



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SD535 V3
(2.70 GHz, AMD EPYC 9755)

SPECspeed®2017_fp_base = 437

SPECspeed®2017_fp_peak = 438

CPU2017 License: 9017

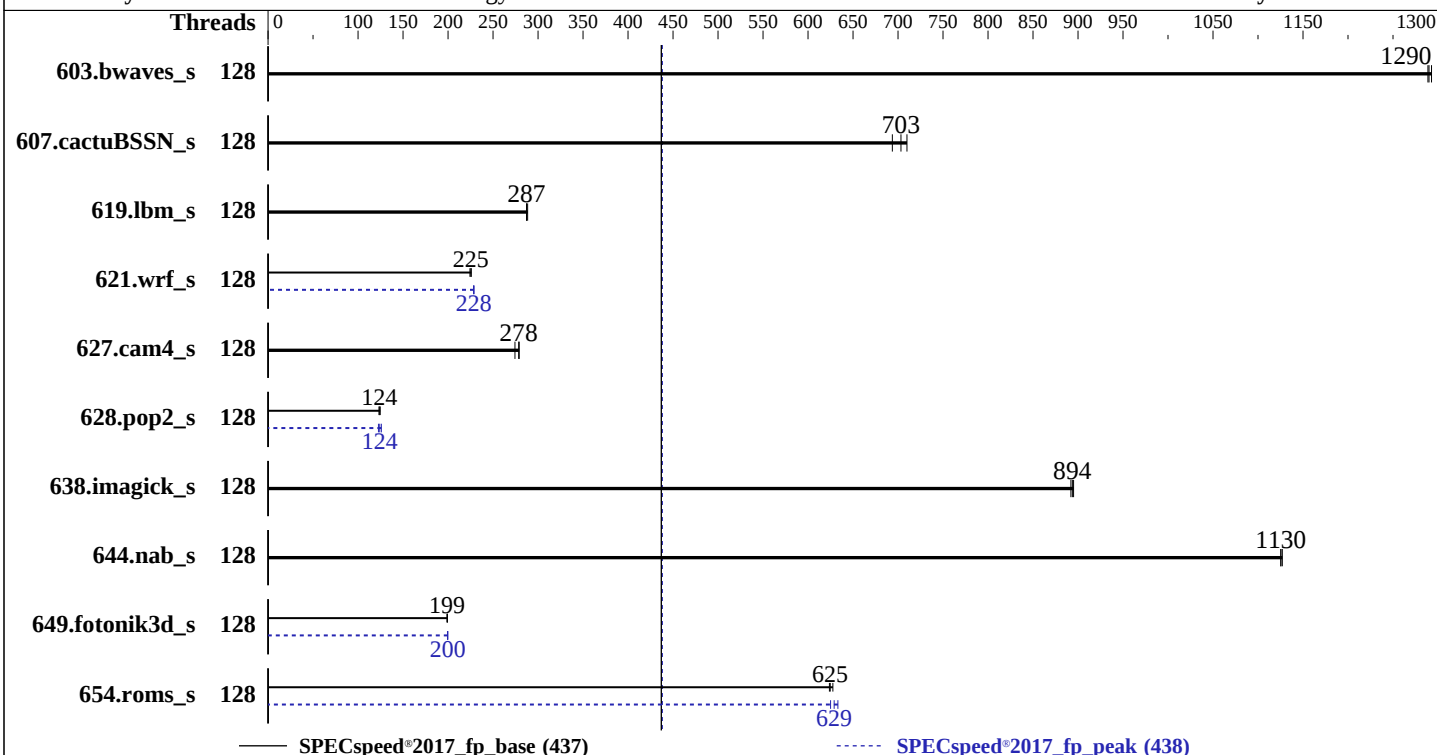
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: May-2025

Hardware Availability: Jul-2025

Software Availability: Mar-2025



Hardware

CPU Name: AMD EPYC 9755
Max MHz: 4100
Nominal: 2700
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: 512 MB I+D on chip per chip,
32 MB shared / 8 cores
Other: None
Memory: 384 GB (12 x 32 GB 2Rx8 PC5-6400B-R)
Storage: 1 x 960 GB M.2 SATA SSD
Other: CPU Cooling: DLC

Software

OS: SUSE Linux Enterprise Server 15 SP6
Kernel 6.4.0-150600.23.38-default
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Lenovo BIOS Version GPE119F 5.20 released Apr-2025
File System: btrfs
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



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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	45.8	1290	<u>45.7</u>	<u>1290</u>	45.6	1290	128	45.8	1290	<u>45.7</u>	<u>1290</u>	45.6	1290		
607.cactuBSSN_s	128	<u>23.7</u>	<u>703</u>	23.5	710	24.0	694	128	<u>23.7</u>	<u>703</u>	23.5	710	24.0	694		
619.lbm_s	128	18.2	287	18.2	288	<u>18.2</u>	<u>287</u>	128	18.2	287	18.2	288	<u>18.2</u>	<u>287</u>		
621.wrf_s	128	58.6	226	<u>58.7</u>	<u>225</u>	59.0	224	128	57.8	229	<u>57.9</u>	<u>228</u>	57.9	228		
627.cam4_s	128	<u>31.8</u>	<u>278</u>	32.3	274	31.8	279	128	<u>31.8</u>	<u>278</u>	32.3	274	31.8	279		
628.pop2_s	128	96.4	123	<u>95.7</u>	<u>124</u>	95.3	125	128	96.8	123	<u>95.7</u>	<u>124</u>	94.3	126		
638.imagick_s	128	<u>16.1</u>	<u>894</u>	16.2	892	16.1	895	128	<u>16.1</u>	<u>894</u>	16.2	892	16.1	895		
644.nab_s	128	15.5	1130	15.5	1130	<u>15.5</u>	<u>1130</u>	128	15.5	1130	15.5	1130	<u>15.5</u>	<u>1130</u>		
649.fotonik3d_s	128	45.7	199	<u>45.8</u>	<u>199</u>	45.9	199	128	45.7	199	45.6	200	<u>45.7</u>	<u>200</u>		
654.roms_s	128	25.1	628	<u>25.2</u>	<u>625</u>	25.2	624	128	25.2	625	24.9	633	<u>25.0</u>	<u>629</u>		

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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.

cpupower set to performance mode
cpupower frequency-set -r -g performance
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.



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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 621.wrf_s peak run:

GOMP_CPU_AFFINITY = "0-127"

Environment variables set by runcpu during the 628.pop2_s peak run:

GOMP_CPU_AFFINITY = "0-127"

Environment variables set by runcpu during the 649.fotonik3d_s peak run:

GOMP_CPU_AFFINITY = "0-127"

Environment variables set by runcpu during the 654.roms_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

L1 Stride Prefetcher set to Disabled

GMI Folding set to Disabled

P-State set to Enabled

SMT Mode set to Disabled

BMC Configuration:

Fan Speed Boost set to High

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 May 23 18:34:46 2025

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

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1. uname -a

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Platform Notes (Continued)

```
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 254 (254.23+suse.141.g9376e684d0)
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.localdomain 6.4.0-150600.23.38-default #1 SMP PREEMPT_DYNAMIC Thu Feb  6 08:53:28 UTC 2025
(cb92f8c/lp) x86_64 x86_64 x86_64 GNU/Linux
-----

2. w
18:34:46 up 38 min,  3 users,  load average: 0.00, 7.19, 33.54
USER   TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
root   tty1      -              17:56    16.00s  0.88s  0.08s /bin/bash ./amd_speed_aocc500_znver5_A1.sh
root   pts/0    10.131.216.164  18:29    30.00s  0.03s  0.03s -bash
-----

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) 1543250
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) 1543250
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
-----

5. sysinfo process ancestry
```

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Platform Notes (Continued)

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=31
login -- root
-bash
/bin/bash ./autoSpec.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/CPU2017.035/templots/preenv.fpspeed.035.0.log --lognum 035.0 --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 9755 128-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 26
model          : 2
stepping       : 1
microcode      : 0xb002147
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
0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
240-247
physical id 0: apicids
0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
240-247
```

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 2.39.3:

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
Model name:	AMD EPYC 9755 128-Core Processor
CPU family:	26
Model:	2
Thread(s) per core:	1
Core(s) per socket:	128
Socket(s):	1
Stepping:	1
Frequency boost:	enabled
CPU(s) scaling MHz:	104%
CPU max MHz:	2700.0000
CPU min MHz:	1500.0000
BogoMIPS:	5391.57

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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 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 bpeext
perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate ssbd mba perfmon_v2
ibrs ibpb stibp ibrs_enhanced vmmcall fsgsbase tsc_adjust bmi1 avx2
smep bmi2 erms invpcid 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 user_shstk avx_vnni avx512_bf16 clzero irperf
xsaveerptr rdpru wbnoinvd amd_ppin cppc amd_ibpb_ret arat npt lbrv
svm_lock nrp_save tsc_scale vmcb_clean flushbyasid decodeassists
pausefilter pfthreshold avic v_vmsave_vmload vgif x2avic v_spec_ctrl
vnni 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_l1d debug_swap amd_lbr_pmc_freeze

Virtualization:

L1d cache:

L1i cache:

L2 cache:

L3 cache:

NUMA node(s):

NUMA node0 CPU(s):

Vulnerability Gather data sampling:

Vulnerability Itlb multihit:

Vulnerability L1tf:

Vulnerability Mds:

Vulnerability Meltdown:

Vulnerability Mmio stale data:

Vulnerability Reg file data sampling:

Vulnerability Retbleed:

Vulnerability Spec rstack overflow:

Vulnerability Spec store bypass:

Vulnerability Spectre v1:

Vulnerability Spectre v2:

AMD-V

6 MiB (128 instances)

4 MiB (128 instances)

128 MiB (128 instances)

512 MiB (16 instances)

1

0-127

Not affected

Not affected

Not affected

Not affected

Not affected

Not affected

Not affected

Not affected

Mitigation; Speculative Store Bypass disabled via prctl

Mitigation; usercopy/swaps barriers and __user pointer sanitization

disabled; Enhanced / Automatic IBRS; IBPB conditional; STIBP

disabled; RSB filling; PBRBS-eIBRS Not affected; BHI 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	512M	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: 385838 MB

node 0 free: 384306 MB

node distances:

node 0

0: 10

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Platform Notes (Continued)

9. /proc/meminfo

MemTotal: 395098196 kB

10. who -r

run-level 3 May 23 17:56

11. Systemd service manager version: systemd 254 (254.23+suse.141.g9376e684d0)

Default Target Status

multi-user running

12. Services, from systemctl list-unit-files

STATE UNIT FILES

enabled ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online apparmor
auditd cron getty@ irqbalance issue-generator kbdsettings kdump kdump-early kdump-notify
postfix purge-kernels rollback sshd systemd-pstore wpa_supplicant

enabled-runtime systemd-remount-fs

disabled boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell dnsmasq
exchange-bmc-os-info fsidd grub2-once haveged hwloc-dump-hwdata ipmievdp issue-add-ssh-keys
kexec-load lunmask nfs nfs-blkmap rpcbind rpmconfigcheck serial-getty@
systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysext
systemd-time-wait-sync systemd-timesyncd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
wickedd-nanny wpa_supplicant@

indirect systemd-userdbd wickedd

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

BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.23.38-default
root=UUID=147e3142-0ecf-4fa7-9f93-9bb26d5961ba
splash=silent
resume=/dev/disk/by-uuid/766bbc21-8ff4-4ceb-afcf-dc132eb393db
mitigations=auto
quiet
security=apparmor
crashkernel=383M,high
crashkernel=72M,low

14. cpupower frequency-info

analyzing CPU 40:

current policy: frequency should be within 1.50 GHz and 2.70 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	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

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Platform Notes (Continued)

```
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
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 SP6
```

```
-----
19. 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/sda2       btrfs 139G  9.6G 127G   7% /home
```

```
-----
20. /sys/devices/virtual/dmi/id
Vendor:      Lenovo
Product:     ThinkSystem SD535 V3
Product Family: ThinkSystem
Serial:      1234567890
```

```
-----
21. dmidecode
Additional information from dmidecode 3.6 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:
  10x Samsung M321R4GA3PB2-CCPKC 32 GB 2 rank 6400
  2x Samsung M321R4GA3PB2-CCPPC 32 GB 2 rank 6400
```

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Platform Notes (Continued)

22. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: Lenovo
BIOS Version: GPE119F-5.20
BIOS Date: 04/25/2025
BIOS Revision: 5.20
Firmware Revision: 8.10

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
=====



SPEC CPU®2017 Floating Point Speed Result

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Lenovo Global Technology

ThinkSystem SD535 V3
(2.70 GHz, AMD EPYC 9755)

SPECspeed®2017_fp_base = 437

SPECspeed®2017_fp_peak = 438

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: May-2025

Hardware Availability: Jul-2025

Software Availability: Mar-2025

Base Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

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

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Base Optimization Flags (Continued)

Fortran benchmarks (continued):

-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
-Wl,-mllvm -Wl,-enable-X86-prefetching -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 -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 -flto
-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



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Peak Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

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: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

Fortran benchmarks:

603.bwaves_s: basepeak = yes

649.fotonik3d_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver5 -fveclib=AMDLIBM -ffast-math
-fopenmp -flto -mllvm -reduce-array-computations=3
-Mrecursive -zopt -fopenmp=libomp -lomp -lamdlibm
-lamdalloc -lflang

654.roms_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver5 -fveclib=AMDLIBM -ffast-math

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Peak Optimization Flags (Continued)

654.roms_s (continued):

-fopenmp -fscalar-transform -fvector-transform
-mllvm -reduce-array-computations=3 -Mrecursive
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

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
-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: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -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 -fscalar-transform
-fvector-transform -Mrecursive -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

Peak Other Flags

C benchmarks:

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

Fortran benchmarks:

-Wno-unused-command-line-argument

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Peak Other Flags (Continued)

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-G.html>

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.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-Turin-G.xml>

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

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