Lenovo Global Technology
ThinkSystem SR530
(2.60 GHz, Intel Xeon Gold 6126)

SPEC® CPU2017 Integer Speed Result
Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

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

Threads

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>7.29</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>8.98</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>9.23</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>5.67</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>5.68</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>9.43</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>9.97</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>11.6</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>11.6</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>13.4</td>
</tr>
</tbody>
</table>

Hardware
CPU Name: Intel Xeon Gold 6126
Max MHz.: 3700
Nominal: 2600
Enabled: 24 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: 19.25 MB I+D on chip per chip
Other: None
Memory: 384 GB (12 x 32 GB 2Rx4 PC4-2666V-R)
Storage: 1 x 800 GB SAS SSD
Other: None

Software
OS: SUSE Linux Enterprise Server 12 SP2 (x86_64)
Compiler: C/C++: Version 18.0.0.128 of Intel C/C++
Compiler for Linux:
Fortran: Version 18.0.0.128 of Intel Fortran
Compiler for Linux:
Parallel: Yes
Firmware: Lenovo BIOS Version TEE119R 1.22 released Feb-2018
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 32/64-bit
Other: jemalloc: jemalloc memory allocator library
V 5.0.1
Lenovo Global Technology

ThinkSystem SR530
(2.60 GHz, Intel Xeon Gold 6126)

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

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>
<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>24</td>
<td>289</td>
<td>6.14</td>
<td>290</td>
<td>6.13</td>
<td>290</td>
<td>6.13</td>
<td>24</td>
<td>244</td>
<td>7.28</td>
<td>244</td>
<td>7.29</td>
<td>243</td>
<td>7.30</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>24</td>
<td>433</td>
<td>10.9</td>
<td>432</td>
<td>10.9</td>
<td>432</td>
<td>10.9</td>
<td>24</td>
<td>435</td>
<td>10.9</td>
<td>430</td>
<td>11.0</td>
<td>429</td>
<td>11.0</td>
</tr>
<tr>
<td>606.omnetpp_s</td>
<td>24</td>
<td>288</td>
<td>5.67</td>
<td>282</td>
<td>5.78</td>
<td>294</td>
<td>5.55</td>
<td>24</td>
<td>286</td>
<td>5.70</td>
<td>287</td>
<td>5.68</td>
<td>310</td>
<td>5.26</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>24</td>
<td>150</td>
<td>9.43</td>
<td>149</td>
<td>9.49</td>
<td>151</td>
<td>9.41</td>
<td>24</td>
<td>141</td>
<td>10.0</td>
<td>142</td>
<td>9.97</td>
<td>142</td>
<td>9.95</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>24</td>
<td>152</td>
<td>11.6</td>
<td>152</td>
<td>11.6</td>
<td>152</td>
<td>11.6</td>
<td>24</td>
<td>152</td>
<td>11.6</td>
<td>152</td>
<td>11.6</td>
<td>152</td>
<td>11.6</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>24</td>
<td>285</td>
<td>5.04</td>
<td>285</td>
<td>5.03</td>
<td>285</td>
<td>5.02</td>
<td>24</td>
<td>286</td>
<td>5.00</td>
<td>286</td>
<td>5.01</td>
<td>287</td>
<td>4.99</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>24</td>
<td>394</td>
<td>4.33</td>
<td>394</td>
<td>4.33</td>
<td>394</td>
<td>4.33</td>
<td>24</td>
<td>392</td>
<td>4.35</td>
<td>392</td>
<td>4.35</td>
<td>393</td>
<td>4.34</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>24</td>
<td>222</td>
<td>13.2</td>
<td>220</td>
<td>13.4</td>
<td>220</td>
<td>13.4</td>
<td>24</td>
<td>220</td>
<td>13.3</td>
<td>221</td>
<td>13.3</td>
<td>220</td>
<td>13.4</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>24</td>
<td>300</td>
<td>20.6</td>
<td>300</td>
<td>20.6</td>
<td>300</td>
<td>20.6</td>
<td>24</td>
<td>298</td>
<td>20.7</td>
<td>300</td>
<td>20.6</td>
<td>298</td>
<td>20.8</td>
</tr>
</tbody>
</table>

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

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:
LD_LIBRARY_PATH = "/home/cpu2017.1.0.2.ic18.0/lib/ia32:/home/cpu2017.1.0.2.ic18.0/lib/intel64"
LD_LIBRARY_PATH = "$LD_LIBRARY_PATH:/home/cpu2017.1.0.2.ic18.0/je5.0.1-32:/home/cpu2017.1.0.2.ic18.0/je5.0.1-64"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4
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
jemalloc: configured and built at default for
32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4,
and the system compiler gcc 4.8.5;
jemalloc: sources available from jemalloc.net or

Yes: 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.
### Lenovo Global Technology

**ThinkSystem SR530**  
(2.60 GHz, Intel Xeon Gold 6126)

<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>
</tbody>
</table>

**SPECspeed2017_int_base = 8.61**  
**SPECspeed2017_int_peak = 8.85**

---

**Platform Notes**

BIOS configuration:
Choose Operating Mode set to Maximum Performance  
Hyper-Threading set to Disable  
MONITORMWAIT set to Enable  
Trusted Execution Technology set to Enable  
DCU Streamer Prefetcher set to Disable  
DCA set to Enable  
Stale AtoS set to Enable  
LLC dead line alloc set to Enable  
Sysinfo program /home/cpu2017.1.0.2.ic18.0/bin/sysinfo  
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f  
running on linux-dqoj Fri May 18 18:22:49 2018

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) Gold 6126 CPU @ 2.60GHz
  2 "physical id"s (chips)
  24 "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 : 12
siblings : 12
physical 0: cores 0 1 3 4 5 6 8 9 10 11 12 13
physical 1: cores 0 1 2 4 5 6 8 9 10 11 13 14
```

From lscpu:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                24
On-line CPU(s) list:   0-23
Thread(s) per core:    1
Core(s) per socket:    12
Socket(s):             2
NUMA node(s):          2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Gold 6126 CPU @ 2.60GHz
Stepping:              4
CPU MHz:               2593.896
BogoMIPS:              5187.79
Virtualization:        VT-x
L1d cache:             32K
```

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530
(2.60 GHz, Intel Xeon Gold 6126)

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>License: 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>
</tbody>
</table>

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

Platform Notes (Continued)

L1i cache: 32K
L2 cache: 1024K
L3 cache: 19712K
NUMA node0 CPU(s): 0-11
NUMA node1 CPU(s): 12-23

Flags: fpu vme de pse tsc msr pae 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 aperfmperf eagerfpu 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 ida arat epb invpcid_single pln pts dtherm intel_pt rsb_ctxtsw spec_ctrl retpoline kaiser tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust k8 1te ava x2apic smep bmi2 erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsavesec xgetbv1 cqm_llc cqm_occup_llc

From /proc/cpuinfo cache data
    cache size : 19712 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
    node 0 size: 193110 MB
    node 0 free: 192684 MB
    node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23
    node 1 size: 193504 MB
    node 1 free: 193069 MB
    node distances:
    node  0  1
      0: 10  21
      1: 21  10

From /proc/meminfo
    MemTotal: 395893688 kB
    HugePages_Total: 0
    Hugepagesize: 2048 KB

From /etc/*release*/etc/*version*
    SuSE-release:
        SUSE Linux Enterprise Server 12 (x86_64)
        VERSION = 12
        PATCHLEVEL = 2
        # 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"

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530
(2.60 GHz, Intel Xeon Gold 6126)

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

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

Platform Notes (Continued)

VERSION="12-SP2"
VERSION_ID="12.2"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
Linux linux-dqoj 4.4.114-92.64-default #1 SMP Thu Feb 1 19:18:19 UTC 2018 (c6ce5db)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 May 18 18:21

SPEC is set to: /home/cpu2017.1.0.2.ic18.0

Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb2 btrfs 744G 183G 561G 25% /home

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 -[TEE119R-1.22]- 02/06/2018
Memory:
12x Hynix HMA84GR7AFR4N-VK 32 GB 2 rank 2666

(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, peak) 657.xz_s(base)
==============================================================================
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================
CC  600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)
==============================================================================
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530
(2.60 GHz, Intel Xeon Gold 6126)

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

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

Test Date: May-2018
Hardware Availability: Aug-2017
Software Availability: Feb-2018

Compiler Version Notes (Continued)

641.leela_s(base)

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

CXXC 620.omnetpp_s(peak) 623.xalancbmk_s(peak) 631.deepsjeng_s(peak)
641.leela_s(peak)

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

FC 648.exchange2_s(base, peak)

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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

(Continued on next page)
Lenovo Global Technology
ThinkSystem SR530
(2.60 GHz, Intel Xeon Gold 6126)

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

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

Test Date: May-2018
Hardware Availability: Aug-2017
Software Availability: Feb-2018

Base Portability Flags (Continued)

657.xz_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -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=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
-L/usr/local/je5.0.1-64/lib -ljemalloc

Base Other Flags

C benchmarks:
-m64 -std=c11

C++ benchmarks:
-m64

Fortran benchmarks:
-m64

Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icc

Fortran benchmarks:
ifort
Lenovo Global Technology
ThinkSystem SR530
(2.60 GHz, Intel Xeon Gold 6126)

SPEC CPU2017 Integer Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Lenovo Global Technology
Test Sponsor: Lenovo Global Technology
Test Date: May-2018
Hardware Availability: Aug-2017

Tested by: Lenovo Global Technology
Software Availability: Feb-2018

SPECspeed2017_int_base = 8.61
SPECspeed2017_int_peak = 8.85

Peak 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: -D_FILE_OFFSET_BITS=64 -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

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX512 -qopt-mem-layout-trans=3 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/je5.0.1-64/lib -ljemalloc

602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX512 -qopt-mem-layout-trans=3 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc

605.mcf_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

625.x264_s: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

657.xz_s: Same as 602.gcc_s

C++ benchmarks:

620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

(Continued on next page)
## Lenovo Global Technology

ThinkSystem SR530  
(2.60 GHz, Intel Xeon Gold 6126)

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Lenovo Global Technology</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>
</tbody>
</table>

### SPEC CPU2017 Integer Speed Result

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.61</td>
<td>8.85</td>
</tr>
</tbody>
</table>

---

### Peak Optimization Flags (Continued)

623.xalancbmk_s: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32  
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3  
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP  
-L/usr/local/je5.0.1-32/lib -ljemalloc

631.deepsjeng_s: Same as 620.omnetpp_s

641.leela_s: Same as 620.omnetpp_s

For Fortran benchmarks:

-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte  
-L/usr/local/je5.0.1-64/lib -ljemalloc

---

### Peak Other Flags

**C benchmarks:**

-m64  
-std=c11

**C++ benchmarks (except as noted below):**

-m64

623.xalancbmk_s: -m32

For Fortran benchmarks:

-m64

---

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html

http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-C.html

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

http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml

http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-SKL-C.xml

---

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 v1.0.2 on 2018-05-18 06:22:48-0400.  
Originally published on 2018-06-12.