Lenovo Global Technology

ThinkSystem SN550
(2.40 GHz, Intel Xeon Platinum 8260M)

SPECspeed2017_int_base = 10.4
SPECspeed2017_int_peak = Not Run

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

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

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.xalanchmk_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>

SPECspeed2017_int_base (10.4)

Hardware

CPU Name: Intel Xeon Platinum 8260M
Max MHz.: 3900
Nominal: 2400
Enabled: 48 cores, 2 chips, 2 threads/core
Orderable: 1,2 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: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)
Storage: 1 x 960 GB SATA SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 15 (x86_64)
Compiler: C/C++: Version 19.0.4.227 of Intel
C/C++
Compiler for Linux:
Fortran: Version 19.0.4.227 of Intel Fortran
Compiler for Linux:
Parallel: Yes
Firmware: Lenovo BIOS Version IVE135M 2.10 released Jan-2019
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
**SPEC CPU2017 Integer Speed Result**

Lenovo Global Technology

ThinkSystem SN550
(2.40 GHz, Intel Xeon Platinum 8260M)

**SPECspeed2017_int_base = 10.4**

**SPECspeed2017_int_peak = Not Run**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>96</td>
<td>264</td>
<td>6.72</td>
<td>259</td>
<td>6.84</td>
<td>259</td>
<td>6.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>96</td>
<td>401</td>
<td>9.92</td>
<td>394</td>
<td>10.1</td>
<td>398</td>
<td>10.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>96</td>
<td>373</td>
<td>12.7</td>
<td>378</td>
<td>12.5</td>
<td>378</td>
<td>12.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>96</td>
<td>181</td>
<td>9.02</td>
<td>181</td>
<td>9.02</td>
<td>178</td>
<td>9.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>96</td>
<td>114</td>
<td>12.4</td>
<td>114</td>
<td>12.4</td>
<td>114</td>
<td>12.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>96</td>
<td>124</td>
<td>14.3</td>
<td>124</td>
<td>14.2</td>
<td>124</td>
<td>14.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>96</td>
<td>263</td>
<td>5.45</td>
<td>262</td>
<td>5.48</td>
<td>263</td>
<td>5.45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>96</td>
<td>358</td>
<td>4.77</td>
<td>358</td>
<td>4.77</td>
<td>358</td>
<td>4.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>96</td>
<td>176</td>
<td>16.7</td>
<td>177</td>
<td>16.6</td>
<td>177</td>
<td>16.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>96</td>
<td>256</td>
<td>24.2</td>
<td>255</td>
<td>24.2</td>
<td>255</td>
<td>24.2</td>
<td></td>
<td></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"

**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 = "/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 CPU2017 Integer Speed Result

**Lenovo Global Technology**

ThinkSystem SN550  
(2.40 GHz, Intel Xeon Platinum 8260M)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>10.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 9017  
**Test Date:** Jun-2019

**Test Sponsor:** Lenovo Global Technology  
**Test Sponsor Notes:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology  
**Tested by Notes:** Lenovo Global Technology

### General Notes (Continued)


### Platform Notes

**BIOS configuration:**
- Choose Operating Mode set to Custom Mode
- Energy Efficient Turbo set to Disable
- C-States set to Disable
- Platform Controlled Type set to Efficiency-Favor Power
- Page Policy set to Adaptive
- Trusted Execution Technology set to Enable
- Workload Configuration set to I/O Sensitive
- Stale AtoS set to Enable

**Sysinfo program** /home/cpu2017-1.0.5-ic19.0u4/bin/sysinfo  
**Revisions:** r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
**Rev:** running on linux-4brr Mon Jun 10 14:48:20 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 8260M CPU @ 2.40GHz
  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 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 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
```

**From lscpu:**

```
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:              85
Model name:         Intel(R) Xeon(R) Platinum 8260M CPU @ 2.40GHz
```

(Continued on next page)
Lenovo Global Technology
ThinkSystem SN550
(2.40 GHz, Intel Xeon Platinum 8260M)

SPECspeed2017_int_base = 10.4
SPECspeed2017_int_peak = Not Run

Platform Notes (Continued)

Stepping: 6
CPU MHz: 2400.000
BogoMIPS: 4800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 36608K
NUMA node0 CPU(s): 0-23,48-71
NUMA node1 CPU(s): 24-47,72-95
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
aperfmpref 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 ssbd mba ibrs ibpb tpr_shadow vnmi flexpriority ept vpid
fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erm invpcid rtm cqm mpx rdt_a avx512f
avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occupa_llc cqm_mbm_total cqm_mbm_local
dtherm ida arat pin pts hwp_epp pku ospke avx512_vnni flush_lld 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: 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 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: 386625 MB
  node 0 free: 379800 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 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 1 size: 387039 MB
  node 1 free: 386596 MB
  node distances:
  node 0 1
  0: 10 21
  1: 21 10

From /proc/meminfo
  MemTotal: 792232680 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

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

Page 4  Standard Performance Evaluation Corporation (info@spec.org)  https://www.spec.org/
Lenovo Global Technology
ThinkSystem SN550
(2.40 GHz, Intel Xeon Platinum 8260M)

**SPEC CPU2017 Integer Speed Result**

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_base</td>
<td>10.4</td>
</tr>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

**Platform Notes (Continued)**

```
os-release:
    NAME="SLES"
    VERSION="15"
    VERSION_ID="15"
    PRETTY_NAME="SUSE Linux Enterprise Server 15"
    ID="sles"
    ID_LIKE="suse"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:15"
```

```
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 Jun 10 14:47

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u4
```
    Filesystem   Type  Size  Used Avail Use% Mounted on
    /dev/sda3    xfs    891G  74G  817G  9% /
```

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 -[IVE135M-2.10]- 01/16/2019
Memory:
    24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(End of data from syinfo program)

**Compiler Version Notes**

```
==============================================================================
CC  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.
```

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Lenovo Global Technology
ThinkSystem SN550 (2.40 GHz, Intel Xeon Platinum 8260M)

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

SPECspeed2017_int_base = 10.4
SPECspeed2017_int_peak = Not Run

Compiler Version Notes (Continued)

==============================================================================
CXXC 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.

==============================================================================
FC 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

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
Lenovo Global Technology
ThinkSystem SN550
(2.40 GHz, Intel Xeon Platinum 8260M)

### SPEC CPU2017 Integer Speed Result

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

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_base</td>
<td>10.4</td>
</tr>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

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

#### 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`  
- `-lgkmalloc`  

**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:

You can also download the XML flags sources by saving the following links:

---

SPEC is a registered trademark 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 CPU2017 v1.0.5 on 2019-06-10 02:48:20-0400.  
Originally published on 2019-06-25.