Fortran</td>
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<td></td>
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<tr>
<td>Parallel:</td>
<td>Yes</td>
<td>Firmware: Lenovo BIOS Version IVE135P 2.10 released Feb-2019</td>
<td></td>
</tr>
<tr>
<td>File System:</td>
<td>btrfs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 3 (multi-user)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Pointers:</td>
<td>64-bit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peak Pointers:</td>
<td>Not Applicable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed2017_int_base = 7.90</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>SPECspeed2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tests</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>64</td>
<td>7.99</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>10.3</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>6.29</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>9.79</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>64</td>
<td>10.5</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
<td>4.35</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td>3.67</td>
</tr>
<tr>
<td>641.leea_s</td>
<td>64</td>
<td>10.8</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>64</td>
<td></td>
</tr>
</tbody>
</table>

### Software Availability:
- 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: 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

### Test Sponsor:
Lenovo Global Technology

### Test Date:
May-2019

### Hardware Availability:
Apr-2019

### Software Availability:
Dec-2018
Lenovo Global Technology
ThinkSystem SR630
(2.20 GHz, Intel Xeon Platinum 8253)

SPECSpeed2017_int_base = 7.90
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>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
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<td>336</td>
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<td>5.30</td>
<td>334</td>
<td>5.31</td>
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<td>64</td>
<td>498</td>
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<td>497</td>
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<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>460</td>
<td>10.3</td>
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<td>10.3</td>
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<td>620.omnetpp_s</td>
<td>64</td>
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<tr>
<td>625.x264_s</td>
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</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
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<td>4.35</td>
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<tr>
<td>641.leela_s</td>
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<td>465</td>
<td>3.67</td>
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<td>3.67</td>
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<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td>272</td>
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<td>657.xz_s</td>
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<td>19.7</td>
<td>314</td>
<td>19.7</td>
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<td></td>
</tr>
</tbody>
</table>

SPECSpeed2017_int_base = 7.90
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-ic19.0u1/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017-1.0.5-ic19.0u1/je5.0.1-64"
OMP_STACKSIZE = "192M"

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

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)
### Lenovo Global Technology

ThinkSystem SR630  
(2.20 GHz, Intel Xeon Platinum 8253)

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9017</th>
<th>Test Date:</th>
<th>May-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
<td>Software Availability:</td>
<td>Dec-2018</td>
</tr>
</tbody>
</table>

### SPEC CPU2017 Integer Speed Result

**SPECspeed2017_int_base = 7.90**  
**SPECspeed2017_int_peak = Not Run**

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**General Notes (Continued)**


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### 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-ic19.0u1/bin/sysinfo  
Rev: r5974 of 2018-05-19  
b9cde8f2999c33d61f64985e45859ea9  
running on linux-v7my Wed May 8 21:43:08 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) Platinum 8253 CPU @ 2.20GHz  
- 2 "physical id"s (chips)  
- 64 "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 : 16  
- siblings : 32  
- physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15  
- physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

**From lscpu:**

- Architecture: x86_64  
- CPU op-mode(s): 32-bit, 64-bit  
- Byte Order: Little Endian  
- CPU(s): 64  
- On-line CPU(s) list: 0-63  
- Thread(s) per core: 2  
- Core(s) per socket: 16  
- Socket(s): 2  
- NUMA node(s): 2  
- Vendor ID: GenuineIntel  
- CPU family: 6  
- Model: 85  
- Model name: Intel(R) Xeon(R) Platinum 8253 CPU @ 2.20GHz  
- Stepping: 6  
- CPU MHz: 2200.000  
- CPU max MHz: 3000.000  
- CPU min MHz: 1000.0000  
- BogoMIPS: 4400.00

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(Continued on next page)
Platform Notes (Continued)

Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 22528K
NUMA node0 CPU(s): 0-15,32-47
NUMA node1 CPU(s): 16-31,48-63

Flags: fpu vme de pse 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
xtrm 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 cdp_l3

From /proc/cpuinfo cache data
  cache size : 22528 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 32 33 34 35 36 37 38 39 40 41 42 43
  44 45 46 47
  node 0 size: 193092 MB
  node 0 free: 192724 MB
  node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 48 49 50 51 52 53 54 55 56
  57 58 59 60 61 62 63
  node 1 size: 193506 MB
  node 1 free: 192543 MB
  node distances:
    node 0 1
    0: 10 21
    1: 21 10

From /proc/meminfo
  MemTotal: 395877876 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

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

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SR630
(2.20 GHz, Intel Xeon Platinum 8253)

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

SPECspeed2017_int_base = 7.90
SPECspeed2017_int_peak = Not Run

Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Dec-2018

---

Platform Notes (Continued)

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 May 8 18:48

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sdb3 btrfs 740G 33G 706G 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

(End of data from sysinfo program)

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Compiler Version Notes

==============================================================================
  CC  600.perlibench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base)
  657.xz_s(base)
==============================================================================

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR630
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SPECSpeed2017_int_base = 7.90
SPECSpeed2017_int_peak = Not Run

Compiler Version Notes (Continued)

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

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
Lenovo Global Technology

ThinkSystem SR630
(2.20 GHz, Intel Xeon Platinum 8253)

SPECspeed2017_int_base = 7.90
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CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology
Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Dec-2018

Base Portability Flags (Continued)

657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -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-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:
-xCORE-AVX512 -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.

Tested with SPEC CPU2017 v1.0.5 on 2019-05-08 09:43:07-0400.
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