



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

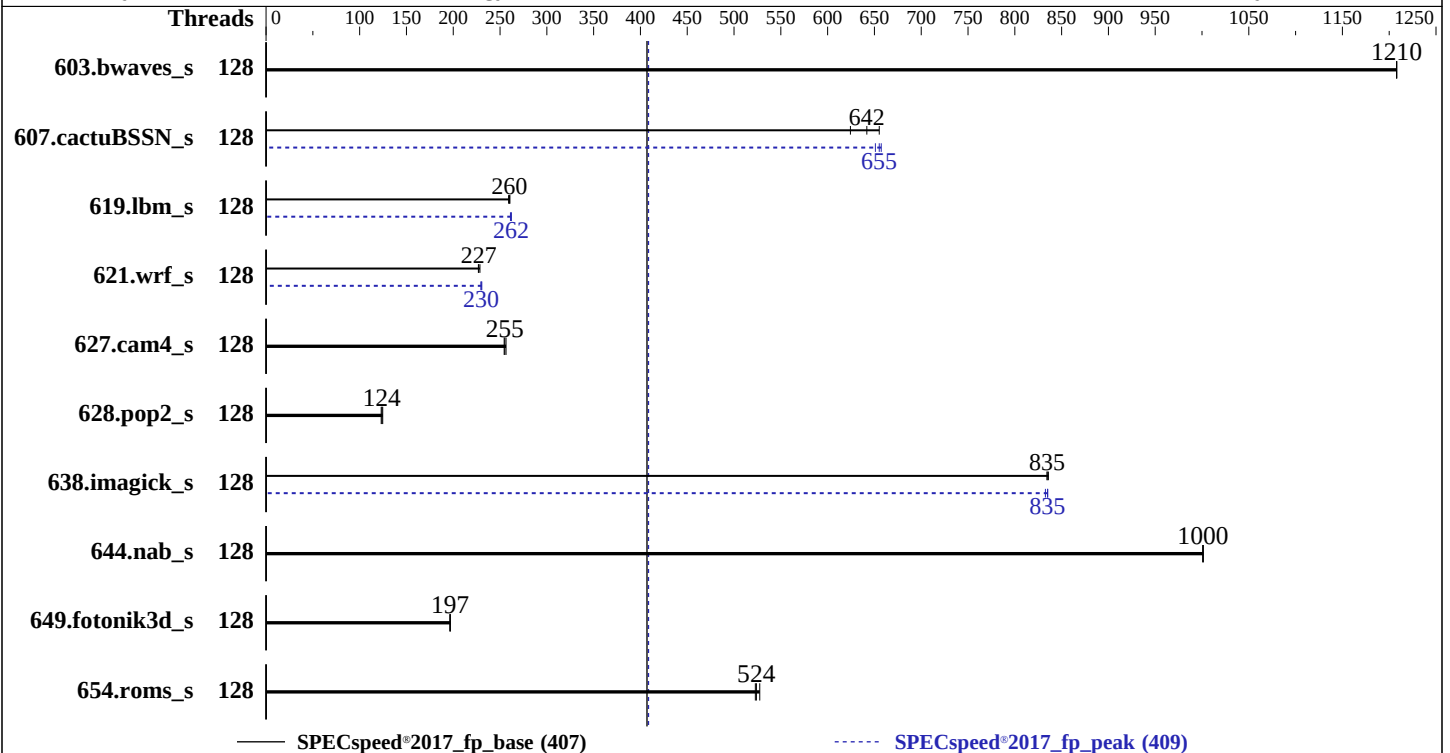
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024



### Hardware

CPU Name: AMD EPYC 9745  
Max MHz: 3700  
Nominal: 2400  
Enabled: 128 cores, 1 chip  
Orderable: 1 chip  
Cache L1: 32 KB I + 48 KB D on chip per core  
L2: 1 MB I+D on chip per core  
L3: 256 MB I+D on chip per chip,  
32 MB shared / 16 cores  
Other: None  
Memory: 384 GB (12 x 32 GB 2Rx8 PC5-6400B-R, running at 6000)  
Storage: 1 x 480 GB SATA SSD  
Other: CPU Cooling: Air

### Software

OS: Red Hat Enterprise Linux 9.4 (Plow)  
Kernel 5.14.0-427.13.1.el9\_4.x86\_64  
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC  
Parallel: Yes  
Firmware: Lenovo BIOS Version KAE131I 5.30 released Dec-2024  
File System: xfs  
System State: Run level 3 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: 64-bit  
Other: None  
Power Management: BIOS set to prefer performance at the cost of additional power usage



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Results Table

| Benchmark       | Base    |                    |                    |                    |                    |         |       |            | Peak               |                    |                    |                    |                    |                   |         |       |
|-----------------|---------|--------------------|--------------------|--------------------|--------------------|---------|-------|------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|---------|-------|
|                 | Threads | Seconds            | Ratio              | Seconds            | Ratio              | Seconds | Ratio | Threads    | Seconds            | Ratio              | Seconds            | Ratio              | Seconds            | Ratio             | Seconds | Ratio |
| 603.bwaves_s    | 128     | 48.8               | 1210               | <b><u>48.8</u></b> | <b><u>1210</u></b> | 48.8    | 1210  | <u>128</u> | 48.8               | 1210               | <b><u>48.8</u></b> | <b><u>1210</u></b> | 48.8               | 1210              |         |       |
| 607.cactuBSSN_s | 128     | 26.7               | 624                | <b><u>26.0</u></b> | <b><u>642</u></b>  | 25.4    | 655   | <u>128</u> | 25.4               | 657                | <b><u>25.4</u></b> | <b><u>655</u></b>  | 25.6               | 651               |         |       |
| 619.lbm_s       | 128     | 20.2               | 259                | <b><u>20.1</u></b> | <b><u>260</u></b>  | 20.1    | 261   | <u>128</u> | 20.0               | 262                | <b><u>20.0</u></b> | <b><u>262</u></b>  | 20.1               | 261               |         |       |
| 621.wrf_s       | 128     | 57.9               | 229                | <b><u>58.2</u></b> | <b><u>227</u></b>  | 58.3    | 227   | <u>128</u> | 57.4               | 231                | 57.6               | 230                | <b><u>57.5</u></b> | <b><u>230</u></b> |         |       |
| 627.cam4_s      | 128     | 34.6               | 256                | <b><u>34.7</u></b> | <b><u>255</u></b>  | 34.8    | 254   | <u>128</u> | 34.6               | 256                | <b><u>34.7</u></b> | <b><u>255</u></b>  | 34.8               | 254               |         |       |
| 628.pop2_s      | 128     | 96.5               | 123                | <b><u>95.9</u></b> | <b><u>124</u></b>  | 95.3    | 125   | <u>128</u> | 96.5               | 123                | <b><u>95.9</u></b> | <b><u>124</u></b>  | 95.3               | 125               |         |       |
| 638.imagick_s   | 128     | 17.3               | 836                | <b><u>17.3</u></b> | <b><u>835</u></b>  | 17.3    | 834   | <u>128</u> | 17.3               | 833                | 17.3               | 835                | <b><u>17.3</u></b> | <b><u>835</u></b> |         |       |
| 644.nab_s       | 128     | <b><u>17.5</u></b> | <b><u>1000</u></b> | 17.4               | 1000               | 17.5    | 1000  | <u>128</u> | <b><u>17.5</u></b> | <b><u>1000</u></b> | 17.4               | 1000               | 17.5               | 1000              |         |       |
| 649.fotonik3d_s | 128     | <b><u>46.3</u></b> | <b><u>197</u></b>  | 46.4               | 196                | 46.3    | 197   | <u>128</u> | <b><u>46.3</u></b> | <b><u>197</u></b>  | 46.4               | 196                | 46.3               | 197               |         |       |
| 654.roms_s      | 128     | 29.8               | 527                | <b><u>30.1</u></b> | <b><u>524</u></b>  | 30.1    | 523   | <u>128</u> | 29.8               | 527                | <b><u>30.1</u></b> | <b><u>524</u></b>  | 30.1               | 523               |         |       |

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

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

## Compiler Notes

The AMD64 AOCC Compiler Suite is available at  
<http://developer.amd.com/amd-aocc/>

## Submit Notes

The config file option 'submit' was used.  
'numactl' was used to bind copies to the cores.  
See the configuration file for details.

## Operating System Notes

'ulimit -s unlimited' was used to set environment stack size limit  
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:  
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty\_ratio=8' run as root.  
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.  
To free node-local memory and avoid remote memory usage,  
'sysctl -w vm.zone\_reclaim\_mode=1' run as root.  
To clear filesystem caches, 'sync; sysctl -w vm.drop\_caches=3' run as root.  
To disable address space layout randomization (ASLR) to reduce run-to-run  
variability, 'sysctl -w kernel.randomize\_va\_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,  
'echo always > /sys/kernel/mm/transparent\_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent\_hugepage/defrag' run as root.



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Mar-2025

**Hardware Availability:** Feb-2025

**Software Availability:** Oct-2024

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

GOMP\_CPU\_AFFINITY = "0-127"

LD\_LIBRARY\_PATH =

"/home/cpu2017-1.1.9-amd-aocc500\_znver5\_A1.2/amd\_speed\_aocc500\_znver5\_A\_lib/lib:/home/cpu2017-1.1.9-amd-aocc500\_znver5\_A1.2/amd\_speed\_aocc500\_znver5\_A\_lib/lib32:"

LIBOMP\_NUM\_HIDDEN\_HELPER\_THREADS = "0"

MALLOC\_CONF = "retain:true"

OMP\_DYNAMIC = "false"

OMP\_SCHEDULE = "static"

OMP\_STACKSIZE = "128M"

OMP\_THREAD\_LIMIT = "128"

Environment variables set by runcpu during the 607.cactuBSSN\_s peak run:

GOMP\_CPU\_AFFINITY = "0-127"

Environment variables set by runcpu during the 619.lbm\_s peak run:

GOMP\_CPU\_AFFINITY = "0-127"

Environment variables set by runcpu during the 621.wrf\_s peak run:

GOMP\_CPU\_AFFINITY = "0-127"

Environment variables set by runcpu during the 638.imagick\_s peak run:

GOMP\_CPU\_AFFINITY = "0-127"

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 9D64 CPU + 500GiB Memory using Ubuntu 22.04

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.

## Platform Notes

BIOS configuration:

Choose Operating Mode set to Maximum Performance and then set it to Custom Mode

SMT Mode set to Disabled

L1 Stride Prefetcher set to Disabled

GMI Folding set to Disabled

Sysinfo program /home/cpu2017-1.1.9-amd-aocc500\_znver5\_A1.2/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost.localdomain Fri Mar 14 15:53:31 2025

SUT (System Under Test) info as seen by some common utilities.

-----  
Table of contents

- 1. uname -a  
2. w  
3. Username  
4. ulimit -a

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

### Platform Notes (Continued)

```
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 252 (252-32.el9_4)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
```

```
1. uname -a
Linux localhost.localdomain 5.14.0-427.13.1.el9_4.x86_64 #1 SMP PREEMPT_DYNAMIC Wed Apr 10 10:29:16 EDT
2024 x86_64 x86_64 x86_64 GNU/Linux
```

```
2. w
15:53:31 up 4 min,  0 users,  load average: 0.03, 0.13, 0.07
USER      TTY      LOGIN@  IDLE   JCPU   PCPU WHAT
```

```
3. Username
From environment variable $USER:  root
```

```
4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) 0
data seg size               (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                   (blocks, -f) unlimited
pending signals              (-i) 1545124
max locked memory           (kbytes, -l) 2097152
max memory size              (kbytes, -m) unlimited
open files                   (-n) 1024
pipe size                    (512 bytes, -p) 8
POSIX message queues         (bytes, -q) 819200
real-time priority          (-r) 0
stack size                   (kbytes, -s) unlimited
cpu time                     (seconds, -t) unlimited
max user processes           (-u) 1545124
virtual memory               (kbytes, -v) unlimited
file locks                   (-x) unlimited
```

```
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 31
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Platform Notes (Continued)

```
ssh: root@notty
/bin/bash ./02.remote_local_SPEccpu_1.01.sh
/bin/bash ./Run036-compliant-amd-speedfp.sh
python3 ./run_amd_speed_aocc500_znver5_A1.py
/bin/bash ./amd_speed_aocc500_znver5_A1.sh
runcpu --config amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 fpspeed
runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.409/temlogs/preenv.fpspeed.409.0.log --lognum 409.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017-1.1.9-amd-aocc500_znver5_A1.2
```

```
-----
6. /proc/cpuinfo
model name      : AMD EPYC 9745 128-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 26
model          : 17
stepping       : 0
microcode      : 0xb101025
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size       : 192 4K pages
cpu cores      : 128
siblings       : 128
1 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-127
physical id 0: apicids 0-127
```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

### 7. lscpu

From lscpu from util-linux 2.37.4:

|                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Architecture:        | x86_64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| CPU op-mode(s):      | 32-bit, 64-bit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Address sizes:       | 52 bits physical, 57 bits virtual                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Byte Order:          | Little Endian                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| CPU(s):              | 128                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| On-line CPU(s) list: | 0-127                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Vendor ID:           | AuthenticAMD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| BIOS Vendor ID:      | Advanced Micro Devices, Inc.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Model name:          | AMD EPYC 9745 128-Core Processor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| BIOS Model name:     | AMD EPYC 9745 128-Core Processor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| CPU family:          | 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Model:               | 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Thread(s) per core:  | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Core(s) per socket:  | 128                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Socket(s):           | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Stepping:            | 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| BogoMIPS:            | 4792.44                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Flags:               | fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm constant_tsc rep_good amd_lbr_v2 nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3 hwp_pstate ssbd mba perfmon_v2 ibrs ibpb stibp |

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

### Platform Notes (Continued)

ibrs\_enhanced vmcall fsgsbase tsc\_adjust bmi1 avx2 smep bmi2 erms  
invcid cqm rdt\_a avx512f avx512dq rdseed adx smap avx512ifma  
clflushopt clwb avx512cd sha\_ni avx512bw avx512vl xsaveopt xsavec  
xgetbv1 xsaves cqm\_llc cqm\_occup\_llc cqm\_mbm\_total cqm\_mbm\_local  
avx\_vnni avx512\_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd\_ppin  
cpgc arat npt lbrv svm\_lock nrip\_save tsc\_scale vmcb\_clean flushbyasid  
decodeassists pausefilter pfthreshold avic v\_vmsave\_vmload vgif x2avic  
v\_spec\_ctrl vnmi avx512vbmi umip pku ospke avx512\_vbmi2 gfni vaes  
vpclmulqdq avx512\_vnni avx512\_bitalg avx512\_vpopcntdq la57 rdpid  
bus\_lock\_detect movdiri movdir64b overflow\_recov succor smca fsrm  
avx512\_vp2intersect flush\_lid debug\_swap

#### Virtualization:

L1d cache: 6 MiB (128 instances)  
L1i cache: 4 MiB (128 instances)  
L2 cache: 128 MiB (128 instances)  
L3 cache: 256 MiB (8 instances)

#### NUMA node(s):

1

#### NUMA node0 CPU(s):

0-127

Vulnerability Gather data sampling: Not affected

Vulnerability Itlb multihit: Not affected

Vulnerability L1tf: Not affected

Vulnerability Mds: Not affected

Vulnerability Meltdown: Not affected

Vulnerability Mmio stale data: Not affected

Vulnerability Retbleed: Not affected

Vulnerability Spec rstack overflow: Not affected

Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl

Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and \_\_user pointer sanitization

Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS, IBPB conditional, STIBP

disabled, RSB filling, PBRSE-eIBRS Not affected

Vulnerability Srbds: Not affected

Vulnerability Tsx async abort: Not affected

#### From lscpu --cache:

| NAME | ONE-SIZE | ALL-SIZE | WAYS | TYPE        | LEVEL | SETS  | PHY-LINE | COHERENCY-SIZE |
|------|----------|----------|------|-------------|-------|-------|----------|----------------|
| L1d  | 48K      | 6M       | 12   | Data        | 1     | 64    | 1        | 64             |
| L1i  | 32K      | 4M       | 8    | Instruction | 1     | 64    | 1        | 64             |
| L2   | 1M       | 128M     | 16   | Unified     | 2     | 1024  | 1        | 64             |
| L3   | 32M      | 256M     | 16   | Unified     | 3     | 32768 | 1        | 64             |

#### 8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 1 nodes (0)

node 0 cpus: 0-127

node 0 size: 386320 MB

node 0 free: 384302 MB

node distances:

node 0

0: 10

#### 9. /proc/meminfo

MemTotal: 395592044 kB

#### 10. who -r

run-level 3 Mar 14 15:50

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Platform Notes (Continued)

11. Systemd service manager version: systemd 252 (252-32.el9\_4)

Default Target Status  
multi-user degraded

12. Failed units, from systemctl list-units --state=failed

| UNIT                                 | LOAD   | ACTIVE | SUB    | DESCRIPTION                 |
|--------------------------------------|--------|--------|--------|-----------------------------|
| * NetworkManager-wait-online.service | loaded | failed | failed | Network Manager Wait Online |

13. Services, from systemctl list-unit-files

| STATE           | UNIT FILES                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| enabled         | NetworkManager NetworkManager-dispatcher NetworkManager-wait-online auditd chronyd crond<br>dbus-broker firewalld getty@ insights-client-boot irqbalance kdump low-memory-monitor<br>mdmonitor microcode nis-domainname rhsmcertd rsyslog rtkit-daemon selinux-autorelabel-mark<br>sshd sssd systemd-boot-update systemd-network-generator udisks2 upower                                                            |
| enabled-runtime | systemd-remount-fs                                                                                                                                                                                                                                                                                                                                                                                                   |
| disabled        | canberra-system-bootup canberra-system-shutdown canberra-system-shutdown-reboot<br>chrony-wait chronyd-restricted console-getty cpupower debug-shell dnf-system-upgrade<br>hwloc-dump-hwdata kvm_stat man-db-restart-cache-update nftables pesign rdisc rhcd rhsm<br>rhsm-facts rpmdm-rebuild selinux-check-proper-disable serial-getty@ sshd-keygen@<br>systemd-boot-check-no-failures systemd-pstore systemd-sysex |
| indirect        | sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo systemd-sysupdate<br>systemd-sysupdate-reboot                                                                                                                                                                                                                                                                                                     |

14. Linux kernel boot-time arguments, from /proc/cmdline

BOOT\_IMAGE=(hd3,gpt3)/boot/vmlinuz-5.14.0-427.13.1.el9\_4.x86\_64  
root=UUID=273c79f3-13a9-4ae6-9c36-e82799318ef8  
ro  
resume=UUID=19c8733f-555f-4142-8f61-7554d0dc64ae

15. cpupower frequency-info

analyzing CPU 50:  
Unable to determine current policy  
boost state support:  
Supported: yes  
Active: yes  
Boost States: 0  
Total States: 3  
Pstate-P0: 44800MHz

16. sysctl

|                              |       |
|------------------------------|-------|
| kernel.numa_balancing        | 0     |
| kernel.randomize_va_space    | 0     |
| vm.compaction_proactiveness  | 20    |
| vm.dirty_background_bytes    | 0     |
| vm.dirty_background_ratio    | 10    |
| vm.dirty_bytes               | 0     |
| vm.dirty_expire_centisecs    | 3000  |
| vm.dirty_ratio               | 8     |
| vm.dirty_writeback_centisecs | 500   |
| vm.dirtytime_expire_seconds  | 43200 |
| vm.extfrag_threshold         | 500   |
| vm.min_unmapped_ratio        | 1     |
| vm.nr_hugepages              | 0     |
| vm.nr_hugepages_mempolicy    | 0     |
| vm.nr_overcommit_hugepages   | 0     |

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

### Platform Notes (Continued)

```
vm.swappiness          1
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode   1
```

```
-----
17. /sys/kernel/mm/transparent_hugepage
defrag      [always] defer defer+madvise madvise never
enabled     [always] madvise never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force
-----
```

```
-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs 60000
defrag                1
max_ptes_none         511
max_ptes_shared       256
max_ptes_swap         64
pages_to_scan         4096
scan_sleep_millisecs 10000
-----
```

```
-----
19. OS release
From /etc/*-release /etc/*-version
os-release      Red Hat Enterprise Linux 9.4 (Plow)
redhat-release  Red Hat Enterprise Linux release 9.4 (Plow)
system-release  Red Hat Enterprise Linux release 9.4 (Plow)
-----
```

```
-----
20. Disk information
SPEC is set to: /home/cpu2017-1.1.9-amd-aocc500_znver5_A1.2
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda4       xfs   372G  107G  265G  29% /home
-----
```

```
-----
21. /sys/devices/virtual/dmi/id
Vendor:      Lenovo
Product:     ThinkSystem SR635V3
Product Family: ThinkSystem
Serial:      1234567890
-----
```

```
-----
22. dmidecode
Additional information from dmidecode 3.5 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.
Memory:
12x SK Hynix HMC888AHBRA290N 32 GB 2 rank 6400, configured at 6000
-----
```

```
-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Lenovo
BIOS Version:     KAE131I-5.30
BIOS Date:        12/17/2024
BIOS Revision:    5.30
Firmware Revision: 54.6
-----
```





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Compiler Version Notes

=====  
C | 619.lbm\_s(base, peak) 638.imagick\_s(base, peak) 644.nab\_s(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
C++, C, Fortran | 607.cactuBSSN\_s(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
Fortran | 603.bwaves\_s(base, peak) 649.fotonik3d\_s(base, peak) 654.roms\_s(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
Fortran, C | 621.wrf\_s(base, peak) 627.cam4\_s(base, peak) 628.pop2\_s(base, peak)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

## Base Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

flang clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Base Portability Flags

603.bwaves\_s: -DSPEC\_LP64  
607.cactuBSSN\_s: -DSPEC\_LP64  
619.lbm\_s: -DSPEC\_LP64  
621.wrf\_s: -DSPEC\_CASE\_FLAG -Mbyteswapio -DSPEC\_LP64  
627.cam4\_s: -DSPEC\_CASE\_FLAG -DSPEC\_LP64  
628.pop2\_s: -DSPEC\_CASE\_FLAG -Mbyteswapio -DSPEC\_LP64  
638.imagick\_s: -DSPEC\_LP64  
644.nab\_s: -DSPEC\_LP64  
649.fotonik3d\_s: -DSPEC\_LP64  
654.roms\_s: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver5  
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC\_OPENMP -flto  
-fremap-arrays -fstrip-mining -fstruct-layout=7  
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=50 -zopt -mrecip=none -fopenmp=libomp -lomp  
-lamdlibm -lamdalloc -lflang

Fortran benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC\_OPENMP -O3 -march=znver5  
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -funroll-loops  
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3  
-Mrecursive -zopt -fopenmp=libomp -lomp -lamdlibm -lamdalloc  
-lflang

Benchmarks using both Fortran and C:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

-Wl, -mllvm -Wl, -enable-X86-prefetching -O3 -march=znver5  
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC\_OPENMP -flt  
-fremap-arrays -fstrip-mining -fstruct-layout=7  
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=50 -zopt -funroll-loops  
-mllvm -lsr-in-nested-loop -Mrecursive -mrecip=none -fopenmp=libomp  
-lomp -lamdlibm -lamdalloc -lflang

Benchmarks using Fortran, C, and C++:

-m64 -std=c++14 -Wl, -mllvm -Wl, -align-all-nofallthru-blocks=6  
-Wl, -mllvm -Wl, -reduce-array-computations=3  
-Wl, -mllvm -Wl, -x86-use-vzeroupper=false -O3 -march=znver5  
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC\_OPENMP -flt  
-fremap-arrays -fstrip-mining -fstruct-layout=7  
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=50 -zopt  
-mllvm -loop-unswitch-threshold=2000000 -mllvm -unroll-threshold=100  
-funroll-loops -mllvm -lsr-in-nested-loop -Mrecursive -mrecip=none  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

## Base Other Flags

C benchmarks:

-Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-return-type -Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-Wno-return-type -Wno-unused-command-line-argument

## Peak Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

flang clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
619.lbm_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlbm -lamdalloc -lflang
```

638.imagick\_s: Same as 619.lbm\_s

644.nab\_s: basepeak = yes

Fortran benchmarks:

603.bwaves\_s: basepeak = yes

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

```
621.wrf_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

## Peak Optimization Flags (Continued)

621.wrf\_s (continued):

-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp  
-flto -DSPEC\_OPENMP -fremap-arrays -fstrip-mining  
-fstruct-layout=9 -mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=50 -zopt -funroll-loops  
-mllvm -lsr-in-nested-loop -Mrecursive -fopenmp=libomp  
-lomp -lamdlibm -lamdalloc -lflang

627.cam4\_s: basepeak = yes

628.pop2\_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast -march=znver5  
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -DSPEC\_OPENMP  
-fremap-arrays -fstrip-mining -fstruct-layout=9  
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3  
-mllvm -unroll-threshold=50 -zopt -mllvm -unroll-threshold=100  
-Mrecursive -fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

## Peak Other Flags

C benchmarks:

-Wno-return-type -Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-return-type -Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-Wno-return-type -Wno-unused-command-line-argument

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-Turin-E.html>

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.html>



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635 V3  
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2017\_fp\_base = 407

SPECspeed®2017\_fp\_peak = 409

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Mar-2025

**Hardware Availability:** Feb-2025

**Software Availability:** Oct-2024

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-Turin-E.xml>

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.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](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2025-03-14 03:53:30-0400.

Report generated on 2025-04-09 14:59:17 by CPU2017 PDF formatter v6716.

Originally published on 2025-04-09.