## Lenovo Global Technology

**ThinkSystem SD630 V2**

*(2.20 GHz, Intel Xeon Platinum 8352Y)*

### SPECspeed®2017_fp_base = 213

### SPECspeed®2017_fp_peak = Not Run

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_fp_base</th>
<th>SPECspeed®2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>64</td>
<td>256</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>64</td>
<td>144</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>64</td>
<td>103</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>64</td>
<td>153</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>64</td>
<td>85.4</td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>64</td>
<td>239</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>64</td>
<td>381</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>64</td>
<td>116</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>64</td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td>64</td>
<td>272</td>
</tr>
</tbody>
</table>

### Software

- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)
- **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:** Yes
- **Firmware:** Lenovo BIOS Version U8E109PT1 1.01 released Apr-2021
- **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:** BIOS and OS set to prefer performance at the cost of additional power usage

### Hardware

- **CPU Name:** Intel Xeon Platinum 8352Y
- **Max MHz:** 3400
- **Nominal:** 2200
- **Enabled:** 64 cores, 2 chips
- **Orderable:** 2 chips
- **Cache L1:** 32 KB I + 48 KB D on chip per core
- **Cache L2:** 1.25 MB I+D on chip per core
- **Cache L3:** 48 MB I+D on chip per chip
- **Other:** None
- **Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)
- **Storage:** 1 x 480 GB SATA SSD
- **Other:** None
Lenovo Global Technology
ThinkSystem SD630 V2
(2.20 GHz, Intel Xeon Platinum 8352Y)

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

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>64</td>
<td>80.2</td>
<td>736</td>
<td>80.3</td>
<td>735</td>
<td>80.3</td>
<td>735</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>64</td>
<td>64.9</td>
<td>257</td>
<td>65.0</td>
<td>256</td>
<td>65.0</td>
<td>256</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>64</td>
<td>37.0</td>
<td>142</td>
<td>36.5</td>
<td>144</td>
<td>35.7</td>
<td>147</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>64</td>
<td>68.5</td>
<td>193</td>
<td>68.6</td>
<td>193</td>
<td>69.2</td>
<td>191</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>64</td>
<td>58.1</td>
<td>153</td>
<td>58.2</td>
<td>152</td>
<td>57.6</td>
<td>154</td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>64</td>
<td>140</td>
<td>84.7</td>
<td>138</td>
<td>86.0</td>
<td>139</td>
<td>85.4</td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>64</td>
<td>60.6</td>
<td>238</td>
<td>60.0</td>
<td>240</td>
<td>60.4</td>
<td>239</td>
</tr>
<tr>
<td>644.nab_s</td>
<td>64</td>
<td>45.8</td>
<td>381</td>
<td>45.8</td>
<td>382</td>
<td>46.2</td>
<td>378</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>64</td>
<td>78.8</td>
<td>116</td>
<td>78.3</td>
<td>116</td>
<td>78.1</td>
<td>117</td>
</tr>
<tr>
<td>654.roms_s</td>
<td>64</td>
<td>58.1</td>
<td>271</td>
<td>58.0</td>
<td>272</td>
<td>57.8</td>
<td>273</td>
</tr>
</tbody>
</table>

SPECspeed®2017_fp_base = 213
SPECspeed®2017_fp_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"

Environment Variables Notes
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2017-1.1.5-ic2021.1-revB/lib/intel64:/home/cpu2017-1.1.5-ic2021.1-revB/jre5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"

General Notes
Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0
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.

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD630 V2
(2.20 GHz, Intel Xeon Platinum 8352Y)

General Notes (Continued)

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance and then set it to Custom Mode
CPU P-state Control set to Autonomous
C-States set to Autonomous
Hyper-Threading set to Disabled
Adjacent Cache Prefetch set to Disabled
LLC Prefetch set to Enable

Sysinfo program /home/cpu2017-1.1.5-ic2021.1-revB/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080aede89d3b38e2f1c
running on localhost.localdomain Tue May 18 06:15:48 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) Platinum 8352Y CPU @ 2.20GHz
  2  "physical id"s (chips)
  64 "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 : 32
siblings : 32
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
         25 26 27 28 29 30 31
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
         25 26 27 28 29 30 31

From lscpu:
Architecture:     x86_64
CPU op-mode(s):   32-bit, 64-bit
Byte Order:       Little Endian
CPU(s):           64
On-line CPU(s) list: 0-63
Thread(s) per core: 1
Core(s) per socket: 32
Socket(s):        2
NUMA node(s):     2
Vendor ID:        GenuineIntel

(Continued on next page)
Lenovo Global Technology

ThinkSystem SD630 V2
(2.20 GHz, Intel Xeon Platinum 8352Y)

SPECSpeed®2017_fp_base = 213
SPECSpeed®2017_fp_peak = Not Run

CPU2017 License: 9017
Test Date: May-2021
Test Sponsor: Lenovo Global Technology
Hardware Availability: Jul-2021
Tested by: Lenovo Global Technology
Software Availability: Feb-2021

CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Platinum 8352Y CPU @ 2.20GHz
Stepping: 6
CPU MHz: 800.000
BogoMIPS: 4400.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 49152K
NUMA node0 CPU(s): 0-31
NUMA node1 CPU(s): 32-63

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 art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt pae mce cx8 apic cpuid_fault epb cat_l3 invpcid_single intel_pAPPING ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmmi flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 rome invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaves xsaveopt xsaves xsaveopt xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mb area local split_lock-detect wbnoinvd dtherm ida arat pln pts hwp epp avx512vbmi umip pku ospke avx512_vbmi2 gfnl vaes vpcm ul dq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconf l flush_lid arch_capabilities

/platform/cpusinfo cache data
  cache size: 49152 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 24 25 26 27 28 29 30 31
    node 0 size: 245021 MB
    node 0 free: 255168 MB
    node 1 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56
    node 1 size: 242876 MB
    node 1 free: 257353 MB
    node distances:
      node 0 1
      0: 10 20
      1: 20 10

From /proc/meminfo

(Continued on next page)
Lenovo Global Technology

ThinkSystem SD630 V2
(2.20 GHz, Intel Xeon Platinum 8352Y)

**SPECspeed®2017_fp_base = 213**

**SPECspeed®2017_fp_peak = Not Run**

**Platform Notes (Continued)**

```plaintext
MemTotal:      528007256 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

/sbin/tuned-adm active
Current active profile: throughput-performance

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): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 3 May 18 04:43

SPEC is set to: /home/cpu2017-1.1.5-ic2021.1-revB

<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/sda4</td>
<td>xfs</td>
<td>372G</td>
<td>39G</td>
<td>333G</td>
<td>11%</td>
<td>/home</td>
</tr>
</tbody>
</table>

(Continued on next page)
### Lenovo Global Technology

**ThinkSystem SD630 V2**

(2.20 GHz, Intel Xeon Platinum 8352Y)

---

**SPECspeed®2017_fp_base = 213**

**SPECspeed®2017_fp_peak = Not Run**

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
</tr>
</tbody>
</table>

#### Platform Notes (Continued)

From /sys/devices/virtual/dmi/id

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

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.

- **Memory:**
  - 16x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200

- **BIOS:**
  - **Vendor:** Lenovo
  - **Version:** U8E109PT1-1.01
  - **Date:** 04/28/2021
  - **Revision:** 1.1
  - **Firmware Revision:** 1.40

(End of data from sysinfo program)

---

#### Compiler Version Notes

```
C               | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
```

---

```
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

---

```
C++, C, Fortran | 607.cactuBSSN_s(base)
```

---

```
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

---

```
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

---

```
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

(Continued on next page)
Lenovo Global Technology
ThinkSystem SD630 V2
(2.20 GHz, Intel Xeon Platinum 8352Y)

| SPECspeak®2017_fp_base = 213 |
| SPECspeak®2017_fp_peak = Not Run |

---

**Compiler Version Notes (Continued)**

<table>
<thead>
<tr>
<th>Fortran</th>
<th>603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel (R) Fortran Intel (R) 64 Compiler Classic for applications running on Intel (R) 64, Version 2021.1 Build 20201112_000000</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Fortran, C</th>
<th>621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel (R) Fortran Intel (R) 64 Compiler Classic for applications running on Intel (R) 64, Version 2021.1 Build 20201112_000000</td>
<td></td>
</tr>
<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
<td></td>
</tr>
</tbody>
</table>

**Base Compiler Invocation**

C benchmarks:
*icc*

Fortran benchmarks:
*ifort*

Benchmarks using both Fortran and C:
*ifort icc*

Benchmarks using Fortran, C, and C++:
*icpc icc ifort*

**Base Portability Flags**

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian -assume byterecl
Lenovo Global Technology
ThinkSystem SD630 V2
(2.20 GHz, Intel Xeon Platinum 8352Y)

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base =</th>
<th>213</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_fp_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-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

Base Portability Flags (Continued)

638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
- m64 -std=c11 -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
  -ffinite-math-only -qopt-mem-layout-trans=4 -gopenmp -DSPEC_OPENMP
  -mbranches-within-32B-boundaries

Fortran benchmarks:
- m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div
  -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -gopenmp
  -nostandard-realloc-lhs -mbranches-within-32B-boundaries
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using both Fortran and C:
- m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
  -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -gopenmp
  -DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Benchmarks using Fortran, C, and C++:
- m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
  -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -gopenmp
  -DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

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-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-ICElake-D.xml
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml
# SPEC CPU® 2017 Floating Point Speed Result

## Lenovo Global Technology

ThinkSystem SD630 V2  
(2.20 GHz, Intel Xeon Platinum 8352Y)

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base</th>
<th>213</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Test Date:</td>
<td>May-2021</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Jul-2021</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

---

SPEC CPU and SPECspeed 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 v1.1.5 on 2021-05-18 06:15:47-0400.  
Report generated on 2021-06-08 20:01:12 by CPU2017 PDF formatter v6442.  
Originally published on 2021-06-08.