## Lenovo Global Technology

**ThinkSystem SD650**  
(2.60 GHz, Intel Xeon Gold 6240Y)

**SPECspeed2017_int_base** = 10.1

**SPECspeed2017_int_peak** = Not Run

### Hardware

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</tbody>
</table>

### Software

- **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:** 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)  
- **Storage:** 1 x 960 GB SATA SSD  
- **Other:** None

- **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  
- **Compiler for Linux:**  
- **Parallel:** Yes  
- **Firmware:** Lenovo BIOS Version OTE142F 2.30 released Jul-2019 tested as OTE141D 2.30 Jun-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
## SPEC CPU2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SD650
(2.60 GHz, Intel Xeon Gold 6240Y)

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

**Test Sponsor:** Lenovo Global Technology  
**Hardware Availability:** Apr-2019  
**Software Availability:** May-2019

### Results Table

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</table>

**SPECspeed2017_int_base = 10.1**
**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-ic19.0u4/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)
Lenovo Global Technology
ThinkSystem SD650
(2.60 GHz, Intel Xeon Gold 6240Y)

SPECspeed2017_int_base = 10.1
SPECspeed2017_int_peak = Not Run

Lenovo Global Technology

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

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

General Notes (Continued)

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
Choose Operating Mode set to Custom Mode
Memory Power Management set to Automatic
C-States set to Legacy
Adjacent Cache Prefetch set to Disable
Sysinfo program /home/cpu2017-1.0.5-ic19.0u4/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-55rv Sun Aug 4 06:26:17 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 6240C 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): 2
    Vendor ID: GenuineIntel
    CPU family: 6
    Model: 85
    Model name: Intel(R) Xeon(R) Gold 6240C CPU @ 2.60GHz
    Stepping: 6
    CPU MHz: 2600.000
    CPU max MHz: 3900.0000

(Continued on next page)
<table>
<thead>
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<tbody>
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<td><strong>ThinkSystem SD650</strong></td>
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</tr>
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<td>May-2019</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

- 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): 0-17,36-53
- NUMA node1 CPU(s): 18-35,54-71
- Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
- /proc/cpuinfo cache data
  - cache size: 25344 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 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53
  - node 0 size: 193091 MB
  - node 0 free: 192227 MB
  - node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53
  - node 1 size: 193506 MB
  - node 1 free: 193178 MB
  - node distances:
    - node 0 1
    - 0: 10 21
    - 1: 21 10

From /proc/meminfo
- MemTotal: 395875772 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD650
(2.60 GHz, Intel Xeon Gold 6240Y)

SPECspeed2017_int_base = 10.1
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 Aug 4 06:24

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u4
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb3 xfs 893G 62G 832G 7% /

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 -[OTE141D-2.30]- 06/11/2019
Memory:
4x NO DIMM NO DIMM
12x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(End of data from sysinfo program)
The marketing name for the processor in this result, which appears in the CPU name and hardware model areas, is different from sysinfo because a pre-production processor was used. The pre-production processor differs from the production processor in name only.
**Lenovo Global Technology**

ThinkSystem SD650
(2.60 GHz, Intel Xeon Gold 6240Y)

**SPEC CPU2017 Integer Speed Result**

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

```
CXX  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.
```

```
FC  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
```
SPEC CPU2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SD650
(2.60 GHz, Intel Xeon Gold 6240Y)

SPECspeed2017_int_base = 10.1
SPECspeed2017_int_peak = Not Run

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

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/compiler/repositories_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.

Tested with SPEC CPU2017 v1.0.5 on 2019-08-04 06:26:17-0400.
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