### Lenovo Global Technology

#### ThinkSystem SD530
(1.90 GHz, Intel Xeon Gold 6262V)

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(9.56)</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 9017  
**Test Date:** Aug-2019  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology  
**Hardware Availability:** Jul-2019  
**Software Availability:** May-2019

#### Hardware

- **CPU Name:** Intel Xeon Gold 6262V  
- **Max MHz:** 3600  
- **Nominal:** 1900  
- **Enabled:** 48 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:** 33 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 192 GB (12 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;  
  - Fortran: Version 19.0.4.227 of Intel Fortran  
- **Parallel:** Yes  
- **Firmware:** Lenovo BIOS Version TEE142E 2.30 released Aug-2019  
  - Tested as TEE141E 2.30 Jul-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  
- **Power Management:** --
LENNOVO GLOBAL TECHNOLOGY

THINKSYSTEM SD530

1.90 GHz, Intel Xeon Gold 6262V

SPEC CPU®2017 INTEGER SPEED RESULT

SPECSPEED®2017_INT_BASE = 9.56
SPECSPEED®2017_INT_PEAK = Not Run

CPU2017 License: 9017
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RESULTS TABLE

Benchmark Threads Seconds Ratio Seconds Ratio Seconds Ratio Threads Seconds Ratio Seconds Ratio Seconds Ratio

600.perlbench_s 96 283 6.27 281 6.32 277 6.41
602.gcc_s 96 427 9.32 433 9.20 425 9.37
605.mcf_s 96 399 11.8 400 11.8 401 11.8
620.omnetpp_s 96 202 8.06 202 8.07 202 8.07
623.xalancbmk_s 96 123 11.5 123 11.5 123 11.5
625.x264_s 96 138 12.7 138 12.8 138 12.8
631.deepsjeng_s 96 282 5.08 282 5.08 281 5.10
641.leela_s 96 388 4.40 388 4.40 388 4.40
648.exchange2_s 96 193 15.2 192 15.3 191 15.4
657.xz_s 96 275 22.5 274 22.5 274 22.5

SPECspeed®2017_INT_BASE = 9.56
SPECspeed®2017_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)
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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-ic19.0u4/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-9o25 Thu Aug 8 10:04:46 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 6262V CPU @ 1.90GHz
   2 "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: 48
   physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
   physical 1: cores 0 1 2 3 4 5 8 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: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6262V CPU @ 1.90GHz
Stepping: 7
CPU MHz: 1900.000

(Continued on next page)
**SPEC CPU®2017 Integer Speed Result**

**Lenovo Global Technology**

ThinkSystem SD530  
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**SPECspeed®2017_int_base** = 9.56  
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**CPU2017 License:** 9017  
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<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU max MHZ:</td>
</tr>
<tr>
<td>CPU min MHZ:</td>
</tr>
<tr>
<td>BogoMIPS:</td>
</tr>
<tr>
<td>Virtualization:</td>
</tr>
<tr>
<td>L1d cache:</td>
</tr>
<tr>
<td>L1i cache:</td>
</tr>
<tr>
<td>L2 cache:</td>
</tr>
<tr>
<td>L3 cache:</td>
</tr>
<tr>
<td>NUMA node0 CPU(s):</td>
</tr>
<tr>
<td>NUMA node1 CPU(s):</td>
</tr>
<tr>
<td>Flags:</td>
</tr>
</tbody>
</table>

/proc/cpuinfo cache data  
cache size : 33792 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 16 17 18 19 20 21 22 23 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71  
node 0 size: 96340 MB  
node 0 free: 95650 MB  
node 1 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95  
node 1 size: 96706 MB  
node 1 free: 96137 MB  
node distances:  
node 0 1  
0: 10 21  
1: 21 10

From /proc/meminfo  
MemTotal: 197680872 KB  
 HugePages_Total: 0  
 Hugepagesize: 2048 KB

(Continued on next page)
**SPEC CPU®2017 Integer Speed Result**

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**SPECspeed®2017_int_base = 9.56**  
**SPECspeed®2017_int_peak = Not Run**

---

**Platform Notes (Continued)**

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.
# 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

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**run-level 3 Aug 8 10:01**

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

<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>
</thead>
<tbody>
<tr>
<td>/dev/sda3</td>
<td>xfs</td>
<td>744G</td>
<td>47G</td>
<td>698G</td>
<td>7%</td>
<td>/</td>
</tr>
</tbody>
</table>

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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 -[TEE141E-2.30]- 07/02/2019**

**Memory:**
- 4x NO DIMM NO DIMM
- 12x Samsung M393A2K43CB2-CVF 16 GB 2 rank 2933, configured at 2400

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(End of data from sysinfo program)
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Compiler Version Notes

==============================================================================
| C       | 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 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

==============================================================================
| C++     | 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.

==============================================================================
| Fortran | 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

(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.leea_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_2019.4.227/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-D.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-D.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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