



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

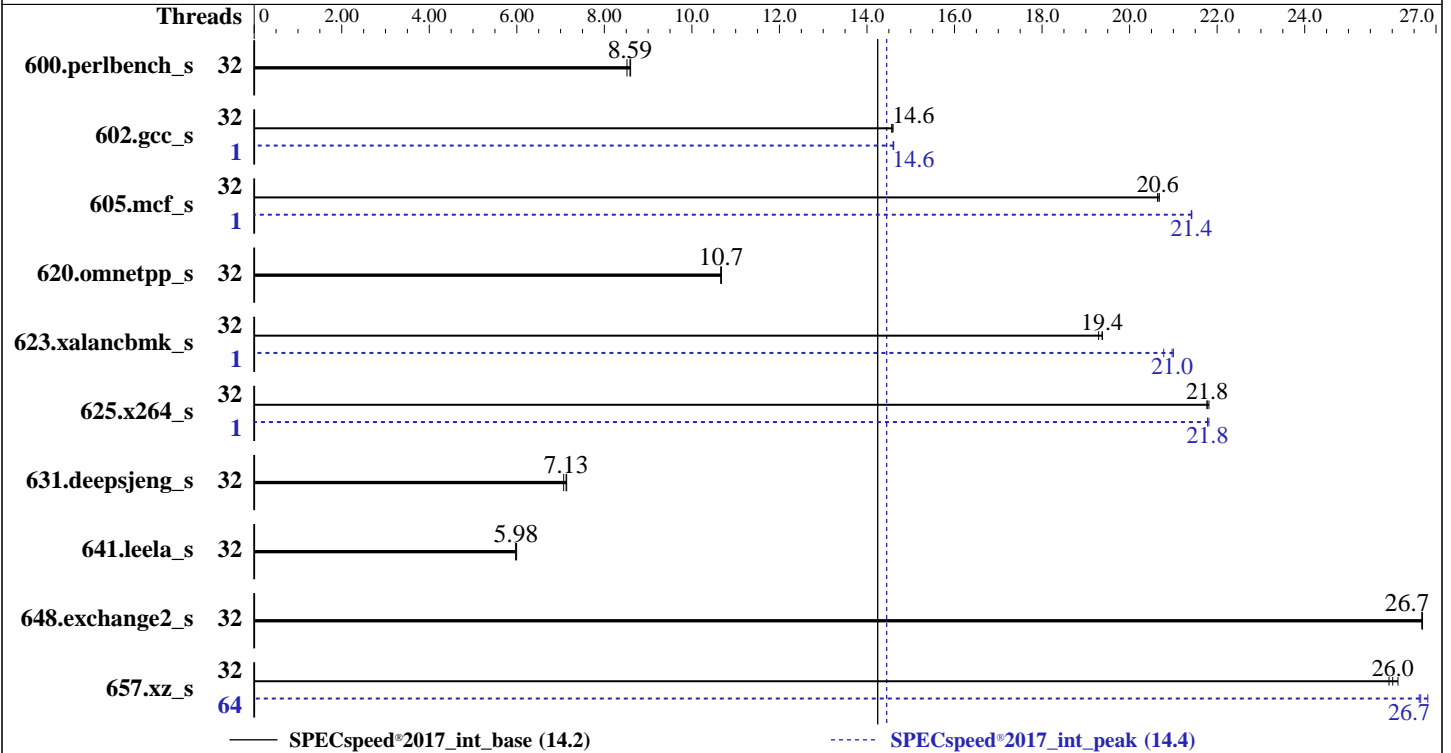
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022



Hardware

CPU Name: AMD EPYC 9354
 Max MHz: 3800
 Nominal: 3250
 Enabled: 32 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 32 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 / 4 cores
 Other: None
 Memory: 384 GB (12 x 32 GB 2Rx8 PC5-4800B-R)
 Storage: 1 x 480 GB SATA SSD
 Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP4
 Kernel 5.14.21-150400.22-default
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
 Parallel: Yes
 Firmware: Lenovo BIOS Version KAE109F 1.40 released Feb-2023
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: None
 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 SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

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

Test Date: Mar-2023
Hardware Availability: Apr-2023
Software Availability: Nov-2022

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	206	8.60	208	8.52	<u>207</u>	<u>8.59</u>	32	206	8.60	208	8.52	<u>207</u>	<u>8.59</u>
602.gcc_s	32	273	14.6	<u>273</u>	<u>14.6</u>	273	14.6	1	273	14.6	<u>273</u>	<u>14.6</u>	273	14.6
605.mcf_s	32	229	20.6	<u>229</u>	<u>20.6</u>	228	20.7	1	221	21.4	220	21.4	<u>220</u>	<u>21.4</u>
620.omnetpp_s	32	153	10.7	153	10.7	<u>153</u>	<u>10.7</u>	32	153	10.7	153	10.7	<u>153</u>	<u>10.7</u>
623.xalancbmk_s	32	73.1	19.4	<u>73.1</u>	<u>19.4</u>	73.4	19.3	1	<u>67.6</u>	<u>21.0</u>	68.2	20.8	67.5	21.0
625.x264_s	32	80.9	21.8	<u>81.0</u>	<u>21.8</u>	81.0	21.8	1	80.9	21.8	<u>81.0</u>	<u>21.8</u>	81.0	21.8
631.deepsjeng_s	32	201	7.14	203	7.07	<u>201</u>	<u>7.13</u>	32	201	7.14	203	7.07	<u>201</u>	<u>7.13</u>
641.leela_s	32	285	6.00	286	5.97	<u>285</u>	<u>5.98</u>	32	285	6.00	286	5.97	<u>285</u>	<u>5.98</u>
648.exchange2_s	32	110	26.7	110	26.7	<u>110</u>	<u>26.7</u>	32	110	26.7	110	26.7	<u>110</u>	<u>26.7</u>
657.xz_s	32	238	25.9	237	26.1	<u>238</u>	<u>26.0</u>	64	<u>232</u>	<u>26.7</u>	231	26.8	232	26.6

SPECspeed®2017_int_base = **14.2**

SPECspeed®2017_int_peak = **14.4**

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 SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022

Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-63"
LD_LIBRARY_PATH = "/home/cpu2017-1.1.9-amd-aocc400-genoa-Ble/amd_speed_aocc400_genoa_B_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "64"
```

Environment variables set by runcpu during the 602.gcc_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 605.mcf_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 623.xalancbmk_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 625.x264_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 657.xz_s peak run:

```
GOMP_CPU_AFFINITY = "0-63"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "8"
```

General Notes

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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:

Operating Mode set to Maximum Performance and then set it to Custom Mode
NUMA Nodes per Socket set to NPS4

```
Sysinfo program /home/cpu2017-1.1.9-amd-aocc400-genoa-Ble/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Thu Mar 23 05:44:29 2023
```

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 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022

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 249 (249.11+suse.124.g2bc0b2c447)
- 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 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
x86_64 x86_64 x86_64 GNU/Linux
```

```
-----
2. w
05:44:29 up 12:02, 1 user, load average: 0.79, 26.15, 47.24
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
root      ttyl    -              Wed17      11:59m     1.09s      0.11s      /bin/bash ./amd_speed_aocc400_genoa_B1.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) 1546734
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) 1546734
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_genoa.sh
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022

Platform Notes (Continued)

```

/bin/bash ./Run035-compliant-amd-speedint.sh
python3 ./run_amd_speed_aocc400_genoa_B1.py
/bin/bash ./amd_speed_aocc400_genoa_B1.sh
runcpu --config amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 intspeerd
runcpu --configfile amd_speed_aocc400_genoa_B1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed intspeerd --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.199/templogs/preenv.intspeerd.199.0.log --lognum 199.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017-1.1.9-amd-aocc400-genoa-B1e

```

```

6. /proc/cpuinfo
model name      : AMD EPYC 9354 32-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 17
stepping       : 1
microcode      : 0xa101111
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size       : 3584 4K pages
cpu cores      : 32
siblings       : 64
1 physical ids (chips)
64 processors (hardware threads)
physical id 0: core ids 0-3,8-11,16-19,24-27,32-35,40-43,48-51,56-59
physical id 0: apicids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
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 2.37.2:
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):                 64
On-line CPU(s) list:   0-63
Vendor ID:              AuthenticAMD
Model name:             AMD EPYC 9354 32-Core Processor
CPU family:             25
Model:                  17
Thread(s) per core:    2
Core(s) per socket:    32
Socket(s):              1
Stepping:               1
Frequency boost:        enabled
CPU max MHz:            3799.0720
CPU min MHz:            1500.0000
BogoMIPS:               6490.43
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 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
                        invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1
                        avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed®2017_int_base = 14.2

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Date: Mar-2023

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2023

Tested by: Lenovo Global Technology

Software Availability: Nov-2022

Platform Notes (Continued)

avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin arat npt lbrv
svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_lld
AMD-V

Virtualization:

L1d cache: 1 MiB (32 instances)
L1i cache: 1 MiB (32 instances)
L2 cache: 32 MiB (32 instances)
L3 cache: 256 MiB (8 instances)

NUMA node(s):

4
NUMA node0 CPU(s): 0-7,32-39
NUMA node1 CPU(s): 8-15,40-47
NUMA node2 CPU(s): 16-23,48-55
NUMA node3 CPU(s): 24-31,56-63

Vulnerability Itlb multihit:

Not affected

Vulnerability L1tf:

Not affected

Vulnerability Mds:

Not affected

Vulnerability Meltdown:

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

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	1M	8	Data	1	64	1	64
L1i	32K	1M	8	Instruction	1	64	1	64
L2	1M	32M	8	Unified	2	2048	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: 4 nodes (0-3)

node 0 cpus: 0-7,32-39

node 0 size: 96517 MB

node 0 free: 95847 MB

node 1 cpus: 8-15,40-47

node 1 size: 96729 MB

node 1 free: 96320 MB

node 2 cpus: 16-23,48-55

node 2 size: 96763 MB

node 2 free: 96272 MB

node 3 cpus: 24-31,56-63

node 3 size: 96696 MB

node 3 free: 95891 MB

node distances:

node 0 1 2 3

0: 10 12 12 12

1: 12 10 12 12

2: 12 12 10 12

3: 12 12 12 10

9. /proc/meminfo

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022

Platform Notes (Continued)

MemTotal: 395988600 kB

10. who -r
run-level 3 Mar 22 17:41

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
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@ haveged irqbalance
issue-generator kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog
smartd sshd wickd wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
enabled-runtime systemd-remount-fs
disabled autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
chronyd console-getty cups cups-browsed debug-shell ebtables exchange-bmc-os-info
firewalld gpm grub2-once haveged-switch-root hwloc-dump-hwdata ipmi ipmievd
issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap rdisc
rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts 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-5.14.21-150400.22-default
root=UUID=b688f3c1-4135-48b5-a7b5-149c36a17cd9
splash=silent
mitigations=auto
quiet
security=apparmor

14. cpupower frequency-info
analyzing CPU 0:
current policy: frequency should be within 1.50 GHz and 3.25 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

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

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

Test Date: Mar-2023
Hardware Availability: Apr-2023
Software Availability: Nov-2022

Platform Notes (Continued)

```

vm.min_unmapped_ratio      1
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 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 SP4

```

```

-----
19. Disk information
SPEC is set to: /home/cpu2017-1.1.9-amd-aocc400-genoa-B1e
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda3       xfs   446G   54G  392G  13% /

```

```

-----
20. /sys/devices/virtual/dmi/id
Vendor:         Lenovo
Product:        ThinkSystem SR655V3
Product Family: ThinkSystem
Serial:         1234567890

```

```

-----
21. dmidecode
Additional information from dmidecode 3.2 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:
  11x Samsung M321R4GA3BB0-CQKEG 32 GB 2 rank 4800
  1x Samsung M321R4GA3BB0-CQKMG 32 GB 2 rank 4800

```

```

-----
22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Lenovo
BIOS Version:     KAE109F-1.40

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

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

Test Date: Mar-2023
Hardware Availability: Apr-2023
Software Availability: Nov-2022

Platform Notes (Continued)

BIOS Date: 02/27/2023
BIOS Revision: 1.40
Firmware Revision: 1.40

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 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/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 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
=====

=====
Fortran | 648.exchange2_s(base, peak)
=====

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
=====

Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang

Base Portability Flags

600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed®2017_int_base = 14.2

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Date: Mar-2023

Test Sponsor: Lenovo Global Technology

Hardware Availability: Apr-2023

Tested by: Lenovo Global Technology

Software Availability: Nov-2022

Base Portability Flags (Continued)

```
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
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -fopenmp=libomp -lomp -lamdlibm -lflang
-lamdalloc
```

C++ benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fvirtual-function-elimination -fvisibility=hidden -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc-ext
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz, AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022

Base Other Flags

C benchmarks:

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

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

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: basepeak = yes

602.gcc_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

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

-Wl,-allow-multiple-definition -z muldefs -Ofast

-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp

-flto -fstruct-layout=9 -mllvm -unroll-threshold=50

-fremap-arrays -fstrip-mining

-mllvm -inline-threshold=1000

-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt

-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022

Peak Optimization Flags (Continued)

```
605.mcf_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

625.x264_s: Same as 605.mcf_s

657.xz_s: Same as 605.mcf_s

C++ benchmarks:

620.omnetpp_s: basepeak = yes

```
623.xalancbmk_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-do-block-reorder=aggressive -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang
```

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak Other Flags

C benchmarks:

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

C++ benchmarks:

-Wno-unused-command-line-argument

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR655 V3
(3.25 GHz,AMD EPYC 9354)

SPECspeed®2017_int_base = 14.2

SPECspeed®2017_int_peak = 14.4

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Mar-2023

Hardware Availability: Apr-2023

Software Availability: Nov-2022

Peak Other Flags (Continued)

Fortran benchmarks:

-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-Genoa-R.html>

<http://www.spec.org/cpu2017/flags/aocc400-flags.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-R.xml>

<http://www.spec.org/cpu2017/flags/aocc400-flags.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.

Tested with SPEC CPU®2017 v1.1.9 on 2023-03-22 17:44:28-0400.

Report generated on 2023-04-26 09:50:11 by CPU2017 PDF formatter v6716.

Originally published on 2023-04-25.