## Lenovo Global Technology

**ThinkSystem SD530**  
(2.50 GHz, Intel Xeon Gold 5215)

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: SUSE Linux Enterprise Server 12 SP4 (x86_64)</td>
<td>CPU Name: Intel Xeon Gold 5215</td>
</tr>
<tr>
<td>Compiler Build 20181018 for Linux</td>
<td>Max MHz.: 3400</td>
</tr>
<tr>
<td>Fortran: Version 19.0.1.144 of Intel Fortran</td>
<td>Nominal: 2500</td>
</tr>
<tr>
<td>Compiler Build 20181018 for Linux</td>
<td>Enabled: 20 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Firmware: Lenovo BIOS Version TEE135R 2.10 released Feb-2019</td>
<td>Orderable: 1,2 chips</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td>Cache L1: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L2: 1 MB I+D on chip per core</td>
</tr>
<tr>
<td>Peak Pointers: Not Applicable</td>
<td>L3: 13.75 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other: jemalloc memory allocator V5.0.1</td>
<td>Other: None</td>
</tr>
</tbody>
</table>

### CPU2017 License: 9017  
Test Sponsor: Lenovo Global Technology  
Test Date: May-2019

### Lenovo Global Technology

**ThinkSystem SD530**  
(2.50 GHz, Intel Xeon Gold 5215)

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed2017_int_base = 8.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>SPECspeed2017_int_peak = Not Run</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

| CPU Name: Intel Xeon Gold 5215 | Max MHz.: 3400 |
| Nominal: 2500 | Enabled: 20 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: 13.75 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 |
### SPEC CPU2017 Integer Speed Result

**Lenovo Global Technology**

ThinkSystem SD530
(2.50 GHz, Intel Xeon Gold 5215)

**SPECspeed2017_int_base** = 8.50

**SPECspeed2017_int_peak** = Not Run

Computational Rating:
- Lenovo Global Technology

**CPU2017 License:** 9017

**Test Date:** May-2019

**Test Sponsor:** Lenovo Global Technology

**Hardware Availability:** Apr-2019

**Tested by:** Lenovo Global Technology

**Software Availability:** Dec-2018

---

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds Base</th>
<th>Ratio Base</th>
<th>Seconds Peak</th>
<th>Ratio Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>40</td>
<td>305</td>
<td>5.82</td>
<td>304</td>
<td>5.85</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>40</td>
<td>476</td>
<td>8.37</td>
<td>471</td>
<td>8.46</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>40</td>
<td>420</td>
<td>11.2</td>
<td>420</td>
<td>11.2</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>40</td>
<td>295</td>
<td>5.52</td>
<td>294</td>
<td>5.54</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>40</td>
<td>129</td>
<td>11.0</td>
<td>129</td>
<td>11.0</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>40</td>
<td>150</td>
<td>11.7</td>
<td>150</td>
<td>11.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>40</td>
<td>297</td>
<td>4.83</td>
<td>297</td>
<td>4.82</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>40</td>
<td>410</td>
<td>4.16</td>
<td>411</td>
<td>4.15</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>40</td>
<td>240</td>
<td>12.3</td>
<td>240</td>
<td>12.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>40</td>
<td>306</td>
<td>20.2</td>
<td>307</td>
<td>20.2</td>
</tr>
</tbody>
</table>

**SPECspeed2017_int_base** = 8.50

**SPECspeed2017_int_peak** = Not Run

---

**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 SD530
(2.50 GHz, Intel Xeon Gold 5215)

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

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 9bcde8f2999c33d61f64985e45859ea9
  - running on linux-9o25 Fri May 31 11:59:57 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 5215 CPU @ 2.50GHz
  - 2 "physical id"s (chips)
  - 40 "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: 10
    - siblings: 20
    - physical 0: cores 0 1 2 3 4 8 9 10 11 12
    - physical 1: cores 0 1 2 3 4 8 9 10 11 12

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 40
- On-line CPU(s) list: 0-39
- Thread(s) per core: 2
- Core(s) per socket: 10
- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Gold 5215 CPU @ 2.50GHz
- Stepping: 6
- CPU MHz: 2500.000

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

**Lenovo Global Technology**  
**ThinkSystem SD530**  
*(2.50 GHz, Intel Xeon Gold 5215)*

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

### Platform Notes (Continued)

- **CPU max MHz:** 3400.0000  
- **CPU min MHz:** 1000.0000  
- **BogoMIPS:** 5000.00

---

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 20 21 22 23 24 25 26 27 28 29
- **node 0 size:** 96318 MB  
- **node 0 free:** 95778 MB

---

From `/proc/meminfo`  
**MemTotal:** 197692500kB  
**HugePages_Total:** 0  
**Hugepagesize:** 2048 kB

---

From `/etc/*release*/etc/*version*`  
**SuSE-release:**
SPEC CPU2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SD530
(2.50 GHz, Intel Xeon Gold 5215)

SPECspeed2017_int_base = 8.50
SPECspeed2017_int_peak = Not Run

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

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 May 31 11:58

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
Filesystem Type  Size  Used Avail Use% Mounted on
/dev/sda3 xfs 744G 35G 709G 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 Samsung M393A2K43CB2-CVF 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  
(2.50 GHz, Intel Xeon Gold 5215)  

SPECspeed2017_int_base = 8.50  
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: Dec-2018

Compiler Version Notes (Continued)

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

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD530
(2.50 GHz, Intel Xeon Gold 5215)

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

SPECspeed2017_int_base = 8.50
SPECspeed2017_int_peak = Not Run

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

SPEC is a registered trademark of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 2019-05-30 23:59:56-0400.
Originally published on 2019-06-25.