Lenovo Global Technology
ThinkSystem SR630 V2
(2.40 GHz, Intel Xeon Gold 6336Y)

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

Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>48</td>
<td>10.9</td>
<td>Not Run</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>48</td>
<td>19.4</td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>48</td>
<td>11.4</td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>48</td>
<td>13.9</td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>48</td>
<td>17.6</td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>48</td>
<td>5.99</td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>48</td>
<td>4.90</td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>48</td>
<td>20.7</td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>48</td>
<td>23.8</td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>48</td>
<td>7.31</td>
<td></td>
</tr>
</tbody>
</table>

Hardware
CPU Name: Intel Xeon Gold 6336Y
Max MHz: 3600
Nominal: 2400
Enabled: 48 cores, 2 chips
Orderable: 1.2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1.25 MB I+D on chip per core
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
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>48</td>
<td>243</td>
<td>7.31</td>
<td>243</td>
<td>7.31</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>48</td>
<td>367</td>
<td>10.9</td>
<td>365</td>
<td>10.9</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>48</td>
<td>244</td>
<td>19.4</td>
<td>240</td>
<td>19.7</td>
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<tr>
<td>620.omnetpp_s</td>
<td>48</td>
<td>139</td>
<td>11.7</td>
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<td>11.6</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
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<td>13.9</td>
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<td>14.0</td>
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<tr>
<td>625.x264_s</td>
<td>48</td>
<td>100</td>
<td>17.6</td>
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<td>17.6</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
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<td>5.99</td>
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<tr>
<td>641.leela_s</td>
<td>48</td>
<td>348</td>
<td>4.90</td>
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<td>4.90</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>48</td>
<td>141</td>
<td>20.8</td>
<td>143</td>
<td>20.6</td>
</tr>
<tr>
<td>557.xz_s</td>
<td>48</td>
<td>260</td>
<td>23.3</td>
<td>260</td>
<td>23.8</td>
</tr>
</tbody>
</table>

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-ic202 1.1-revB/je5.0.1-64"
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)
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ThinkSystem SR630 V2  
(2.40 GHz, Intel Xeon Gold 6336Y)  

**SPECspeed®2017_int_base** = 12.0  
**SPECspeed®2017_int_peak** = Not Run

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9017</th>
<th>Test Date:</th>
<th>Jul-2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
<td>Hardware Availability:</td>
<td>Jul-2021</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
<td>Software Availability:</td>
<td>Dec-2020</td>
</tr>
</tbody>
</table>

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  
Hyper-Threading set to Disabled

Sysinfo program /home/cpu2017-1.1.8-ic2021.1-revB/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aca64d  
running on localhost.localdomain Tue Jul 13 17:58:36 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 6336Y CPU @ 2.40GHz 
  2 "physical id"s (chips) 
  48 "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 : 24 
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):              48  
On-line CPU(s) list: 0-47  
Thread(s) per core:  1  
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 6336Y CPU @ 2.40GHz
```

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

- Stepping: 6
- CPU MHz: 3007.894
- BogoMIPS: 4800.00
- Virtualization: VT-x
- L1d cache: 48K
- L1i cache: 32K
- L2 cache: 1280K
- L3 cache: 36864K
- NUMA node0 CPU(s): 0-23
- NUMA node1 CPU(s): 24-47
- Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge 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 pnpi pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 invdpcid_single intel_pinn ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmi fmmul mixprec ept vpid ethtad fsgrmbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsavec xsavec xsavec xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_free cqm_mbm_local split_lock_detect wbinvd dtherm idapin pts avx512vbm unip pkuspec avx512_vbmi2 gfnvi vaes vpclmulqdq avx512_vnni avx512_vbta lgmte avx512_vppcntdq la57 rdpmi md_clear pconfi flush_l1d arch_capabilities

```
/procb/cpulinfo 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
node 0 size: 493488 MB
node 0 free: 510503 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
node 1 size: 493857 MB
node 1 free: 515328 MB
node distances:
  node 0: 1
  0: 10 20
  1: 20 10

From /proc/meminfo

```
MemTotal: 1056492360 KB
HugePages_Total: 0
Hugepagesize: 2048 KB
```

/sbin/tuned-adm active

(Continued on next page)
## Lenovo Global Technology

**ThinkSystem SR630 V2**  
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---

### 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

---

### SPEC CPU 2017 Integer Speed Result

**SPECspeed®2017_int_base = 12.0**

**SPECspeed®2017_int_peak = Not Run**

---

### Platform Notes (Continued)

Current active profile: throughput-performance

From /etc/*release* /etc/*version*

```bash
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
```

```bash
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 (Melttdown):** Mitigation: Speculative Store Bypass disabled via prctl and seccomp
- **CVE-2018-3639 (Speculative Store Bypass):** Mitigation: usercopy/swapgs barriers and __user pointer sanitation
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: Enhanced IBRS, IBBP: conditional, RSB filling
- **CVE-2017-5715 (Spectre variant 2):** Not affected
- **CVE-2020-0543 (Special Register Buffer Data Sampling):** Not affected
- **CVE-2019-11135 (TSX Asynchronous Abort):** Not affected

---

**run-level 3 Jul 13 17:56**

**SPEC is set to:** /home/cpu2017-1.1.8-ic2021.1-revB

### Filesystem

<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>819G</td>
<td>92G</td>
<td>727G</td>
<td>12%</td>
<td>/home</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

**Vendor:** Lenovo

**Product:** ThinkSystem SR630 V2 MB

**Product Family:** ThinkSystem

---

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**SPEC CPU®2017 Integer Speed Result**

**Lenovo Global Technology**

ThinkSystem SR630 V2  
(2.40 GHz, Intel Xeon Gold 6336Y)

**SPECspeed®2017_int_base = 12.0**

**SPECspeed®2017_int_peak = Not Run**

---

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

---

**Platform Notes (Continued)**

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.
```
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ThinkSystem SR630 V2
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SPECspeed®2017_int_base = 12.0
SPECspeed®2017_int_peak = Not Run

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/
-1qkmalloc

Fortran benchmarks:
m64 -xCORE-AVX2 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries
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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

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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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