



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

CPU2017 License: 9017

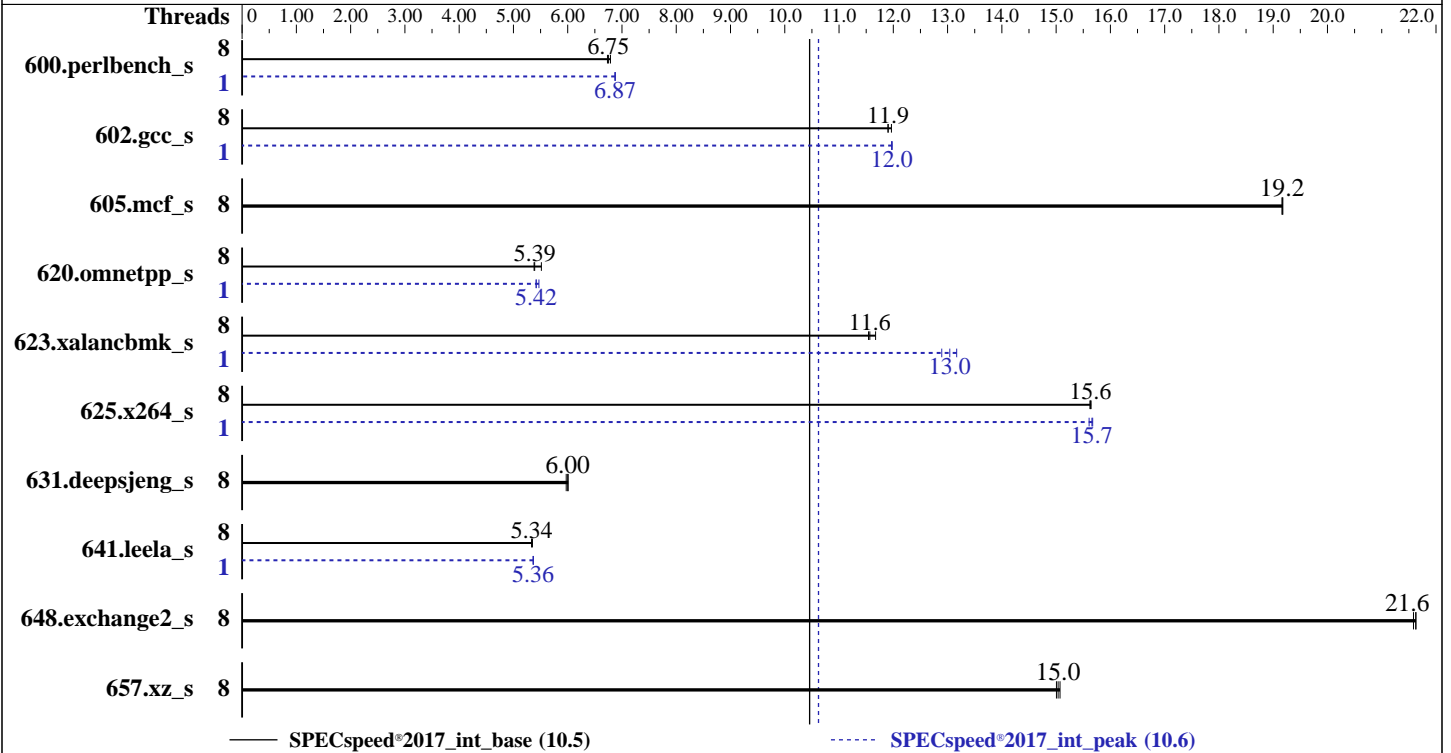
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Aug-2023

Hardware Availability: Oct-2023

Software Availability: Jun-2023



### Hardware

CPU Name: AMD EPYC 7203  
 Max MHz: 3400  
 Nominal: 2800  
 Enabled: 8 cores, 1 chip, 2 threads/core  
 Orderable: 1 chip  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 512 KB I+D on chip per core  
 L3: 64 MB I+D on chip per chip,  
 16 MB shared / 2 cores  
 Other: None  
 Memory: 256 GB (8 x 32 GB 2Rx4 PC4-3200AA-R)  
 Storage: 1 x 960 GB SATA SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP5  
 Kernel 5.14.21-150500.53-default  
 Compiler: C/C++/Fortran: Version 3.2.0 of AOCC  
 Parallel: Yes  
 Firmware: Lenovo BIOS Version CFE137D 7.10 released Jun-2023  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc: jemalloc memory allocator library v5.1.0  
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

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

**Test Date:** Aug-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Jun-2023

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	8	264	6.73	261	6.79	<b>263</b>	<b>6.75</b>	1	258	6.87	258	6.87	<b>258</b>	<b>6.87</b>
602.gcc_s	8	333	12.0	<b>334</b>	<b>11.9</b>	335	11.9	1	332	12.0	333	12.0	<b>333</b>	<b>12.0</b>
605.mcf_s	8	<b>246</b>	<b>19.2</b>	246	19.2	246	19.2	8	<b>246</b>	<b>19.2</b>	246	19.2	246	19.2
620.omnetpp_s	8	<b>303</b>	<b>5.39</b>	296	5.51	303	5.38	1	298	5.47	301	5.42	<b>301</b>	<b>5.42</b>
623.xalancbmk_s	8	123	11.5	121	11.7	<b>123</b>	<b>11.6</b>	1	<b>109</b>	<b>13.0</b>	110	12.9	108	13.2
625.x264_s	8	113	15.6	<b>113</b>	<b>15.6</b>	113	15.6	1	113	15.6	113	15.7	<b>113</b>	<b>15.7</b>
631.deepsjeng_s	8	239	6.01	<b>239</b>	<b>6.00</b>	240	5.97	8	239	6.01	<b>239</b>	<b>6.00</b>	240	5.97
641.leela_s	8	319	5.35	<b>320</b>	<b>5.34</b>	320	5.33	1	<b>318</b>	<b>5.36</b>	318	5.37	318	5.36
648.exchange2_s	8	136	21.6	<b>136</b>	<b>21.6</b>	136	21.6	8	136	21.6	<b>136</b>	<b>21.6</b>	136	21.6
657.xz_s	8	410	15.1	412	15.0	<b>411</b>	<b>15.0</b>	8	410	15.1	412	15.0	<b>411</b>	<b>15.0</b>

SPECspeed®2017\_int\_base = **10.5**

SPECspeed®2017\_int\_peak = **10.6**

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 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

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

**Test Date:** Aug-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Jun-2023

### Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-15"
LD_LIBRARY_PATH =
"/home/cpu2017-1.1.9-amd-milanx-aocc320-A1/amd_speed_aocc320_milanx_A_lib/lib;/home/cpu2017-1.1.9-amd-
milanx-aocc320-A1/amd_speed_aocc320_milanx_A_lib/lib32:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOCONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "16"
```

Environment variables set by runcpu during the 600.perlbench\_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 602.gcc\_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 620.omnetpp\_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 623.xalanx\_bmk\_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 625.x264\_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

Environment variables set by runcpu during the 641.leela\_s peak run:

```
GOMP_CPU_AFFINITY = "0"
```

### General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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.

jemalloc: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)  
jemalloc 5.1.0 is available here:  
<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>

### Platform Notes

BIOS configuration:  
Choose Operating Mode set to Maximum Performance  
NUMA nodes per socket set to NPS2  
SOC P-states set to P0

Sysinfo program /home/cpu2017-1.1.9-amd-milanx-aocc320-A1/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Wed Aug 2 10:26:23 2023

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Aug-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Jun-2023

### Platform Notes (Continued)

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

-----  
Table of contents  
-----

- 1. uname -a
- 2. w
- 3. Username
- 4. ulimit -a
- 5. sysinfo process ancestry
- 6. /proc/cpuinfo
- 7. lscpu
- 8. numactl --hardware
- 9. /proc/meminfo
- 10. who -r
- 11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
- 12. Services, from systemctl list-unit-files
- 13. Linux kernel boot-time arguments, from /proc/cmdline
- 14. cpupower frequency-info
- 15. sysctl
- 16. /sys/kernel/mm/transparent\_hugepage
- 17. /sys/kernel/mm/transparent\_hugepage/khugepaged
- 18. OS release
- 19. Disk information
- 20. /sys/devices/virtual/dmi/id
- 21. dmidecode
- 22. BIOS

-----

1. uname -a  
Linux localhost 5.14.21-150500.53-default #1 SMP PREEMPT\_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)  
x86\_64 x86\_64 x86\_64 GNU/Linux

-----

2. w  
10:26:23 up 8:56, 1 user, load average: 0.10, 1.96, 2.07  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root ttyl - 01:29 8:54m 1.29s 0.06s /bin/bash ./amd\_speed\_aocc320\_milanx\_A1.sh

-----

3. Username  
From environment variable \$USER: root

-----

4. ulimit -a  
core file size (blocks, -c) unlimited  
data seg size (kbytes, -d) unlimited  
scheduling priority (-e) 0  
file size (blocks, -f) unlimited  
pending signals (-i) 1026783  
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) 1026783

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz, AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

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

**Test Date:** Aug-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Jun-2023

### Platform Notes (Continued)

virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

```

5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 30
login -- root
-bash
/bin/bash ./speccpu_milanX.sh
/bin/bash ./Run035-compliant-amd-speedint.sh
python3 ./run_amd_speed_aocc320_milanx_A1.py
/bin/bash ./amd_speed_aocc320_milanx_A1.sh
runcpu --config amd_speed_aocc320_milanx_A1.cfg --tune all --reportable --iterations 3 intspeak
runcpu --configfile amd_speed_aocc320_milanx_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeak intspeak --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.114/templogs/preenv.intspeak.114.0.log --lognum 114.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017-1.1.9-amd-milanx-aocc320-A1

```

```

6. /proc/cpuinfo
model name      : AMD EPYC 7203 8-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 1
stepping      : 1
microcode     : 0xa0011ce
bugs          : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size     : 2560 4K pages
cpu cores     : 8
siblings      : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0: core ids 0-7
physical id 0: apicids 0-15
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: 48 bits physical, 48 bits virtual
Byte Order: Little Endian
CPU(s): 16
On-line CPU(s) list: 0-15
Vendor ID: AuthenticAMD
Model name: AMD EPYC 7203 8-Core Processor
CPU family: 25
Model: 1
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 1
Stepping: 1
Frequency boost: enabled
CPU max MHz: 3431.6399
CPU min MHz: 1500.0000
BogoMIPS: 5589.51

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

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

**Test Date:** Aug-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Jun-2023

### Platform Notes (Continued)

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 nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl
pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes
xsave avx fl6c 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 invpcid_single
hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2
invpcid cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec
xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero
irperf xsaveerptr rdpru wbnoinvd amd_ppin brs arat npt lbrv svm_lock
nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter
pfthreshold v_vmsave_vmload vgif v_spec_ctrl umip pku ospke vaes
vpclmulqdq rdpid overflow_recov succor smca
```

Virtualization:

AMD-V

L1d cache: 256 KiB (8 instances)

L1i cache: 256 KiB (8 instances)

L2 cache: 4 MiB (8 instances)

L3 cache: 64 MiB (4 instances)

NUMA node(s): 2

NUMA node0 CPU(s): 0-3,8-11

NUMA node1 CPU(s): 4-7,12-15

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 store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp

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

Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS\_FW, STIBP always-on, 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	32K	256K	8	Data	1	64	1	64
L1i	32K	256K	8	Instruction	1	64	1	64
L2	512K	4M	8	Unified	2	1024	1	64
L3	16M	64M	16	Unified	3	16384	1	64

8. numactl --hardware

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

available: 2 nodes (0-1)

node 0 cpus: 0-3,8-11

node 0 size: 127723 MB

node 0 free: 127252 MB

node 1 cpus: 4-7,12-15

node 1 size: 129003 MB

node 1 free: 128591 MB

node distances:

node 0 1

0: 10 12

1: 12 10

9. /proc/meminfo

MemTotal: 262888000 kB

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

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

**Test Date:** Aug-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Jun-2023

### Platform Notes (Continued)

-----  
10. who -r  
run-level 3 Aug 2 01:29

-----  
11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)  
Default Target Status  
multi-user running

-----  
12. Services, from systemctl list-unit-files  
STATE UNIT FILES  
enabled YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron getty@ irqbalance issue-generator  
kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd  
systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny  
enabled-runtime systemd-remount-fs  
disabled autofsd autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait  
chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info  
firewalld gpm grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys  
kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nmb rpcbind rpmconfigcheck  
rsyncd serial-getty@ smartd\_generate\_opts smb snmpd snmptrapd  
systemd-boot-check-no-failures systemd-network-generator systemd-sysext  
systemd-time-wait-sync systemd-timesyncd  
generated ntp\_sync  
indirect wickedd

-----  
13. Linux kernel boot-time arguments, from /proc/cmdline  
BOOT\_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default  
root=UUID=52d7c982-f59a-45be-a5d3-ac137bfab34b  
splash=silent  
mitigations=auto  
quiet  
security=apparmor

-----  
14. cpupower frequency-info  
analyzing CPU 0:  
current policy: frequency should be within 1.50 GHz and 2.80 GHz.  
The governor "performance" may decide which speed to use  
within this range.  
boost state support:  
Supported: yes  
Active: yes

-----  
15. sysctl  
kernel.numa\_balancing 1  
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

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Aug-2023

Hardware Availability: Oct-2023

Software Availability: Jun-2023

### Platform Notes (Continued)

```

vm.nr_hugepages          0
vm.nr_hugepages_mempolicy 0
vm.nr_overcommit_hugepages 0
vm.swappiness            1
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode     1

```

```

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

```

```

-----
17. /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

```

```

-----
18. OS release
From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP5

```

```

-----
19. Disk information
SPEC is set to: /home/cpu2017-1.1.9-amd-milanx-aocc320-A1
Filesystem Type Size Used Avail Use% Mounted on
/dev/md126p3 xfs 892G 25G 867G 3% /

```

```

-----
20. /sys/devices/virtual/dmi/id
Vendor:          Lenovo
Product:         ThinkSystem SR635 -[7Y98XXXXXX]-
Product Family: ThinkSystem
Serial:          0123456789

```

```

-----
21. dmidecode
Additional information from dmidecode 3.4 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:
8x Samsung M393A4K40DB3-CWE 32 GB 2 rank 3200

```

```

-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Lenovo
BIOS Version:     CFE137D
BIOS Date:        06/28/2023
BIOS Revision:    7.10

```





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

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

**Test Date:** Aug-2023  
**Hardware Availability:** Oct-2023  
**Software Availability:** Jun-2023

### Compiler Version Notes

-----  
C | 600.perlbench\_s(base, peak) 602.gcc\_s(base, peak) 605.mcf\_s(base, peak) 625.x264\_s(base, peak)  
657.xz\_s(base, peak)

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin  
-----

-----  
C++ | 620.omnetpp\_s(base, peak) 623.xalancbmk\_s(base, peak) 631.deepsjeng\_s(base, peak)  
641.leela\_s(base, peak)

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin  
-----

-----  
Fortran | 648.exchange2\_s(base, peak)  
-----

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin  
-----

### Base Compiler Invocation

C benchmarks:  
clang

C++ benchmarks:  
clang++

Fortran benchmarks:  
flang

### Base Portability Flags

600.perlbench\_s: -DSPEC\_LINUX\_X64 -DSPEC\_LP64  
602.gcc\_s: -DSPEC\_LP64  
605.mcf\_s: -DSPEC\_LP64  
620.omnetpp\_s: -DSPEC\_LP64  
623.xalancbmk\_s: -DSPEC\_LINUX -DSPEC\_LP64  
625.x264\_s: -DSPEC\_LP64  
631.deepsjeng\_s: -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Aug-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Jun-2023

## Base Portability Flags (Continued)

641.leela\_s: -DSPEC\_LP64  
648.exchange2\_s: -DSPEC\_LP64  
657.xz\_s: -DSPEC\_LP64

## Base Optimization Flags

### C benchmarks:

```
-m64 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

### C++ benchmarks:

```
-m64 -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100
-finline-aggressive -flv-function-specialization
-mllvm -loop-unswitch-threshold=200000 -mllvm -reroll-loops
-mllvm -aggressive-loop-unswitch -mllvm -extra-vectorizer-passes
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp=true
-mllvm -convert-pow-exp-to-int=false -z muldefs
-fvirtual-function-elimination -fvisibility=hidden -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

### Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -z muldefs
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -DSPEC_OPENMP
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Aug-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Jun-2023

## Base Other Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

-Wno-return-type

## Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -fstruct-layout=5 -mllvm -unroll-threshold=50
-fremap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Aug-2023

Hardware Availability: Oct-2023

Software Availability: Jun-2023

## Peak Optimization Flags (Continued)

600.perlbench\_s (continued):

-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

602.gcc\_s: Same as 600.perlbench\_s

605.mcf\_s: basepeak = yes

625.x264\_s: -m64 -Wl,-allow-multiple-definition

-Wl,-mllvm -Wl,-enable-licm-vrp

-Wl,-mllvm -Wl,-do-block-reorder=aggressive

-Wl,-mllvm -Wl,-region-vectorize

-Wl,-mllvm -Wl,-function-specialize

-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast

-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp

-flto -fstruct-layout=5 -mllvm -unroll-threshold=50

-mllvm -inline-threshold=1000 -fremap-arrays

-mllvm -function-specialize -flv-function-specialization

-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true

-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3

-mllvm -do-block-reorder=aggressive -DSPEC\_OPENMP

-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang

657.xz\_s: basepeak = yes

C++ benchmarks:

620.omnetpp\_s: -m64 -Wl,-mllvm -Wl,-function-specialize

-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast

-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp

-flto -finline-aggressive -mllvm -unroll-threshold=100

-flv-function-specialization -mllvm -enable-licm-vrp

-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch

-mllvm -reduce-array-computations=3

-mllvm -global-vectorize-slp=true

-fvirtual-function-elimination -fvisibility=hidden

-DSPEC\_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc

-lflang

623.xalancbmk\_s: -m64 -Wl,-mllvm -Wl,-function-specialize

-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3

-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast

-march=znver3 -fveclib=AMDLIBM -ffast-math -fopenmp

-flto -finline-aggressive -mllvm -unroll-threshold=100

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR635  
(2.80 GHz,AMD EPYC 7203)

SPECspeed®2017\_int\_base = 10.5

SPECspeed®2017\_int\_peak = 10.6

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Aug-2023

**Hardware Availability:** Oct-2023

**Software Availability:** Jun-2023

## Peak Optimization Flags (Continued)

623.xalancbmk\_s (continued):

```
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-DSPEC_OPENMP -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang
```

631.deepsjeng\_s: basepeak = yes

641.leela\_s: Same as 620.omnetpp\_s

Fortran benchmarks:

648.exchange2\_s: basepeak = yes

## Peak Other Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

```
-Wno-return-type
```

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-Genoa-T.html>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.html>

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-Genoa-T.xml>

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.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 2023-08-01 22:26:23-0400.

Report generated on 2023-08-30 09:42:27 by CPU2017 PDF formatter v6716.

Originally published on 2023-08-29.