**Lenovo Global Technology**

**ThinkSystem SD530**

(3.00 GHz, Intel Xeon Gold 5217)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 8.97</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak = Not Run</td>
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</tbody>
</table>

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

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
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</tr>
<tr>
<td>602.gcc_s</td>
<td>32</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>32</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>32</td>
</tr>
<tr>
<td>625.x264_s</td>
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<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>32</td>
</tr>
<tr>
<td>648.exchange2_s</td>
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</tr>
<tr>
<td>657.xz_s</td>
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### SPECspeed2017_int_base (8.97)

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<tr>
<td>657.xz_s</td>
<td>20.6</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 5217  
- **Max MHz.:** 3700  
- **Nominal:** 3000  
- **Enabled:** 16 cores, 2 chips, 2 threads/core  
- **Orderable:** 1,2 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:** 11 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 192 GB (12 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)  
- **Kernel:** 4.12.14-94.41-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 TEE135R 2.10 released Feb-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
Lenovo Global Technology

ThinkSystem SD530 (3.00 GHz, Intel Xeon Gold 5217)

SPEC CPU2017 Integer Speed Result

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

SPECspeed2017_int_base = 8.97
SPECspeed2017_int_peak = Not Run

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

Results Table

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<tr>
<th>Benchmark</th>
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<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tr>
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</tr>
</tbody>
</table>

SPECspeed2017_int_base = 8.97
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
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.
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)
**General Notes (Continued)**


---

**Platform Notes**

BIOS configuration:
- Choose Operating Mode set to Maximum Performance
- Choose Operating Mode set to Custom Mode
- Stale AtoS set to Disable
- CPU P-State Control set to Cooperative
- C-States set to Legacy
- C1 Enhanced Mode set to Enable

Sysinfo program /home/cpu2017-1.0.5-ic19.0u1/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcede8f2999c33d61f64985e45859ea9
running on linux-rofd Fri Apr 19 23:32:04 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

```plaintext
model name : Intel(R) Xeon(R) Gold 5217 CPU @ 3.00GHz
  2  "physical id"s (chips)
  32 "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 : 8
   siblings  : 16
   physical 0: cores 0 1 2 3 4 5 6 7
   physical 1: cores 0 1 2 3 4 5 6 7
```

From lscpu:

```plaintext
Architecture:       x86_64
CPU op-mode(s):     32-bit, 64-bit
Byte Order:         Little Endian
CPU(s):             32
On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s):          2
NUMA node(s):       2
Vendor ID:          GenuineIntel
CPU family:         6
Model:              85
Model name:         Intel(R) Xeon(R) Gold 5217 CPU @ 3.00GHz
Stepping:           6
CPU MHz:            3000.000
```

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

**Lenovo Global Technology**  
ThinkSystem SD530  
(3.00 GHz, Intel Xeon Gold 5217)

<table>
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<tr>
<th>Specification</th>
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<td>Lenovo Global Technology</td>
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<tr>
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</table>

| SPECspeed2017_int_base            | 8.97                      |
| SPECspeed2017_int_peak            | Not Run                   |

**Platform Notes (Continued)**

- **CPU max MHz:** 3700.0000  
  - **CPU min MHz:** 1200.0000  
  - **BogoMIPS:** 6000.00  
  - **Virtualization:** VT-x  
  - **L1d cache:** 32K  
  - **L1i cache:** 32K  
  - **L2 cache:** 1024K  
  - **L3 cache:** 11264K  
  - **NUMA node0 CPU(s):** 0-7,16-23  
  - **NUMA node1 CPU(s):** 8-15,24-31  

**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 cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pclid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single ssbd mba ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase 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 xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln pts hwlp hwlp_act_window hwlp_epp hwlp_pkg_req pku ospke avx512_vnni flush_lld arch_capabilities`

From `/proc/cpuinfo` cache data  
- **cache size:** 11264 KB

From `numactl --hardware`  
- **Available:** 2 nodes (0-1)  
  - **Node 0 CPU(s):** 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23  
  - **Node 0 size:** 96328 MB  
  - **Node 0 free:** 95817 MB  
  - **Node 1 CPU(s):** 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31  
  - **Node 1 size:** 96741 MB  
  - **Node 1 free:** 96291 MB  
  - **Node distances:**
    - **Node 0:** 0 1  
      - **0:** 10 21  
      - **1:** 21 10

From `/proc/meminfo`  
- **MemTotal:** 197703828 KB  
- **HugePages_Total:** 0  
- **Hugepagesize:** 2048 KB

From `/etc/*release*`  
- **SuSE-release:**

(Continued on next page)
## Lenovo Global Technology

### ThinkSystem SD530
(3.00 GHz, Intel Xeon Gold 5217)

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**SPECspeed2017_int_base = 8.97**

**SPECspeed2017_int_peak = Not Run**

---

### Platform Notes (Continued)

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 19 23:29

```
SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
```

### Filesystem Type Size Used Avail Use% Mounted on
/dev/md126p3 xfs 743G 31G 712G 5% /

---

### 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 -{TEE135R-2.10}- 02/26/2019**

**Memory:**

4x NO DIMM NO DIMM

12x SK Hynix HMA82GR7CJR8N-WM 16 GB 2 rank 2933, configured at 2666

(End of data from sysinfo program)

---

### Compiler Version Notes

```
==============================================================================
CC  600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base)
```

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD530
(3.00 GHz, Intel Xeon Gold 5217)

SPECSpeed2017_int_base = 8.97
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Compiler Version Notes (Continued)

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.

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.

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
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64

(Continued on next page)
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Software Availability: Dec-2018

Base Portability Flags (Continued)

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:
-W1,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP -L/usr/local/jc5.0.1-64/lib -ljemalloc

C++ benchmarks:
-W1,-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 2019-04-19 11:32:03-0400.  