## Lenovo Global Technology

**ThinkSystem SR530**  
(1.90 GHz, Intel Xeon Bronze 3204)

<table>
<thead>
<tr>
<th>Software Availability: Dec-2018</th>
<th>SPECspeed2017_int_base = 4.79</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lenovo Global Technology</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Lenovo Global Technology</td>
<td>Lenovo Global Technology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware Availability: Apr-2019</th>
<th>SPECspeed2017_int_peak = Not Run</th>
</tr>
</thead>
</table>

### SPECspeed2017_int_base = 4.79

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
</table>

### Hardware

- **CPU Name:** Intel Xeon Bronze 3204  
- **Max MHz.:** 1900  
- **Nominal:** 1900  
- **Enabled:** 12 cores, 2 chips  
- **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:** 8.25 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 192 GB (12 x 16 GB 2Rx8 PC4-2933Y-R, running at 2133)  
- **Storage:** 1 x 960 GB SATA SSD  
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 12 SP4 (x86_64)  
- **Kernel:** 4.12.14-94.41-default  
- **Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux; Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux  
- **Parallel:** Yes  
- **Firmware:** Lenovo BIOS Version TEE135L 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 SR530 (1.90 GHz, Intel Xeon Bronze 3204)

**SPECspeed2017_int_base = 4.79**

**SPECspeed2017_int_peak = Not Run**

<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>12</td>
<td>549</td>
<td>3.23</td>
<td>545</td>
<td>3.26</td>
<td>545</td>
<td>3.26</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>12</td>
<td>771</td>
<td>5.16</td>
<td>772</td>
<td>5.16</td>
<td>769</td>
<td>5.18</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>12</td>
<td>685</td>
<td>6.90</td>
<td>685</td>
<td>6.89</td>
<td>684</td>
<td>6.90</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>12</td>
<td>454</td>
<td>3.59</td>
<td>452</td>
<td>3.61</td>
<td>454</td>
<td>3.59</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>12</td>
<td>227</td>
<td>6.23</td>
<td>228</td>
<td>6.20</td>
<td>229</td>
<td>6.18</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>12</td>
<td>293</td>
<td>6.03</td>
<td>292</td>
<td>6.03</td>
<td>293</td>
<td>6.03</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>12</td>
<td>500</td>
<td>2.86</td>
<td>500</td>
<td>2.86</td>
<td>500</td>
<td>2.86</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>12</td>
<td>734</td>
<td>2.32</td>
<td>733</td>
<td>2.33</td>
<td>733</td>
<td>2.33</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>12</td>
<td>429</td>
<td>6.85</td>
<td>430</td>
<td>6.84</td>
<td>428</td>
<td>6.87</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>12</td>
<td>689</td>
<td>8.97</td>
<td>691</td>
<td>8.95</td>
<td>691</td>
<td>8.95</td>
</tr>
</tbody>
</table>

**Results 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-ic19.0u1/lib/intel64"

LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017-1.0.5-ic19.0u1/je5.0.1-64"

OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-7900X 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 SR530  
(1.90 GHz, Intel Xeon Bronze 3204)

<table>
<thead>
<tr>
<th>CPU2017 License: 9017</th>
<th>Test Date: May-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Lenovo Global Technology</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
<tr>
<td>Tested by: Lenovo Global Technology</td>
<td>Software Availability: Dec-2018</td>
</tr>
</tbody>
</table>

**SPECspeed2017_int_base = 4.79**  
**SPECspeed2017_int_peak = Not Run**

---

**General Notes (Continued)**


---

**Platform Notes**

BIOS configuration:
- Choose Operating Mode set to Maximum Performance
- Choose Operating Mode set to Custom Mode
- Memory Power Management set to Automatic
- CPU P-state Control set to Cooperative
- MONITOR/MWAIT set to Enable
- LLC dead line alloc set to Disable
- Sysinfo program `/home/cpu2017-1.0.5-ic19.0u1/bin/sysinfo`
- Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
- running on linux-zitb Wed May 8 01:10:32 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) Bronze 3204 CPU @ 1.90GHz  
  2 "physical id"s (chips)  
  12 "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: 6
  - siblings: 6
  - physical 0: cores 0 1 2 3 4 5
  - physical 1: cores 0 1 2 3 4 5

From `/usr/bin/lscpu`:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 12
- On-line CPU(s) list: 0-11
- Thread(s) per core: 1
- Core(s) per socket: 6
- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Bronze 3204 CPU @ 1.90GHz
- Stepping: 6
- CPU MHz: 1900.000

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530
(1.90 GHz, Intel Xeon Bronze 3204)

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>9017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Lenovo Global Technology</td>
</tr>
<tr>
<td>Test Date:</td>
<td>May-2019</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Dec-2018</td>
</tr>
</tbody>
</table>

**SPECspeed2017_int_base = 4.79**

**SPECspeed2017_int_peak = Not Run**

Platform Notes (Continued)

<table>
<thead>
<tr>
<th>CPU max MHz:</th>
<th>1900.0000</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU min MHz:</td>
<td>800.0000</td>
</tr>
<tr>
<td>BogoMIPS:</td>
<td>3800.00</td>
</tr>
<tr>
<td>Virtualization:</td>
<td>VT-x</td>
</tr>
<tr>
<td>L1d cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L1i cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L2 cache:</td>
<td>1024K</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>8448K</td>
</tr>
<tr>
<td>NUMA node0 CPU(s):</td>
<td>0-5</td>
</tr>
<tr>
<td>NUMA node1 CPU(s):</td>
<td>6-11</td>
</tr>
<tr>
<td>Flags:</td>
<td>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 art arch_perfmon pebs bts rep_good nopl xtopology 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 ssbd mba ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 ets invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves xsavec xgetbv1 xsavec cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm arat pinn pts hwp hwp_act_window hwp_epp hwp_pkg_req pkp ospke avx512_vnni flush_l1d arch_capabilities</td>
</tr>
</tbody>
</table>

```
/proc/cpuinfo cache data
  cache size : 8448 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
  node 0 size: 96349 MB
  node 0 free: 95767 MB
  node 1 cpus: 6 7 8 9 10 11
  node 1 size: 96714 MB
  node 1 free: 96450 MB
  node distances:
    node 0 1
    0: 10 21
    1: 21 10
```

From /proc/meminfo
  MemTotal: 197698044 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  SuSE-release:

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530
(1.90 GHz, Intel Xeon Bronze 3204)

SPECspeed2017_int_base = 4.79
SPECspeed2017_int_peak = Not Run

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

Platform Notes (Continued)

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 May 8 01:08

SPEC is set to: /home/cpu2017-1.0.5-ic19.0u1
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sda3 xfs 892G 50G 842G 6% /

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 -[TEE135L-2.10]- 01/10/2019
Memory:
  12x SK Hynix HMA82GR7CJR8N-WM 16 GB 2 rank 2933, configured at 2133

(End of data from sysinfo 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)

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530
(1.90 GHz, Intel Xeon Bronze 3204)

SPECSpeed2017_int_base = 4.79
SPECSpeed2017_int_peak = Not Run

Compiler Version Notes (Continued)

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

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530 (1.90 GHz, Intel Xeon Bronze 3204)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>4.79</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

CPU2017 License: 9017
Test Sponsor: Lenovo Global Technology
Tested by: Lenovo Global Technology
Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Dec-2018

---

### Base Portability Flags (Continued)

<table>
<thead>
<tr>
<th>Flag</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>641.leela_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>-DSPEC_LP64</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_2019.1.144/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:


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 2019-05-07 13:10:31-0400.
 Originally published on 2019-05-29.