



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

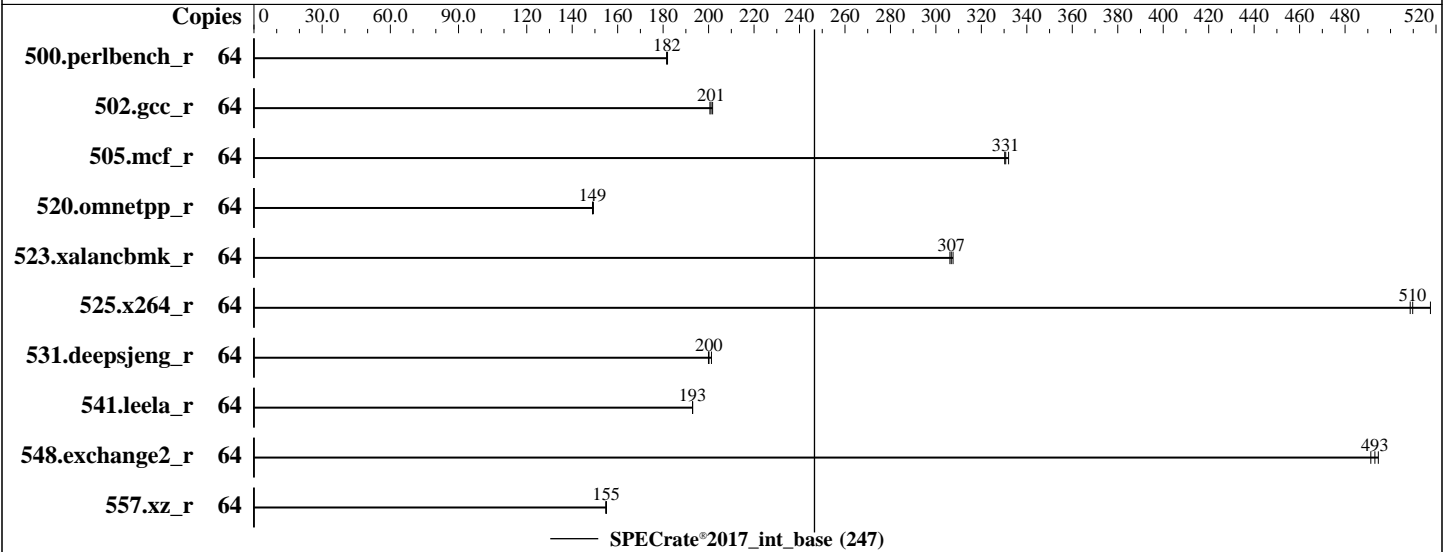
ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_base = 247

SPECrate®2017_int_peak = Not Run

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

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



Hardware

CPU Name: Intel Xeon Gold 6234
 Max MHz: 4000
 Nominal: 3300
 Enabled: 32 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: 24.75 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

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
 Compiler for Linux
 Parallel: No
 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: None
 Power Management: --



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_base = 247

SPECrate®2017_int_peak = Not Run

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

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

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	64	561	182	560	182	<u>561</u>	<u>182</u>							
502.gcc_r	64	452	201	449	202	<u>451</u>	<u>201</u>							
505.mcf_r	64	312	332	<u>313</u>	<u>331</u>	313	330							
520.omnetpp_r	64	562	149	564	149	<u>564</u>	<u>149</u>							
523.xalancbmk_r	64	<u>220</u>	<u>307</u>	221	306	220	308							
525.x264_r	64	220	509	<u>220</u>	<u>510</u>	217	518							
531.deepsjeng_r	64	367	200	364	201	<u>366</u>	<u>200</u>							
541.leela_r	64	549	193	549	193	<u>549</u>	<u>193</u>							
548.exchange2_r	64	341	491	339	495	<u>340</u>	<u>493</u>							
557.xz_r	64	447	155	<u>446</u>	<u>155</u>	446	155							

SPECrate®2017_int_base = 247

SPECrate®2017_int_peak = Not Run

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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/cpu2017-1.0.5-ic19.0u4/lib/intel64"

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
```

runcpu command invoked through numactl i.e.:

```
numactl --interleave=all runcpu <etc>
```

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)

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate®2017_int_base = 247

ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_peak = Not Run

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

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

General Notes (Continued)

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.

Platform Notes

BIOS configuration:
Choose Operating Mode set to Maximum Performance
DCU Streamer Prefetcher set to Disable
SNC set to Enable
Sysinfo program /home/cpu2017-1.0.5-ic19.0u4/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-9o83 Mon Sep 2 21:28:55 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) Gold 6234 CPU @ 3.30GHz
4 "physical id"s (chips)
64 "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 : 8
siblings : 16
physical 0: cores 2 9 17 19 24 26 27
physical 1: cores 2 3 4 9 11 24 25 27
physical 2: cores 2 3 16 18 20 24 25 27
physical 3: cores 2 3 9 11 17 20 24 27

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 64
On-line CPU(s) list: 0-63
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 4
NUMA node(s): 8
Vendor ID: GenuineIntel
CPU family: 6
Model: 85

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate®2017_int_base = 247

ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9017

Test Date: Sep-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Jul-2019

Tested by: Lenovo Global Technology

Software Availability: May-2019

Platform Notes (Continued)

```

Model name: Intel(R) Xeon(R) Gold 6234 CPU @ 3.30GHz
Stepping: 7
CPU MHz: 3300.000
CPU max MHz: 4000.0000
CPU min MHz: 1200.0000
BogoMIPS: 6600.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0,2,3,5,32,34,35,37
NUMA node1 CPU(s): 1,4,6,7,33,36,38,39
NUMA node2 CPU(s): 8,11,13,14,40,43,45,46
NUMA node3 CPU(s): 9,10,12,15,41,42,44,47
NUMA node4 CPU(s): 16,18,21,22,48,50,53,54
NUMA node5 CPU(s): 17,19,20,23,49,51,52,55
NUMA node6 CPU(s): 24,26,28,30,56,58,60,62
NUMA node7 CPU(s): 25,27,29,31,57,59,61,63

```

```

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
aperfmpperf pni pclmulqdq dtes64 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_ppin ssbd mba ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase
tsc_adjust bml hle avx2 smep bmi2 erms 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_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln
pts pku ospke avx512_vnni flush_l1d arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 25344 KB

```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

```

available: 8 nodes (0-7)
node 0 cpus: 0 2 3 5 32 34 35 37
node 0 size: 193133 MB
node 0 free: 192875 MB
node 1 cpus: 1 4 6 7 33 36 38 39
node 1 size: 193529 MB
node 1 free: 193379 MB
node 2 cpus: 8 11 13 14 40 43 45 46
node 2 size: 193529 MB
node 2 free: 193380 MB
node 3 cpus: 9 10 12 15 41 42 44 47

```

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate®2017_int_base = 247

ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9017

Test Date: Sep-2019

Test Sponsor: Lenovo Global Technology

Hardware Availability: Jul-2019

Tested by: Lenovo Global Technology

Software Availability: May-2019

Platform Notes (Continued)

```

node 3 size: 193529 MB
node 3 free: 193385 MB
node 4 cpus: 16 18 21 22 48 50 53 54
node 4 size: 193500 MB
node 4 free: 193325 MB
node 5 cpus: 17 19 20 23 49 51 52 55
node 5 size: 193529 MB
node 5 free: 193343 MB
node 6 cpus: 24 26 28 30 56 58 60 62
node 6 size: 193529 MB
node 6 free: 193295 MB
node 7 cpus: 25 27 29 31 57 59 61 63
node 7 size: 193526 MB
node 7 free: 193343 MB
node distances:
node  0  1  2  3  4  5  6  7
  0: 10 11 21 21 21 21 31 31
  1: 11 10 21 21 21 21 31 31
  2: 21 21 10 11 31 31 21 21
  3: 21 21 11 10 31 31 21 21
  4: 21 21 31 31 10 11 21 21
  5: 21 21 31 31 11 10 21 21
  6: 31 31 21 21 21 21 10 11
  7: 31 31 21 21 21 21 11 10

```

From /proc/meminfo

```

MemTotal:      1584953232 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:

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate®2017_int_base = 247

ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_peak = Not Run

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

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

Platform Notes (Continued)

```
Linux linux-9o83 4.12.14-94.41-default #1 SMP Wed Oct 31 12:25:04 UTC 2018 (3090901)
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 2 21:23

```
SPEC is set to: /home/cpu2017-1.0.5-ic19.0u4
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/sda2       btrfs    744G  134G  609G  19% /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 -[TEE141E-2.30]- 07/02/2019
Memory:
48x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933
```

(End of data from sysinfo program)

Compiler Version Notes

```
=====
C          | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base)
          | 525.x264_r(base) 557.xz_r(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++       | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
          | 541.leela_r(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 CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECrate®2017_int_base = 247

ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_peak = Not Run

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

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

Compiler Version Notes (Continued)

=====
Fortran | 548.exchange2_r(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

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

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

(Continued on next page)



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR850
(3.30 GHz, Intel Xeon Gold 6234)

SPECrate®2017_int_base = 247

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Sep-2019

Hardware Availability: Jul-2019

Software Availability: May-2019

Base Optimization Flags (Continued)

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:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64  
-lqkmalloc
```

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.html>

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-D.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.2019-04-02.xml>

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-CLX-D.xml>

SPEC CPU and SPECrate 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 2019-09-02 09:28:55-0400.

Report generated on 2019-10-01 14:21:46 by CPU2017 PDF formatter v6255.

Originally published on 2019-10-01.