### Lenovo Global Technology
**ThinkSystem SD630 V2**
(3.20 GHz, Intel Xeon Gold 5315Y)

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology  
**Test Date:** Jun-2021  
**Hardware Availability:** Jul-2021  
**Software Availability:** Dec-2020

| SPECrate®2017_int_base = | 137 |
| SPECrate®2017_int_peak = | Not Run |

#### Hardware
- **CPU Name:** Intel Xeon Gold 5315Y  
  - **Max MHz:** 3600  
  - **Nominal:** 3200  
  - **Enabled:** 16 cores, 2 chips, 2 threads/core  
  - **Orderable:** 2 chips  
  - **Cache L1:** 32 KBI + 48 KB D on chip per core  
  - **L2:** 1.25 MB I+D on chip per core  
  - **L3:** 12 MB I+D on chip per chip  
  - **Other:** None  
- **Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R, running at 2933)  
- **Storage:** 1 x 480 GB SATA SSD  
- **Other:** None

#### Software
- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)  
  - **Kernel:** 4.18.0-240.el8.x86_64  
- **Compiler:** C/C++, Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;  
  - **Fortran:** Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;  
- **Parallel:** No  
- **Firmware:** Lenovo BIOS Version U8E111A 1.02 released May-2021  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** Not Applicable  
- **Other:** None  
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage

---

### SPEC CPU®2017 Integer Rate Result

**Lenovo Global Technology**

**ThinkSystem SD630 V2**
(3.20 GHz, Intel Xeon Gold 5315Y)

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology  
**Test Date:** Jun-2021  
**Hardware Availability:** Jul-2021  
**Software Availability:** Dec-2020

| SPECrate®2017_int_base = | 137 |
| SPECrate®2017_int_peak = | Not Run |

#### Hardware

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_int_base (137)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>502.gcc_r</td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>520.omnetpp_r</td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>525.x264_r</td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>541.leela_r</td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>557.xz_r</td>
</tr>
</tbody>
</table>

#### Software
- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)  
  - **Kernel:** 4.18.0-240.el8.x86_64  
- **Compiler:** C/C++, Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux;  
  - **Fortran:** Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux;  
- **Parallel:** No  
- **Firmware:** Lenovo BIOS Version U8E111A 1.02 released May-2021  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** Not Applicable  
- **Other:** None  
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage
Lenovo Global Technology
ThinkSystem SD630 V2
(3.20 GHz, Intel Xeon Gold 5315Y)

SPEC CPU®2017 Integer Rate Result
Copyright 2017-2021 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate®2017_int_base = 137
SPECrate®2017_int_peak = Not Run

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

Test Date: Jun-2021
Hardware Availability: Jul-2021
Software Availability: Dec-2020

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>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>32</td>
<td>556</td>
<td>91.6</td>
<td>556</td>
<td>91.7</td>
<td>557</td>
<td>91.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>32</td>
<td>404</td>
<td>112</td>
<td>403</td>
<td>112</td>
<td>405</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>32</td>
<td>218</td>
<td>237</td>
<td>218</td>
<td>237</td>
<td>218</td>
<td>237</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>32</td>
<td>469</td>
<td>89.6</td>
<td>472</td>
<td>89.0</td>
<td>470</td>
<td>89.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>32</td>
<td>194</td>
<td>174</td>
<td>195</td>
<td>173</td>
<td>195</td>
<td>173</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>525.x264_r</td>
<td>32</td>
<td>199</td>
<td>282</td>
<td>219</td>
<td>282</td>
<td>199</td>
<td>282</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>32</td>
<td>350</td>
<td>105</td>
<td>351</td>
<td>104</td>
<td>351</td>
<td>104</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>32</td>
<td>520</td>
<td>102</td>
<td>521</td>
<td>102</td>
<td>520</td>
<td>102</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>32</td>
<td>296</td>
<td>283</td>
<td>296</td>
<td>284</td>
<td>292</td>
<td>287</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td>32</td>
<td>473</td>
<td>73.1</td>
<td>473</td>
<td>73.0</td>
<td>472</td>
<td>73.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECrate®2017_int_base = 137
SPECrate®2017_int_peak = Not Run

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"

Environment Variables Notes
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
"/home/cpu2017-1.1.8-ic2021.1-revB/lib/intel64:/home/cpu2017-1.1.8-ic202
1.1-revB/lib/ia32:/home/cpu2017-1.1.8-ic2021.1-revB/je5.0.1-32"
MALLOC_CONF = "retain: true"

General Notes
Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1
Transparent Huge Pages enabled by default
Prior to runcpu invocation
Files system page cache synced and cleared with:
sync; echo 3>
/proc/sys/vm/drop_caches
runcpu command invoked through numactl i.e.:

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD630 V2
(3.20 GHz, Intel Xeon Gold 5315Y)

SPECRate®2017_int_base = 137
SPECRate®2017_int_peak = Not Run

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

Test Date: Jun-2021
Hardware Availability: Jul-2021
Software Availability: Dec-2020

General Notes (Continued)

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) is mitigated in the system as tested and documented.

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance and then set it to Custom Mode
UPI Link Disable set to Disabled 1 Link
DCU Streamer Prefetcher set to Disabled
SNC set to Enabled

Sysinfo program /home/cpu2017-1.1.8-ic2021.1-revB/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acaf64d
running on localhost.localdomain Thu Jun 24 01:29:56 2021

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 5315Y CPU @ 3.20GHz
  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 from util-linux 2.32.1:
  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

(Continued on next page)
## Lenovo Global Technology

**ThinkSystem SD630 V2**  
(3.20 GHz, Intel Xeon Gold 5315Y)

### SPEC CPU®2017 Integer Rate Result

<table>
<thead>
<tr>
<th>Test Sponsor</th>
<th>Lenovo Global Technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability</td>
<td>Jul-2021</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Dec-2020</td>
</tr>
<tr>
<td>CPU2017 License</td>
<td>9017</td>
</tr>
<tr>
<td>CPU MHz</td>
<td>3500.000</td>
</tr>
<tr>
<td>BogoMIPS</td>
<td>6400.00</td>
</tr>
<tr>
<td>Virtualization</td>
<td>VT-x</td>
</tr>
<tr>
<td>L1d cache</td>
<td>48K</td>
</tr>
<tr>
<td>L1i cache</td>
<td>32K</td>
</tr>
<tr>
<td>L2 cache</td>
<td>1280K</td>
</tr>
<tr>
<td>L3 cache</td>
<td>12288K</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

- CPU family: 6
- Model: 106
- Model name: Intel(R) Xeon(R) Gold 5315Y CPU @ 3.20GHz
- Stepping: 6
- 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 cx8 apic sep mtrr pge mca cmov
- /proc/cpuinfo cache data
  - cache size : 12288 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 16 17 18 19 20 21 22 23
- node 0 size: 252394 MB
- node 0 free: 256642 MB
- node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
- node 1 size: 252057 MB
- node 1 free: 257428 MB

From /proc/meminfo

- MemTotal: 528013584 kB
- HugePages_Total: 0

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD630 V2
(3.20 GHz, Intel Xeon Gold 5315Y)

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

SPECrater®2017_int_base = 137
SPECrater®2017_int_peak = Not Run

Platform Notes (Continued)

Hugepagesize: 2048 kB

/sbin/tuned-adm active
  Current active profile: balanced

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.3 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.3"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
    ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
  system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
    Linux localhost.localdomain 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020
    x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass):
  Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1):
  Mitigation: usercopy/swaps barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):
  Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling):
CVE-2019-11135 (TSX Asynchronous Abort):
  Not affected

run-level 3 Jun 24 01:28

SPEC is set to: /home/cpu2017-1.1.8-ic2021.1-revB
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda5 xfs 372G 79G 293G  22% /home

From /sys/devices/virtual/dmi/id

(Continued on next page)
**Platform Notes (Continued)**

Vendor: Lenovo  
Product: ThinkSystem SD630 V2  
Product Family: ThinkSystem  
Serial: 1234567890

Additional information from dmidecode 3.2 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.

Memory: 16x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200, configured at 2933

BIOS:  
BIOS Vendor: Lenovo  
BIOS Version: U8E111A-1.02  
BIOS Date: 05/07/2021  
BIOS Revision: 1.2  
Firmware Revision: 1.40

(End of data from sysinfo program)

**Compiler Version Notes**

```
C       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)  
        | 525.x264_r(base) 557.xz_r(base)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
C++     | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)  
        | 541.leela_r(base)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
Fortran  | 548.exchange2_r(base)

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
```

(Continued on next page)
### Base Compiler Invocation

**C benchmarks:**
- `icx`

**C++ benchmarks:**
- `icpx`

**Fortran benchmarks:**
- `ifort`

### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td><code>-DSPEC_LP64 -DSPEC_LINUX_X64</code></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td><code>-DSPEC_LP64 -DSPEC_LINUX</code></td>
</tr>
<tr>
<td>525.x264_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>541.leela_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
<tr>
<td>557.xz_r</td>
<td><code>-DSPEC_LP64</code></td>
</tr>
</tbody>
</table>

### Base Optimization Flags

**C benchmarks:**

**C++ benchmarks:**

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD630 V2
(3.20 GHz, Intel Xeon Gold 5315Y)

SPECrate®2017_int_base = 137
SPECrate®2017_int_peak = Not Run

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

Test Date: Jun-2021
Hardware Availability: Jul-2021
Software Availability: Dec-2020

Base Optimization Flags (Continued)

C++ benchmarks (continued):
- lqkmalloc

Fortran benchmarks:
- w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
- qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
- auto -mbranches-within-32B-boundaries
- L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin
- lqkmalloc

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-ICElake-E.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-ICElake-E.xml
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml

SPEC CPU and SPECrate are registered trademarks 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 CPU®2017 v1.1.8 on 2021-06-23 13:29:56-0400.
Report generated on 2021-07-21 15:45:24 by CPU2017 PDF formatter v6442.
Originally published on 2021-07-20.