# SPEC CPU®2017 Integer Speed Result

## Lenovo Global Technology

**ThinkSystem SR630 V2**  
(2.80 GHz, Intel Xeon Gold 6342)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>11.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_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: Jul-2021  
Hardware Availability: Jul-2021  
Software Availability: Dec-2020

### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>96</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>96</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>96</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96</td>
</tr>
</tbody>
</table>

### SPECspeed®2017_int_base (11.8)

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>96</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>96</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>96</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 6342  
- **Max MHz:** 3500  
- **Nominal:** 2800  
- **Enabled:** 48 cores, 2 chips, 2 threads/core  
- **Orderable:** 1.2 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:** 36 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 1 TB (32 x 32 GB 2Rx8 PC4-3200AA-R)  
- **Storage:** 1 x 960 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:** Yes  
- **Firmware:** Lenovo BIOS Version AFE111A 1.02 released May-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
SPEC CPU®2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SR630 V2
(2.80 GHz, Intel Xeon Gold 6342)

Copyright 2017-2021 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed®2017_int_base = 11.8
SPECspeed®2017_int_peak = Not Run

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

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>600.perlbench_s</td>
<td>96</td>
<td>249</td>
<td>7.12</td>
<td>248</td>
<td>7.15</td>
<td>248</td>
<td>7.14</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96</td>
<td>372</td>
<td>10.7</td>
<td>373</td>
<td>10.7</td>
<td>370</td>
<td>10.8</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96</td>
<td>242</td>
<td>19.5</td>
<td>243</td>
<td>19.4</td>
<td>243</td>
<td>19.4</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96</td>
<td>140</td>
<td>11.7</td>
<td>138</td>
<td>11.8</td>
<td>140</td>
<td>11.6</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>96</td>
<td>104</td>
<td>13.6</td>
<td>105</td>
<td>13.5</td>
<td>105</td>
<td>13.5</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>96</td>
<td>103</td>
<td>17.2</td>
<td>103</td>
<td>17.2</td>
<td>103</td>
<td>17.2</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96</td>
<td>245</td>
<td>5.85</td>
<td>245</td>
<td>5.84</td>
<td>245</td>
<td>5.85</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96</td>
<td>358</td>
<td>4.76</td>
<td>358</td>
<td>4.77</td>
<td>358</td>
<td>4.76</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96</td>
<td>146</td>
<td>20.2</td>
<td>145</td>
<td>20.2</td>
<td>146</td>
<td>20.2</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96</td>
<td>258</td>
<td>24.0</td>
<td>258</td>
<td>23.9</td>
<td>257</td>
<td>24.1</td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 11.8
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"

Environment Variables Notes
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017-1.1.8-ic2021.1-revB/lib/intel64:/home/cpu2017-1.1.8-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 SR630 V2
(2.80 GHz, Intel Xeon Gold 6342)

SPECspeed®2017_int_base = 11.8
SPECspeed®2017_int_peak = Not Run

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
MONITOR/MWAIT set to Enabled
C-States set to Legacy
C1 Enhanced Mode set to Enabled

Sysinfo program /home/cpu2017-1.1.8-ic2021.1-revB/bin/sysinfo
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16a6acfc64d
running on localhost.localdomain Tue Jul 13 17:55:39 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 6342 CPU @ 2.80GHz
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 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
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

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): 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: 106
Model name: Intel(R) Xeon(R) Gold 6342 CPU @ 2.80GHz
Stepping: 6

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

Lenovo Global Technology  
ThinkSystem SR630 V2  
(2.80 GHz, Intel Xeon Gold 6342)

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

**SPECSpeed®2017_int_base = 11.8**  
**SPECSpeed®2017_int_peak = Not Run**

**Platform Notes (Continued)**

```plaintext
CPU MHz: 3350.052  
BogoMIPS: 5600.00  
Virtualization: VT-x  
L1d cache: 48K  
L1i cache: 32K  
L2 cache: 1280K  
L3 cache: 36864K  
NUMA node0 CPU(s): 0-23,48-71  
NUMA node1 CPU(s): 24-47,72-95  
Flags: fpu vme de pse tsc msr pae mca 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 sdbg fma cx16 xtrar pdcn dca sse4_1 sse4_2 x2apic movnt庄 popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 invpcid_single intel_pni ssbd mba ibrs ibbp stibp ibrs_english_m pci shadow vmx nonstop_tsc ept vpid ept_ad fsbgbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cqm dtes64_64bit_fma avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsave xsaveopt xsavec xsavec xsaveopt cqm_occup llc cqm_mbm_total cqm_mbm_local split_lock_detect wbnoinvd dtcold ida arat pln pts avx512vbm ui mep pkum ospe avx512_vbmi2 gfnl vaes vpcmudldg avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_lid arch_capabilities

/proc/cpuinfo cache data
  cache size: 36864 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 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 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
  node 0 size: 481408 MB
  node 0 free: 5149843 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 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 1 size: 483780 MB
  node 1 free: 515356 MB
  node distances:
    node 0 1
      0: 10 20
      1: 20 10

From /proc/meminfo
  MemTotal: 1056481964 KB
  HugePages_Total: 0
  Hugepagesize: 2048 KB

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR630 V2
(2.80 GHz, Intel Xeon Gold 6342)

<table>
<thead>
<tr>
<th>SPECspeed²017_int_base</th>
<th>11.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed²017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

Platform Notes (Continued)

/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 sanitation
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 Jul 13 17:53

SPEC is set to: /home/cpu2017-1.1.8-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/sdb4</td>
<td>xfs</td>
<td>818G</td>
<td>22G</td>
<td>796G</td>
<td>3%</td>
<td>/home</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id
Vendor: Lenovo
Product: ThinkSystem SR630 V2 MB

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR630 V2
(2.80 GHz, Intel Xeon Gold 6342)

SPECspeed®2017_int_base = 11.8
SPECspeed®2017_int_peak = Not Run

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

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

Platform Notes (Continued)

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:
32x Samsung M393A4G43AB3-CWE 32 GB 2 rank 3200

BIOS:
  BIOS Vendor: Lenovo
  BIOS Version: AFE111A-1.02
  BIOS Date: 05/07/2021
  BIOS Revision: 1.2
  Firmware Revision: 1.10

(End of data from sysinfo program)

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) 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++
| 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(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
| 648.exchange2_s(base)

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.
Lenovo Global Technology
ThinkSystem SR630 V2
(2.80 GHz, Intel Xeon Gold 6342)

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

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

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

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
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:
-DSPEC_OPENMP -std=c11 -m64 -fiopenmp -Wl,-z,muldefs -xCORE-AVX2
-O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:
-DSPEC_OPENMP -m64 -Wl,-z,muldefs -xCORE-AVX2 -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin/
-lqkmalloc

Fortran benchmarks:
-m64 -xCORE-AVX2 -03 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries
Lenovo Global Technology
ThinkSystem SR630 V2
(2.80 GHz, Intel Xeon Gold 6342)

SPECspeed®2017_int_base = 11.8
SPECspeed®2017_int_peak = Not Run

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

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