SPEC CPU®2017 Floating Point Speed Result

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ASUSTeK Computer Inc.

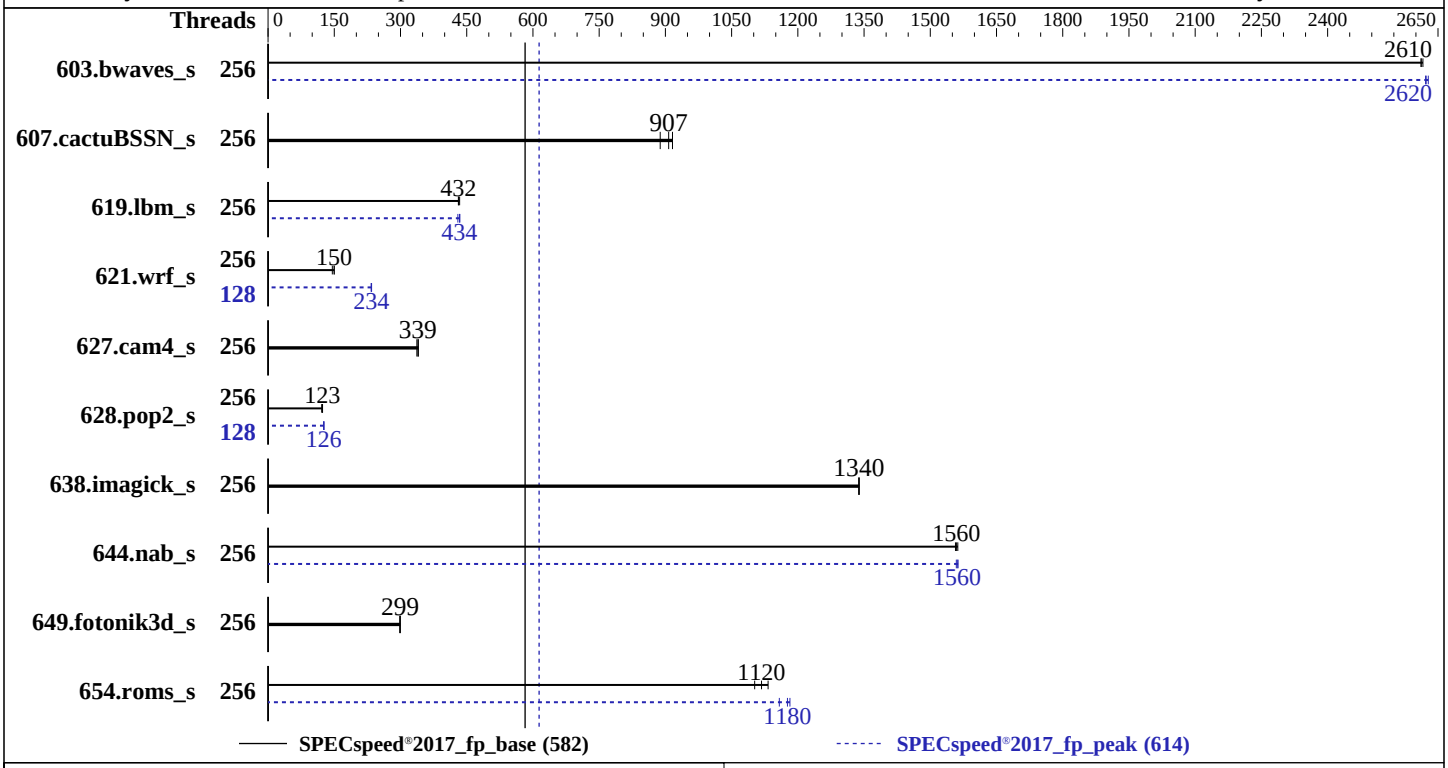
ASUS RS720A-E13-RS8U
(2.70 GHz, AMD EPYC 9755)

SPECspeed®2017_fp_base = 582

SPECspeed®2017_fp_peak = 614

CPU2017 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Feb-2026
Hardware Availability: Mar-2025
Software Availability: Oct-2024



Hardware

CPU Name:	AMD EPYC 9755
Max MHz:	4100
Nominal:	2700
Enabled:	256 cores, 2 chips
Orderable:	1,2 chips
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:	768 GB (24 x 32 GB 2Rx4 PC5-6400B-R)
Storage:	1 x 4.0 TB PCIe NVMe SSD
Other:	CPU Cooling: Air

Software

OS:	SUSE Linux Enterprise Server 15 SP6 (x86_64) Kernel 6.4.0-150600.21-default
Compiler:	C/C++/Fortran: Version 5.0.0 of AOCC
Parallel:	Yes
Firmware:	Version 1002 released Oct-2025
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.

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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	256	22.6	2610	22.6	2620	**22.6**	**2610**	256	22.5	2620	**22.5**	**2620**	22.4	2630
607.cactuBSSN_s	256	**18.4**	**907**	18.8	888	18.2	916	256	**18.4**	**907**	18.8	888	18.2	916
619.lbm_s	256	12.2	431	12.1	434	**12.1**	**432**	256	12.1	434	**12.1**	**434**	12.2	430
621.wrf_s	256	88.3	150	**88.3**	**150**	90.8	146	128	56.6	234	**56.5**	**234**	56.4	235
627.cam4_s	256	**26.1**	**339**	26.3	337	26.0	341	256	**26.1**	**339**	26.3	337	26.0	341
628.pop2_s	256	**96.3**	**123**	97.8	121	96.2	123	128	**94.1**	**126**	94.2	126	93.8	127
638.imagick_s	256	10.8	1340	**10.8**	**1340**	10.8	1340	256	10.8	1340	**10.8**	**1340**	10.8	1340
644.nab_s	256	**11.2**	**1560**	11.2	1560	11.2	1560	256	**11.2**	**1560**	11.2	1560	11.2	1560
649.fotonik3d_s	256	30.5	298	**30.5**	**299**	30.5	299	256	30.5	298	**30.5**	**299**	30.5	299
654.roms_s	256	13.9	1130	14.3	1100	**14.1**	**1120**	256	13.6	1160	13.3	1180	**13.4**	**1180**

SPECspeed®2017_fp_base = 582

SPECspeed®2017_fp_peak = 614

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
OS set to performance mode via cpupower frequency-set -g performance
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.
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-255"
LD_LIBRARY_PATH =
      "/aocc500A1/amd_speed_aocc500_znver5_A_lib/lib:/aocc500A1/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 = "256"

Environment variables set by runcpu during the 603.bwaves_s peak run:
GOMP_CPU_AFFINITY = "0-255"

Environment variables set by runcpu during the 619.lbm_s peak run:
GOMP_CPU_AFFINITY = "0-255"

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 644.nab_s peak run:
GOMP_CPU_AFFINITY = "0-255"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0-255"
```

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:
SR-IOV Support = Disabled
SVM Mode = Disabled
L1 Stride Prefetcher = Disabled
APBDIS = 1
SMT Control = Disable
Determinism Control = Manual
DRAM Scrub time = Disabled
Engine Boost = Aggressive
TDP Control = Manual
TDP = 500
PPT Control = Manual
PPT = 500
BMC Configuration:
```

(Continued on next page)

Platform Notes (Continued)

```
 Fan mode = Full speed mode

  Sysinfo program /aocc500A1/bin/sysinfo
  Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
  running on localhost Fri Feb 13 09:27:02 2026

  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 254 (254.10+suse.84.ge8d77af424)
  12. Services, from systemctl list-unit-files
  13. Linux kernel boot-time arguments, from /proc/cmdline
  14. cpupower frequency-info
  15. tuned-adm active
  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 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
    x86_64 x86_64 x86_64 GNU/Linux

  ------------------------------------------------------------
  2. w
     09:27:02 up 1 min,  1 user,  load average: 0.47, 0.20, 0.08
    USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
    root     tty1     -                09:26   13.00s  0.99s  0.11s /bin/bash ./amd_speed_aocc500_znver5_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) 3093693
    max locked memory       (kbytes, -l) 2097152
    max memory size         (kbytes, -m) unlimited
```

(Continued on next page)

Platform Notes (Continued)

```
  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) 3093693
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=42
 login -- root
 -bash
 /bin/bash ./speed.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/CPU2017.008/templogs/preenv.fpspeed.008.0.log --lognum 008.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /aocc500A1

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9755 128-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 2
    stepping        : 1
    microcode       : 0xb002151
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
    TLB size        : 192 4K pages
    cpu cores       : 128
    siblings        : 128
    2 physical ids (chips)
    256 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 1: 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
    physical id 1: apicids
    256-263,272-279,288-295,304-311,320-327,336-343,352-359,368-375,384-391,400-407,416-423,432-439,448-455,4
    64-471,480-487,496-503
  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
```

(Continued on next page)

Platform Notes (Continued)

```
Address sizes:                       52 bits physical, 57 bits virtual
Byte Order:                          Little Endian
CPU(s):                              256
On-line CPU(s) list:                 0-255
Vendor ID:                           AuthenticAMD
BIOS Vendor ID:                      Advanced Micro Devices, Inc.
Model name:                          AMD EPYC 9755 128-Core Processor
BIOS Model name:                     AMD EPYC 9755 128-Core Processor              Unknown CPU @ 2.7GHz
BIOS CPU family:                     107
CPU family:                          26
Model:                               2
Thread(s) per core:                  1
Core(s) per socket:                  128
Socket(s):                           2
Stepping:                            1
Frequency boost:                     enabled
CPU(s) scaling MHz:                  37%
CPU max MHz:                         4121.1909
CPU min MHz:                         1500.0000
BogoMIPS:                            5391.78
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 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 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 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_l1d debug_swap
L1d cache:                           12 MiB (256 instances)
L1i cache:                           8 MiB (256 instances)
L2 cache:                            256 MiB (256 instances)
L3 cache:                            1 GiB (32 instances)
NUMA node(s):                        2
NUMA node0 CPU(s):                   0-127
NUMA node1 CPU(s):                   128-255
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 Reg file data sampling: 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; PBRSB-eIBRS Not affected; BHI Not affected
```

(Continued on next page)

Platform Notes (Continued)

```
  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      12M   12 Data            1    64        1             64
     L1i       32K       8M    8 Instruction     1    64        1             64
     L2         1M     256M   16 Unified         2  1024        1             64
     L3        32M       1G   16 Unified         3 32768        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: 0-127
  node 0 size: 386601 MB
  node 0 free: 385452 MB
  node 1 cpus: 128-255
  node 1 size: 386848 MB
  node 1 free: 385912 MB
  node distances:
  node   0   1
    0:  10  32
    1:  32  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       792012144 kB

------------------------------------------------------------
10. who -r
  run-level 3 Feb 13 09:26

------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
  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 display-manager getty@ irqbalance
                   issue-generator kbdsettings klog lvm2-monitor nscd nvmefc-boot-connections
                   nvmf-autoconnect postfix purge-kernels rollback rsyslog smartd sshd systemd-pstore wicked
                   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 fsidd gpm grub2-once haveged hwloc-dump-hwdata ipmi ipmievd issue-add-ssh-keys
                   kexec-load lunmask man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd
                   serial-getty@ smartd_generate_opts snmpd snmptrapd svnserve systemd-boot-check-no-failures
                   systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
                   systemd-timesyncd tuned udisks2 vncserver@
  indirect         systemd-userdbd wickedd

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
  root=UUID=bd4eeb48-8f2c-47c9-ae06-b7241b1d0eb7
  splash=silent
```

(Continued on next page)

Platform Notes (Continued)

```
  mitigations=auto
  quiet
  security=apparmor
  video=1024x768

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 75:
    current policy: frequency should be within 1.50 GHz and 2.70 GHz.
                    The governor "ondemand" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. tuned-adm active
  It seems that tuned daemon is not running, preset profile is not activated.
  Preset profile: throughput-performance

------------------------------------------------------------
16. 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
  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

------------------------------------------------------------
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

------------------------------------------------------------
```

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Platform Notes (Continued)

```
19. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP6

------------------------------------------------------------
20. Disk information
SPEC is set to: /aocc500A1
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p4 xfs   2.0T  383G  1.7T  19% /

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         ASUSTeK COMPUTER INC.
    Product:        RS720A-E13-RS8U
    Product Family: Server
    Serial:         123456789012

------------------------------------------------------------
22. 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:
    6x Samsung M321R4GA3PB2-CCPEC 32 GB 2 rank 6400
    12x Samsung M321R4GA3PB2-CCPKC 32 GB 2 rank 6400
    6x Samsung M321R4GA3PB2-CCPPC 32 GB 2 rank 6400


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       American Megatrends Inc.
   BIOS Version:      1002
   BIOS Date:         10/14/2025
   BIOS Revision:     10.2
```

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#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin
--------------------------------------------------------------------------------------------------------------

==============================================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
--------------------------------------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin
```

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Compiler Version Notes (Continued)

```
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/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#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/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#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin
------------------------------------------------------------------------------
```

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`

(Continued on next page)

Base Portability Flags (Continued)

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
-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

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Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt
-mllvm -loop-unswitch-threshold=200000 -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

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 -lamdlibm -lamdalloc -lflang`

638.imagick_s: `basepeak = yes`

644.nab_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 -mrecip=none -fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang`

Fortran benchmarks:

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

649.fotonik3d_s: `basepeak = yes`

654.roms_s: `Same as 603.bwaves_s`

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`

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Peak Optimization Flags (Continued)

621.wrf_s (continued):
-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

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/ASUSTekPlatform-Settings-AMD-K15-V1.2.html
http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.00.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/ASUSTekPlatform-Settings-AMD-K15-V1.2.xml
http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.00.xml

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