<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECspeed\textsuperscript{2017_int_base}</th>
<th>SPECspeed\textsuperscript{2017_int_peak}</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>96 threads: 6.74</td>
<td>Not Run</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96 threads: 10.4</td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96 threads: 18.5</td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96 threads: 11.7</td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>96 threads: 13.5</td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>96 threads: 5.76</td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96 threads: 16.5</td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96 threads: 4.79</td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96 threads: 25.2</td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96 threads: 25.2</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Platinum 8268
- **Max MHz:** 3900
- **Nominal:** 2900
- **Enabled:** 96 cores, 4 chips
- **Orderable:** 4 chips
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 1 MB I+D on chip per core
- **L3:** 35.75 MB I+D on chip per chip
- **Memory:** 1536 GB (48 x 32 GB 2Rx4 PC4-2933Y-R)
- **Storage:** 1 x 960 GB SATA SSD
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 15 SP1 (x86\_64)
- **Kernel:** 4.12.14-195-default
- **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
- **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 set to prefer performance at the cost of additional power usage
SPEC CPU®2017 Integer Speed Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

Lenovo Global Technology
ThinkSystem SR850P
(2.90 GHz, Intel Xeon Platinum 8268)

SPECspeed®2017_int_base = 11.4
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>Base</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600.perlbench_s</td>
<td>96</td>
<td>264</td>
<td>6.72</td>
<td>263</td>
<td>6.74</td>
<td>263</td>
<td>6.75</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96</td>
<td>383</td>
<td>10.4</td>
<td>384</td>
<td>10.4</td>
<td>383</td>
<td>10.4</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96</td>
<td>256</td>
<td>18.5</td>
<td>256</td>
<td>18.5</td>
<td>253</td>
<td>18.6</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96</td>
<td>150</td>
<td>10.9</td>
<td>147</td>
<td>11.1</td>
<td>146</td>
<td>11.1</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>109</td>
<td>16.2</td>
<td>108</td>
<td>16.3</td>
<td>108</td>
<td>16.3</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96</td>
<td>249</td>
<td>5.77</td>
<td>249</td>
<td>5.76</td>
<td>249</td>
<td>5.76</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96</td>
<td>357</td>
<td>4.79</td>
<td>357</td>
<td>4.78</td>
<td>356</td>
<td>4.79</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96</td>
<td>178</td>
<td>16.5</td>
<td>178</td>
<td>16.5</td>
<td>178</td>
<td>16.5</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96</td>
<td>245</td>
<td>25.2</td>
<td>246</td>
<td>25.2</td>
<td>246</td>
<td>25.2</td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 11.4
SPECspeed®2017_int_peak = Not Run

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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"
MALLOCONF = "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
(2.90 GHz, Intel Xeon Platinum 8268)

SPECspeed®2017_int_base = 11.4
SPECspeed®2017_int_peak = Not Run

General Notes (Continued)

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.

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 295195f888a3d7ed5e6e46a485a0011
running on linux-qjkl Mon Sep 7 19:19:49 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
model name : Intel(R) Xeon(R) Platinum 8268 CPU @ 2.90GHz
  4 "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 : 24
physical 0: cores 0 1 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
physical 1: cores 0 1 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
physical 2: cores 0 1 2 3 4 5 6 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR850P
(2.90 GHz, Intel Xeon Platinum 8268)

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

Platform Notes (Continued)

Address sizes: 46 bits physical, 48 bits virtual
CPU(s): 96
On-line CPU(s) list: 0-95
Thread(s) per core: 1
Core(s) per socket: 24
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Platinum 8268 CPU @ 2.90GHz
Stepping: 7
CPU MHz: 2900.000
CPU max MHz: 3900.0000
CPU min MHz: 1200.0000
BogoMIPS: 5800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 36608K
NUMA node0 CPU(s): 0-23
NUMA node1 CPU(s): 24-47
NUMA node2 CPU(s): 48-71
NUMA node3 CPU(s): 72-95
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
aerpmpref pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtrar 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 cdp_l3
invpcid_single intel_puin ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vmni
flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpccd rtm
cqm mxp rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsavec xgetbv1 xsave cqm_llc cqm_occup_llc cqm_mbb_total

cqm_mbb_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_l1d
arch_capabilities

/proc/cpuinfo cache data
  cache size: 36608 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 18 19 20 21 22 23
    node 0 size: 386654 MB
    node 0 free: 386267 MB

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR850P
(2.90 GHz, Intel Xeon Platinum 8268)

SPECSpeed®2017_int_base = 11.4
SPECSpeed®2017_int_peak = Not Run

CPU2017 License: 9017
Test Date: Sep-2020
Test Sponsor: Lenovo Global Technology
Hardware Availability: Jun-2020
Tested by: Lenovo Global Technology
Software Availability: Apr-2020

Platform Notes (Continued)

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: 387067 MB
node 1 free: 386859 MB
node 2 cpus: 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 2 size: 387067 MB
node 2 free: 386851 MB
node 3 cpus: 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95
node 3 size: 387065 MB
node 3 free: 386262 MB
node distances:
node 0 1 2 3
0: 10 21 21 21
1: 21 10 21 21
2: 21 21 10 21
3: 21 21 21 10

From /proc/meminfo
MemTotal: 1585002748 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"

uname -a:
Linux linux-qjkl 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
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: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR850P
(2.90 GHz, Intel Xeon Platinum 8268)

SPECspeed®2017_int_base = 11.4
SPECspeed®2017_int_peak = Not Run

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

Test Date: Sep-2020
Hardware Availability: Jun-2020
Software Availability: Apr-2020

Platform Notes (Continued)

run-level 3 Sep 7 19:15

SPEC is set to: /home/cpu2017-1.1.0-ic19.1.1
Filesystem  Type  Size  Used Avail Use% Mounted on
/dev/sdb3      xfs   892G   32G  860G   4% /

From /sys/devices/virtual/dmi/id
BIOS:     Lenovo -[TEE156L-2.61]- 05/20/2020
Vendor:   Lenovo
Product:  ThinkSystem SR850P -[7D2HCTO1WW]-
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)
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)

(Continued on next page)
## Lenovo Global Technology

**ThinkSystem SR850P**  
(2.90 GHz, Intel Xeon Platinum 8268)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 11.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

### Compiler Version Notes (Continued)

64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

### Base Compiler Invocation

**C benchmarks:**  
`icc`

**C++ benchmarks:**  
`icpc`

**Fortran benchmarks:**  
`ifort`

### Base Portability Flags

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Flags</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>-DSPEC_LP64 -DSPEC_LINUX_X64</td>
</tr>
<tr>
<td>gcc_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>mcf_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>omnetpp_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>-DSPEC_LP64 -DSPEC_LINUX</td>
</tr>
<tr>
<td>x264_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>deepsjeng_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>leela_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>exchange2_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>xz_s</td>
<td>-DSPEC_LP64</td>
</tr>
</tbody>
</table>

### Base Optimization Flags

**C benchmarks:**  
-m64 -gnextgen -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:**  
-m64 -gnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries  
-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse  
-funroll-loops -f fuse-ld.gold -qopt-mem-layout-trans=4

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

Lenovo Global Technology
ThinkSystem SR850P
(2.90 GHz, Intel Xeon Platinum 8268)

SPECspeed®2017_int_base = 11.4
SPECspeed®2017_int_peak = Not Run

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

Test Date: Sep-2020
Hardware Availability: Jun-2020
Software Availability: Apr-2020

Base Optimization Flags (Continued)

C++ benchmarks (continued):
-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
-03 -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

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.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 2020-09-07 07:19:49-0400.
Report generated on 2020-09-29 15:24:40 by CPU2017 PDF formatter v6255.
Originally published on 2020-09-29.