**Lenovo Global Technology**  

**ThinkSystem SR950**  
(2.90 GHz, Intel Xeon Platinum 8268)

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

---

### SPECspeed2017_int_base = 10.3

- **SPECspeed2017_int_peak = Not Run**

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**Threads**

<table>
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<tr>
<th>Test</th>
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<th>SPECspeed2017_int_base</th>
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<tr>
<td>600.perlbench_s</td>
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<tr>
<td>657.xz_s</td>
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</table>

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### Hardware

- **CPU Name:** Intel Xeon Platinum 8268  
- **Max MHz.:** 3900  
- **Nominal:** 2900  
- **Enabled:** 96 cores, 4 chips  
- **Orderable:** 2,3,4 chips  
- **Cache L1:** 32 KB I + 32 KB D on chip per core  
- **Cache L2:** 1 MB I+D on chip per core  
- **Cache L3:** 35.75 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 1536 GB (48 x 32 GB 2Rx4 PC4-2933Y-R)  
- **Storage:** 1 x 800 GB SATA SSD  
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 (x86_64)  
- **Kernel:** 4.12.14-25.13-default  
- **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 PSE1211 1.50 released Mar-2019  
- **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
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CPU2017 License: 9017
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SPECSpeed2017_int_base = 10.3
SPECSpeed2017_int_peak = Not Run

Results Table

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</table>

SPECspeed2017_int_base = 10.3
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)
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SPECspeed2017_int_base = 10.3
SPECspeed2017_int_peak = Not Run

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

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

General Notes (Continued)

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
Choose Operating Mode set to Custom Mode
CPU P-state Control set to Autonomous
Hyper-Threading set to Disable
Trusted Execution Technology set to Enable
DCU Streamer Prefetcher set to Disable
MONITOR/MWAIT set to Enable
Sysinfo program /home/cpu2017-1.0.5-ic19.0ul/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-ulb8 Fri May 10 15:40:14 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 8268 CPU @ 2.90GHz
  4 "physical id"s (chips)
  96 "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 : 24
siblings : 24
  physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
  physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 21 22 25 26 27 28 29
  physical 2: cores 0 1 2 3 5 6 8 9 10 11 12 13 16 17 18 19 20 21 22 25 26 27 28 29
  physical 3: cores 0 1 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 1
Core(s) per socket: 24
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85

(Continued on next page)
**SPEC CPU2017 Integer Speed Result**

Lenovo Global Technology

ThinkSystem SR950

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<table>
<thead>
<tr>
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CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Test Date: May-2019

Hardware Availability: Apr-2019

Tested by: Lenovo Global Technology

Software Availability: Nov-2018

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**Platform Notes (Continued)**

Model name: Intel(R) Xeon(R) Platinum 8268 CPU @ 2.90GHz

Stepping: 6

CPU MHz: 2900.000

BogoMIPS: 5800.00

Virtualization: VT-x

L1d cache: 32K

L1i cache: 32K

L2 cache: 1024K

L3 cache: 36608K

NUMA node0 CPU(s): 0-23

NUMA node1 CPU(s): 24-47

NUMA node2 CPU(s): 48-71

NUMA node3 CPU(s): 72-95

Flags: fpu vme de pse tsc msr pae 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 3nowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single ssbd mba ibrs ibpb tpr_shadow vmmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ibrn invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cw avx512cd avx512vl xsaveopt xsavec xsavec xgetbv1 xsaves cqm_llc cmq_occup_llc cmq_mbm_total cmq_mbm_local dtherm ida arat pin pts hwp_epp pku ospke avx512_vnni flush_lld arch_capabilities

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

From /proc/cpuinfo cache data

cache size : 36608 KB

(Continued on next page)
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**SPEC CPU2017 Integer Speed Result**

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</tbody>
</table>

**Platform Notes (Continued)**

```
2: 21 21 10 21
3: 21 21 21 10
```

From /proc/meminfo
- MemTotal: 1584921072 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
- os-release:
  - NAME="SLES"
  - VERSION="15"
  - VERSION_ID="15"
  - PRETTY_NAME="SUSE Linux Enterprise Server 15"
  - ID="sles"
  - ID_LIKE="suse"
  - ANSI_COLOR="0;32"
  - CPE_NAME="cpe:/o:suse:sles:15"

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 10 15:38

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
```
<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
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<tbody>
<tr>
<td>/dev/sda2</td>
<td>xfs</td>
<td>744G</td>
<td>23G</td>
<td>722G</td>
<td>3%</td>
<td>/</td>
</tr>
</tbody>
</table>
```

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 SMIOS" standard.
```
BIOS Lenovo -[PSE1211-1.50]- 03/01/2019
Memory:
- 48x NO DIMM NO DIMM
- 48x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933
```

(End of data from sysinfo program)
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Software Availability: Nov-2018

Compiler Version Notes

==============================================================================
CC  600.perlbench_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,
   Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
-----------------------------------------------------------------------------

==============================================================================
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 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 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 19.0.1.144 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

(Continued on next page)
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### Base Portability Flags (Continued)

- 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:**

- -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:


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.

Tested with SPEC CPU2017 v1.0.5 on 2019-05-10 03:40:13-0400.  
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