### Lenovo Global Technology

ThinkSystem SD530  
(2.60 GHz, Intel Xeon Gold 6240Y)

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>219</th>
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</thead>
<tbody>
<tr>
<td>SPECrate2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**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

#### Hardware

- **CPU Name:** Intel Xeon Gold 6240Y  
- **Max MHz.:** 3900  
- **Nominal:** 2600  
- **Enabled:** 36 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:** 24.75 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 192 GB (12 x 16 GB 2Rx8 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:** No  
- **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:** None
Lenovo Global Technology
ThinkSystem SD530
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SPEC CPU2017 Integer Rate Result

SPECrate2017_int_base = 219
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>72</td>
<td>678</td>
<td>169</td>
<td>679</td>
<td>169</td>
<td>680</td>
<td>169</td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>72</td>
<td>580</td>
<td>176</td>
<td>577</td>
<td>177</td>
<td>579</td>
<td>176</td>
</tr>
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<td>505.mcf_r</td>
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<td>292</td>
<td>398</td>
<td>292</td>
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<tr>
<td>520.omnetpp_r</td>
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<td>665</td>
<td>142</td>
<td>666</td>
<td>142</td>
<td>665</td>
<td>142</td>
</tr>
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<tr>
<td>525.x264_r</td>
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<td>451</td>
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<td>280</td>
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<tr>
<td>531.deepsjeng_r</td>
<td>72</td>
<td>446</td>
<td>185</td>
<td>446</td>
<td>185</td>
<td>446</td>
<td>185</td>
</tr>
<tr>
<td>541.leela_r</td>
<td>72</td>
<td>667</td>
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<td>667</td>
<td>179</td>
<td>684</td>
<td>174</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>72</td>
<td>479</td>
<td>393</td>
<td>480</td>
<td>393</td>
<td>478</td>
<td>394</td>
</tr>
<tr>
<td>557.xz_r</td>
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<td>534</td>
<td>146</td>
<td>534</td>
<td>146</td>
<td>533</td>
<td>146</td>
</tr>
</tbody>
</table>

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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:
LD_LIBRARY_PATH = "/home/cpu2017-1.0.5-ic19.0u1/lib/intel64"

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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
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)

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Lenovo Global Technology
ThinkSystem SD530
(2.60 GHz, Intel Xeon Gold 6240Y)

SPECrate2017_int_base = 219
SPECrate2017_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)

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.

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
Choose Operating Mode set to Custom Mode
DCU Streamer Prefetcher set to Disable
MONITOR/MWAIT set to Enable
SNC set to Enable
Sysinfo program /home/cpu2017-1.0.5-ic19.0u1/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-o8xc Wed May 22 16:41:38 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 6240Y CPU @ 2.60GHz
  2  "physical id"s (chips)
  72 "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 : 18
siblings : 36
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 72
On-line CPU(s) list: 0-71
Thread(s) per core: 2
Core(s) per socket: 18
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85

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

**Lenovo Global Technology**  
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<tr>
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<td>Nov-2018</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

```plaintext
Model name: Intel(R) Xeon(R) Gold 6240Y CPU @ 2.60GHz
Stepping: 7
CPU MHz: 2600.000
CPU max MHz: 3900.0000
CPU min MHz: 1000.0000
BogoMIPS: 5200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-2, 5-6, 9-10, 14, 15, 16-18, 21, 25, 26-28, 30, 31, 33, 34, 35, 37-39, 41, 42, 45, 46, 49, 50, 51
NUMA node1 CPU(s): 3, 4, 7, 8, 11-13, 16, 17, 22, 23, 29-31, 32, 34, 36-38, 40, 44, 47, 49, 52, 53
NUMA node2 CPU(s): 18-20, 21, 22, 24, 27, 28, 29, 30, 31, 33, 34, 35, 37-39, 41, 45, 46, 49, 50, 51
NUMA node3 CPU(s): 21-23, 24-26, 29-31, 32, 34, 35, 37, 38, 41, 42, 45, 46, 49, 50, 51

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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sse4_1 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abtm acl mpx movbe cmov lendifferent_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sse4_1 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abtm acl mpx movbe cmov lendifferent_tsc

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

```plaintext
<table>
<thead>
<tr>
<th>Available</th>
<th>4 nodes (0-3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>node 0 cpus</td>
<td>0 1 2 5 6 9 10 14 15 16 36 37 38 41 42 45 46 50 51</td>
</tr>
<tr>
<td>node 0 size</td>
<td>47981 MB</td>
</tr>
<tr>
<td>node 0 free</td>
<td>44667 MB</td>
</tr>
<tr>
<td>node 1 cpus</td>
<td>3 4 7 8 11 12 13 16 17 39 40 43 44 47 48 49 52 53</td>
</tr>
<tr>
<td>node 1 size</td>
<td>48370 MB</td>
</tr>
<tr>
<td>node 1 free</td>
<td>48174 MB</td>
</tr>
<tr>
<td>node 2 cpus</td>
<td>18 19 20 23 24 27 28 32 33 54 55 56 59 60 63 64 68 69</td>
</tr>
<tr>
<td>node 2 size</td>
<td>48370 MB</td>
</tr>
<tr>
<td>node 2 free</td>
<td>47797 MB</td>
</tr>
<tr>
<td>node 3 cpus</td>
<td>21 22 25 26 29 30 31 34 35 57 58 61 62 65 66 67 70 71</td>
</tr>
<tr>
<td>node 3 size</td>
<td>48338 MB</td>
</tr>
<tr>
<td>node 3 free</td>
<td>48119 MB</td>
</tr>
<tr>
<td>node distances:</td>
<td>node 0 1 2 3</td>
</tr>
</tbody>
</table>
```

(Continued on next page)
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Platform Notes (Continued)

0: 10 11 21 21
1: 11 10 21 21
2: 21 21 10 11
3: 21 21 11 10

From /proc/meminfo
MemTotal: 197694328 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 22 16:34

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 744G 42G 702G 6% /

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
Lenovo Global Technology
ThinkSystem SD530
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Platform Notes (Continued)
(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base)
   557.xz_r(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 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
   541.leela_r(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  548.exchange2_r(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
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Base Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

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
-lqkmallocl

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
-lqkmallocl

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmallocl

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 CPU2017 Integer Rate Result

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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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