### Lenovo Global Technology

**ThinkSystem SR850P**  
(2.60 GHz, Intel Xeon Gold 6240L)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>11.1</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

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base (11.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0, 1, 2, 3, 5</td>
<td>6.65</td>
</tr>
<tr>
<td>4, 6, 7, 8, 9, 10, 11</td>
<td>10.1</td>
</tr>
<tr>
<td>12, 13, 14, 15, 16, 17, 18</td>
<td>18.2</td>
</tr>
<tr>
<td>19, 20, 21, 22, 23, 24, 25</td>
<td>24.2</td>
</tr>
</tbody>
</table>

| 600.perlbench_s | 72 |
| 602.gcc_s | 72 |
| 605.mcf_s | 72 |
| 620.omnetpp_s | 72 |
| 623.xalancbmk_s | 72 |
| 625.x264_s | 72 |
| 631.deepsjeng_s | 72 |
| 641.leela_s | 72 |
| 648.exchange2_s | 72 |
| 657.xz_s | 72 |

#### Hardware

**CPU Name:** Intel Xeon Gold 6240L

**Max MHz:** 3900

**Enabled:** 72 cores, 4 chips

**Orderable:** 4 chips

**Cache L1:** 32 KB I + 32 KB D on chip per core

**Cache L2:** 1 MB I+D on chip per core

**Cache L3:** 24.75 MB I+D on chip per chip

**Other:** None

**Memory:** 1536 GB (48 x 32 GB 2Rx4 PC4-2933Y-R)

**Storage:** 1 x 960 GB SATA SSD

**Other:** None

| **Software** | **OS:** Red Hat Enterprise Linux 8.0  
(Ootpa) | **Compiler:** C/C++: Version 19.1.1.217 of Intel  
C/C++ Compiler for Linux; Fortran: Version 19.1.1.217 of Intel Fortran  
Compiler for Linux |
|---------------|---------------------------------|---------------------------------|
| **Parallel:** | Yes | **Firmware:** Lenovo BIOS Version TEE156L 2.61 released May-2020  
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 set to prefer performance at the cost of additional power usage |
| **File System:** | xfs |
Lenovo Global Technology  
ThinkSystem SR850P  
(2.60 GHz, Intel Xeon Gold 6240L)  

SPECSpeed®2017_int_base = 11.1  
SPECSpeed®2017_int_peak = Not Run  

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>72</td>
<td>267</td>
<td>6.65</td>
<td>267</td>
<td>6.65</td>
<td>266</td>
<td>6.67</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>72</td>
<td>389</td>
<td>10.2</td>
<td>398</td>
<td>10.0</td>
<td>395</td>
<td>10.1</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>72</td>
<td>260</td>
<td>18.2</td>
<td>259</td>
<td>18.2</td>
<td>260</td>
<td>18.2</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>72</td>
<td>179</td>
<td>9.12</td>
<td>168</td>
<td>9.69</td>
<td>170</td>
<td>9.60</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>72</td>
<td>105</td>
<td>13.5</td>
<td>105</td>
<td>13.6</td>
<td>105</td>
<td>13.5</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>72</td>
<td>112</td>
<td>15.7</td>
<td>112</td>
<td>15.7</td>
<td>112</td>
<td>15.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>72</td>
<td>249</td>
<td>5.76</td>
<td>249</td>
<td>5.76</td>
<td>249</td>
<td>5.76</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>72</td>
<td>357</td>
<td>4.78</td>
<td>357</td>
<td>4.78</td>
<td>358</td>
<td>4.77</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>72</td>
<td>256</td>
<td>24.2</td>
<td>256</td>
<td>24.2</td>
<td>255</td>
<td>24.2</td>
</tr>
</tbody>
</table>

Compiler Notes

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler.  
The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux  
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

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/cpu2017-1.1.0-ic19.1.1/lib/intel64:/home/cpu2017-1.1.0-ic19.1.1/j e5.0.1-64"
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:
## Lenovo Global Technology

ThinkSystem SR850P  
(2.60 GHz, Intel Xeon Gold 6240L)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>11.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

### General Notes (Continued)

```bash
csync; 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.

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 Enable  
Hyper-Threading set to Disable  
DCU Streamer Prefetcher set to Disable  
Patrol Scrub set to Disable  
LLC dead line alloc set to Disable

Sysinfo program /home/cpu2017-1.1.0-ic19.1.1/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7ed81e6e46a485a0011  
running on localhost.localdomain Thu Oct 29 18:31:45 2020

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

```text
model name : Intel(R) Xeon(R) Gold 6240L CPU @ 2.60GHz  
4 "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 : 18  
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  
physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
```

From lscpu:

```text
Architecture: x86_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian
```
Lenovo Global Technology
ThinkSystem SR850P
(2.60 GHz, Intel Xeon Gold 6240L)

SPECspeed®2017_int_base = 11.1
SPECspeed®2017_int_peak = Not Run

Platform Notes (Continued)

CPU(s): 72
On-line CPU(s) list: 0-71
Thread(s) per core: 1
Core(s) per socket: 18
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6240L CPU @ 2.60GHz
Stepping: 7
CPU MHz: 2485.814
CPU max MHz: 3900.0000
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
NUMA node1 CPU(s): 18-35
NUMA node2 CPU(s): 36-53
NUMA node3 CPU(s): 54-71

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 arch_perfmon pebs bts rep_good x86_64 aperfmperf pni pclmulqdq dtes64 monitoring ds cpl vmx smx 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 ebpx cat_l3 cdp_l3

/env/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: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
node 0 size: 386659 MB
node 0 free: 386179 MB
node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR850P
(2.60 GHz, Intel Xeon Gold 6240L)

**SPECspeed®2017_int_base = 11.1**
**SPECspeed®2017_int_peak = Not Run**

<table>
<thead>
<tr>
<th>Platform Notes (Continued)</th>
</tr>
</thead>
<tbody>
<tr>
<td>node 1 size: 387068 MB</td>
</tr>
<tr>
<td>node 1 free: 386737 MB</td>
</tr>
<tr>
<td>node 2 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53</td>
</tr>
<tr>
<td>node 2 size: 387068 MB</td>
</tr>
<tr>
<td>node 2 free: 386099 MB</td>
</tr>
<tr>
<td>node 3 cpus: 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71</td>
</tr>
<tr>
<td>node 3 size: 387067 MB</td>
</tr>
<tr>
<td>node 3 free: 386783 MB</td>
</tr>
<tr>
<td>node distances:</td>
</tr>
<tr>
<td>node 0 1 2 3</td>
</tr>
<tr>
<td>0: 10 21 21 21</td>
</tr>
<tr>
<td>1: 21 10 21 21</td>
</tr>
<tr>
<td>2: 21 21 10 21</td>
</tr>
<tr>
<td>3: 21 21 21 10</td>
</tr>
</tbody>
</table>

From /proc/meminfo
MemTotal: 1585012168 kB
 HugePages_Total: 0
 Hugepagesize: 2048 kB

From /etc/*release*/ /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.0 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.0"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.0 (Ootpa)"
    ANSI_COLOR="0;31"
    redhat-release: Red Hat Enterprise Linux release 8.0 (Ootpa)
    system-release: Red Hat Enterprise Linux release 8.0 (Ootpa)
    system-release-cpe: cpe:/o:redhat:enterprise_linux:8.0:ga

uname -a:
Linux localhost.localdomain 4.18.0-80.el8.x86_64 #1 SMP Wed Mar 13 12:02:46 UTC 2019
 x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: No status reported
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: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional,
Lenovo Global Technology
ThinkSystem SR850P
(2.60 GHz, Intel Xeon Gold 6240L)

SPECSpeed\textsuperscript{®}2017\textunderscore int\textunderscore base = 11.1
SPECSpeed\textsuperscript{®}2017\textunderscore int\textunderscore peak = Not Run

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

Platform Notes (Continued)

RSB filling

run-level 3 Oct 29 18:30

SPEC is set to: /home/cpu2017-1.1.0-ic19.1.1

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda4 xfs 839G 22G 817G 3% /home

From /sys/devices/virtual/dmi/id
BIOS: Lenovo -[TEE156L-2.61]- 05/20/2020
Vendor: Lenovo
Product: ThinkSystem SR850P -[7D2HCT01WW]-
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:
48x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(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) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
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) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
---

Fortran | 648.exchange2_s(base)

(Continued on next page)
## Lenovo Global Technology

ThinkSystem SR850P  
(2.60 GHz, Intel Xeon Gold 6240L)

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

### SPECspeed®2017 Integer Speed Result

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 11.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

### Compiler Version Notes (Continued)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

### Base Compiler Invocation

**C benchmarks:**

```plaintext
icc
```

**C++ benchmarks:**

```plaintext
icpc
```

**Fortran benchmarks:**

```plaintext
ifort
```

### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64</td>
<td></td>
</tr>
<tr>
<td>602.gcc_s: -DSPEC_LP64</td>
<td></td>
</tr>
<tr>
<td>605.mcf_s: -DSPEC_LP64</td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s: -DSPEC_LP64</td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX</td>
<td></td>
</tr>
<tr>
<td>625.x264_s: -DSPEC_LP64</td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s: -DSPEC_LP64</td>
<td></td>
</tr>
<tr>
<td>641.leela_s: -DSPEC_LP64</td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s: -DSPEC_LP64</td>
<td></td>
</tr>
<tr>
<td>657.xz_s: -DSPEC_LP64</td>
<td></td>
</tr>
</tbody>
</table>

### Base Optimization Flags

**C benchmarks:**

```plaintext
-m64 -qnextgen -std=c11  
-Wl, -plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs  
-xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops  
-fuse-ld=gold -qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP  
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

**C++ benchmarks:**

```plaintext
-m64 -qnextgen -Wl, -plugin-opt=-x86-branches-within-32B-boundaries
```
**SPEC CPU®2017 Integer Speed Result**

**Lenovo Global Technology**
ThinkSystem SR850P  
(2.60 GHz, Intel Xeon Gold 6240L)

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

**SPECspeed®2017_int_base** = 11.1  
**SPECspeed®2017_int_peak** = Not Run

---

**Base Optimization Flags (Continued)**

C++ benchmarks (continued):
- `-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse`  
- `-funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4`  
- `-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin -lqkmalloc`

Fortran benchmarks:
- `-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -xCORE-AVX512`  
- `-O3 -ipo -no-prec-div -qopt-mem-layout-trans=4`  
- `-nostandard-realloc-lhs -align array32byte`  
- `-mbranches-within-32B-boundaries`

---

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-I.html](http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-I.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-I.xml](http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-I.xml)

---

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 v1.1.0 on 2020-10-29 06:31:45-0400.  