## SPEC CPU®2017 Integer Speed Result

### Lenovo Global Technology

**ThinkSystem SR850**  
(2.40 GHz, Intel Xeon Platinum 8260)

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology  
**Hardware Availability:** Apr-2019  
**Software Availability:** May-2019

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.4</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

### Software

- **OS:** SUSE Linux Enterprise Server 12 SP4 (x86_64)  
  Kernel 4.12.14-94.41-default
- **Compiler:**  
  C/C++: Version 19.0.4.227 of Intel C/C++  
  Compiler for Linux;  
  Fortran: Version 19.0.4.227 of Intel Fortran
- **Firmware:**  
  Lenovo BIOS Version TEE142E 2.30 released Aug-2019 tested as TEE141E 2.30 Jul-2019
- **File System:** btrfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** jemalloc memory allocator V5.0.1
- **Power Management:** --

### Hardware

- **CPU Name:** Intel Xeon Platinum 8260
- **Max MHz:** 3900
- **Nominal:** 2400
- **Enabled:** 96 cores, 4 chips, 2 threads/core
- **Orderable:** 2,4 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
- **Other:** None
- **Memory:** 1536 GB (48 x 32 GB 2Rx4 PC4-2933Y-R)  
  Storage: 1 x 800 GB SATA SSD  
  Other: None

### Benchmarks

<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>192</td>
<td>6.84</td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>192</td>
<td>9.98</td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>192</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>192</td>
<td>8.97</td>
<td></td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>192</td>
<td>12.5</td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>192</td>
<td>14.2</td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>192</td>
<td>5.33</td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>192</td>
<td>4.77</td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>192</td>
<td>16.6</td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>192</td>
<td></td>
<td>25.3</td>
</tr>
</tbody>
</table>
Lenovo Global Technology

ThinkSystem SR850
(2.40 GHz, Intel Xeon Platinum 8260)

SPEC CPU®2017 Integer Speed Result
Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: May-2019

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Base Seconds</th>
<th>Base Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
<th>Peak Seconds</th>
<th>Peak Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>192</td>
<td>260</td>
<td>195</td>
<td>260</td>
<td>195</td>
<td>258</td>
<td>193</td>
<td>258</td>
<td>193</td>
<td>258</td>
<td>193</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>192</td>
<td>399</td>
<td>12.5</td>
<td>402</td>
<td>12.5</td>
<td>393</td>
<td>12.5</td>
<td>393</td>
<td>12.5</td>
<td>393</td>
<td>12.5</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>192</td>
<td>378</td>
<td>12.5</td>
<td>378</td>
<td>12.5</td>
<td>378</td>
<td>12.5</td>
<td>378</td>
<td>12.5</td>
<td>378</td>
<td>12.5</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>192</td>
<td>182</td>
<td>12.5</td>
<td>184</td>
<td>12.5</td>
<td>179</td>
<td>12.5</td>
<td>179</td>
<td>12.5</td>
<td>179</td>
<td>12.5</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>192</td>
<td>113</td>
<td>12.5</td>
<td>114</td>
<td>12.5</td>
<td>114</td>
<td>12.5</td>
<td>114</td>
<td>12.5</td>
<td>114</td>
<td>12.5</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>192</td>
<td>124</td>
<td>12.5</td>
<td>124</td>
<td>12.5</td>
<td>124</td>
<td>12.5</td>
<td>124</td>
<td>12.5</td>
<td>124</td>
<td>12.5</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>192</td>
<td>269</td>
<td>12.5</td>
<td>269</td>
<td>12.5</td>
<td>269</td>
<td>12.5</td>
<td>269</td>
<td>12.5</td>
<td>269</td>
<td>12.5</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>192</td>
<td>358</td>
<td>12.5</td>
<td>358</td>
<td>12.5</td>
<td>358</td>
<td>12.5</td>
<td>358</td>
<td>12.5</td>
<td>358</td>
<td>12.5</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>192</td>
<td>177</td>
<td>12.5</td>
<td>176</td>
<td>12.5</td>
<td>179</td>
<td>12.5</td>
<td>179</td>
<td>12.5</td>
<td>179</td>
<td>12.5</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>192</td>
<td>244</td>
<td>12.5</td>
<td>244</td>
<td>12.5</td>
<td>244</td>
<td>12.5</td>
<td>244</td>
<td>12.5</td>
<td>244</td>
<td>12.5</td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 10.4
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"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = "/home/cpu2017-1.0.5-ic19.0u4/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017-1.0.5-ic19.0u4/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-799X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
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.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3640 (Spectre variant 3a)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2018-3639 (Spectre variant 4)
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

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

Lenovo Global Technology
ThinkSystem SR850
(2.40 GHz, Intel Xeon Platinum 8260)

SPECSpeed®2017_int_base = 10.4
SPECSpeed®2017_int_peak = Not Run

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

Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: May-2019

General Notes (Continued)

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
Choose Operating Mode set to Custom Mode
C-States set to Legacy
Trusted Execution Technology set to Enable
Sysinfo program /home/cpu2017-1.0.5-ic19.0u4/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcd8f2999c33d61f64985e45859ea9
running on linux-9o83 Mon Sep 16 13:25:34 2019

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 8260 CPU @ 2.40GHz
  4 "physical id"s (chips)
  192 "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 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
  physical 1: 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
  physical 2: 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
  physical 3: cores 0 1 2 3 4 5 6 8 9 10 11 12 16 17 18 19 20 21 22 25 26 27 28 29

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 192
On-line CPU(s) list: 0-191
Thread(s) per core: 2
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 8260 CPU @ 2.40GHz
Stepping: 6
CPU MHz: 2400.000

(Continued on next page)
Lenovo Global Technology

ThinkSystem SR850
(2.40 GHz, Intel Xeon Platinum 8260)

SPEC speed®2017_int_base = 10.4
SPEC speed®2017_int_peak = Not Run

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

CPU max MHz: 3900.0000
CPU min MHz: 1000.0000
BogoMIPS: 4800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 36608K
NUMA node0 CPU(s): 0–23, 96–119
NUMA node1 CPU(s): 24–47, 120–143
NUMA node2 CPU(s): 48–71, 144–167
NUMA node3 CPU(s): 72–95, 168–191

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 rdtsc
  lm constant_tsc arch_perfmon pebs bts rep_good nopl cse pm矛 nonstop_tsc cpuid
  aperfmperf pni pclmulqdq dtes64 monitor 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 epb cat_l3 cdp_l3
  invpcid_single intel_puin ssbd mba ibrs ibp bts tpr_shadow vnmi flexpriority ept
  pvd fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cmq mpx rdtp
  a dx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
  xsaveopt xsaev xsetbv1 xsaves cmq_llc cmq_occup_llc cmq_mbm_total cmq_mbm_local
  dtherm ida arat pln pts pku ospke avx512_vnni flush_lld arch_capabilities

/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 96 97 98 99
  100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119
  node 0 size: 386656 MB
  node 0 free: 385684 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
  120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141
  142 143
  node 1 size: 387052 MB
  node 1 free: 386734 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
  144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165
  166 167
  node 2 size: 387052 MB
  node 2 free: 386189 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
  168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189
  190 191

(Continued on next page)
Platform Notes (Continued)

node 3 size: 387021 MB
node 3 free: 386803 MB
node distances:
node  0   1  2   3
 0:  10  21  21  31
 1:  21  10  31  21
 2:  21  31  10  21
 3:  31  21  21  10

From /proc/meminfo
MemTotal:       1584929796 kB
HugePages_Total:       0
Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
SuSE-release:
   SUSE Linux Enterprise Server 12 (x86_64)
   VERSION = 12
   PATCHLEVEL = 4
   # This file is deprecated and will be removed in a future service pack or release.
   # Please check /etc/os-release for details about this release.
   os-release:
      NAME="SLES"
      VERSION="12-SP4"
      VERSION_ID="12.4"
      PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
      ID="sles"
      ANSI_COLOR="0;32"
      CPE_NAME="cpe:/o:suse:sles:12:sp4"

uname -a:
   x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown):          Not affected
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Indirect Branch Restricted Speculation, IBPB, IBRS_FW

run-level 3 Sep 16 08:53

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u4
   Filesystem Type Size Used Avail Use% Mounted on
   /dev/sda2  btrfs  744G 135G 609G 19% /home

(Continued on next page)
Lenovo Global Technology  
ThinkSystem SR850  
(2.40 GHz, Intel Xeon Platinum 8260)

SPECspeed®2017_int_base = 10.4
SPECspeed®2017_int_peak = Not Run

Platform Notes (Continued)

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.

- BIOS Lenovo -[TEE141E-2.30]- 07/02/2019
- Memory: 48x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

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 Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 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++ Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Fortran | 648.exchange2_s(base)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

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

## Lenovo Global Technology

ThinkSystem SR850  
(2.40 GHz, Intel Xeon Platinum 8260)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>10.4</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>Test Date:</th>
<th>Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>May-2019</td>
</tr>
</tbody>
</table>

## Base Compiler Invocation (Continued)

Fortran benchmarks:  
ifort -m64

## 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:
- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP  
- -L/usr/local/je5.0.1-64/lib -ljemalloc

### C++ benchmarks:
- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4  
- -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64 -lqkmalloc

### Fortran benchmarks:
- -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4  
- -nostandard-realloc-lhs

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-D.html
**SPEC CPU®2017 Integer Speed Result**

**Lenovo Global Technology**

**ThinkSystem SR850**

(2.40 GHz, Intel Xeon Platinum 8260)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base = 10.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>May-2019</td>
</tr>
</tbody>
</table>

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-D.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 v1.0.5 on 2019-09-16 01:25:33-0400.
Originally published on 2019-10-01.