



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

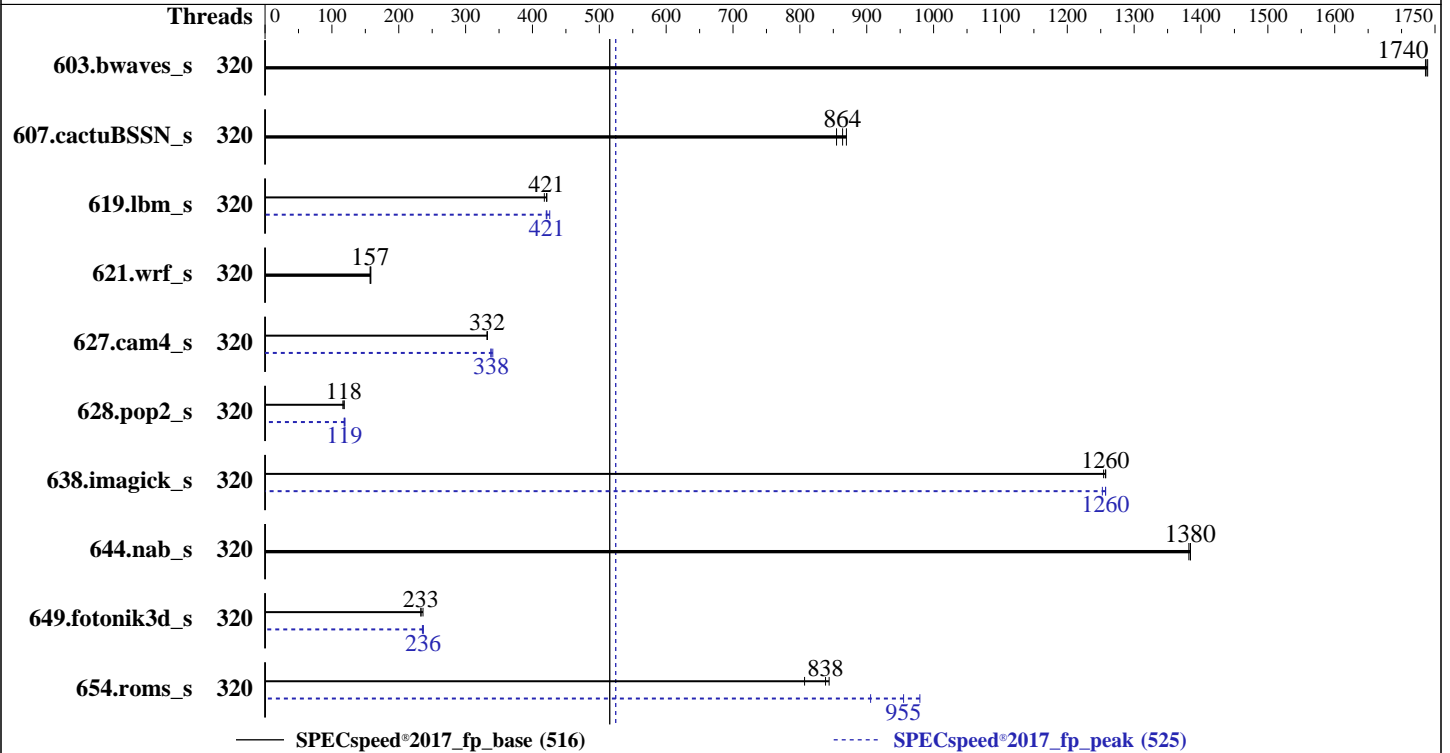
Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024



Hardware

CPU Name: AMD EPYC 9845
 Max MHz: 3700
 Nominal: 2100
 Enabled: 320 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: 320 MB I+D on chip per chip,
 32 MB shared / 16 cores
 Other: None
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R,
 running at 6000)
 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 0303 released Nov-2024
 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 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECSpeed®2017_fp_base = 516

SPECSpeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	320	34.0	1740	<u>33.9</u>	<u>1740</u>	33.9	1740	320	34.0	1740	<u>33.9</u>	<u>1740</u>	33.9	1740
607.cactuBSSN_s	320	<u>19.3</u>	<u>864</u>	19.2	870	19.5	855	320	<u>19.3</u>	<u>864</u>	19.2	870	19.5	855
619.lbm_s	320	12.4	422	12.5	418	<u>12.4</u>	<u>421</u>	320	12.5	421	<u>12.4</u>	<u>421</u>	12.3	426
621.wrf_s	320	<u>84.0</u>	<u>157</u>	84.1	157	83.6	158	320	<u>84.0</u>	<u>157</u>	84.1	157	83.6	158
627.cam4_s	320	26.6	333	26.7	332	<u>26.7</u>	<u>332</u>	320	26.0	341	<u>26.2</u>	<u>338</u>	26.2	338
628.pop2_s	320	102	116	100	118	<u>101</u>	<u>118</u>	320	100	118	99.4	119	<u>99.7</u>	<u>119</u>
638.imagick_s	320	<u>11.5</u>	<u>1260</u>	11.5	1250	11.5	1260	320	<u>11.5</u>	<u>1260</u>	11.5	1260	11.5	1250
644.nab_s	320	<u>12.6</u>	<u>1380</u>	12.6	1380	12.6	1380	320	<u>12.6</u>	<u>1380</u>	12.6	1380	12.6	1380
649.fotonik3d_s	320	39.1	233	<u>39.1</u>	<u>233</u>	38.6	236	320	38.7	235	<u>38.6</u>	<u>236</u>	38.5	237
654.roms_s	320	19.5	807	18.7	844	<u>18.8</u>	<u>838</u>	320	17.4	906	16.1	979	<u>16.5</u>	<u>955</u>

SPECSpeed®2017_fp_base = **516**

SPECSpeed®2017_fp_peak = **525**

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.



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-319"
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 = "320"
```

Environment variables set by runcpu during the 619.lbm_s peak run:

```
GOMP_CPU_AFFINITY = "0-319"
```

Environment variables set by runcpu during the 627.cam4_s peak run:

```
GOMP_CPU_AFFINITY = "0-319"
```

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

```
GOMP_CPU_AFFINITY = "0-319"
```

Environment variables set by runcpu during the 638.imagick_s peak run:

```
GOMP_CPU_AFFINITY = "0-319"
```

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

```
GOMP_CPU_AFFINITY = "0-319"
```

Environment variables set by runcpu during the 654.roms_s peak run:

```
GOMP_CPU_AFFINITY = "0-319"
```

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 = 400
PPT Control = Manual
PPT = 400
BMC Configuration:
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Platform Notes (Continued)

Fan mode = Full speed mode

Sysinfo program /aocc500A1/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost Mon Dec 23 22:23:50 2024

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
22:23:50 up 5:58, 1 user, load average: 213.86, 279.76, 288.08
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 16:26 5:55m 0.91s 0.06s /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) 6189887
max locked memory (kbytes, -l) 2097152
max memory size (kbytes, -m) unlimited
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

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) 6189887
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/CPU2017.353/templots/preenv.fpspeed.353.0.log --lognum 353.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /aocc500A1

```

6. /proc/cpuinfo

```

model name      : AMD EPYC 9845 160-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 26
model          : 17
stepping       : 0
microcode      : 0xb101021
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size      : 192 4K pages
cpu cores     : 160
siblings      : 160
2 physical ids (chips)
320 processors (hardware threads)
physical id 0: core ids 0-159
physical id 1: core ids 0-159
physical id 0: apicids 0-159
physical id 1: apicids 256-415

```

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):                 320
On-line CPU(s) list:   0-319
Vendor ID:              AuthenticAMD
BIOS Vendor ID:         Advanced Micro Devices, Inc.
Model name:             AMD EPYC 9845 160-Core Processor
BIOS Model name:       AMD EPYC 9845 160-Core Processor

```

Unknown CPU @ 2.1GHz

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Platform Notes (Continued)

```

BIOS CPU family:      107
CPU family:           26
Model:                17
Thread(s) per core:  1
Core(s) per socket:  160
Socket(s):            2
Stepping:             0
Frequency boost:      enabled
CPU(s) scaling MHz:  57%
CPU max MHz:          3718.0659
CPU min MHz:          1500.0000
BogoMIPS:              4200.11
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 fl6c 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 bmil 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 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_lld debug_swap

Lld cache:            15 MiB (320 instances)
L1i cache:            10 MiB (320 instances)
L2 cache:              320 MiB (320 instances)
L3 cache:              640 MiB (20 instances)
NUMA node(s):         2
NUMA node0 CPU(s):   0-159
NUMA node1 CPU(s):   160-319
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/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:           Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
                                      disabled; RSB filling; PBRSE-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	15M	12	Data	1	64	1	64
L1i	32K	10M	8	Instruction	1	64	1	64
L2	1M	320M	16	Unified	2	1024	1	64

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

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

Test Date: Dec-2024
Hardware Availability: Dec-2024
Software Availability: Oct-2024

Platform Notes (Continued)

L3 32M 640M 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: 0-159
node 0 size: 773558 MB
node 0 free: 771327 MB
node 1 cpus: 160-319
node 1 size: 773939 MB
node 1 free: 772953 MB
node distances:
node  0  1
  0: 10 32
  1: 32 10
```

9. /proc/meminfo

```
MemTotal: 1584637848 kB
```

10. who -r

```
run-level 3 Dec 23 16:26
```

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 nvme-fc-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 ebttables 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-sysextd 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
mitigations=auto
quiet
security=apparmor
video=1024x768
```

14. cpupower frequency-info

```
analyzing CPU 3:
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Platform Notes (Continued)

current policy: frequency should be within 1.50 GHz and 2.10 GHz.
The governor "performance" 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: latency-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

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

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

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

Test Date: Dec-2024
Hardware Availability: Dec-2024
Software Availability: Oct-2024

Platform Notes (Continued)

/dev/nvme0n1p4 xfs 2.0T 265G 1.8T 13% /

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:
24x Samsung M321R8GA0EB2-CCPPC 64 GB 2 rank 6400, configured at 6000

23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: American Megatrends Inc.
BIOS Version: 0303
BIOS Date: 11/19/2024
BIOS Revision: 3.3

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)

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Compiler Version Notes (Continued)

Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

Fortran, C | 621.wrf_s(base, peak) 627.cam4_s(base, peak) 628.pop2_s(base, peak)

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

Base Compiler Invocation

C benchmarks:
clang

Fortran benchmarks:
flang

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



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECSpeed®2017_fp_base = 516

SPECSpeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

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
-freemap-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
-freemap-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
-freemap-arrays -fstrip-mining -fstruct-layout=7
-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
```



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

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

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Peak Optimization Flags (Continued)

619.lbm_s (continued):

```
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang
```

638.imagick_s: Same as 619.lbm_s

644.nab_s: basepeak = yes

Fortran benchmarks:

603.bwaves_s: basepeak = yes

```
649.fotonik3d_s: -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
-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: basepeak = yes

```
627.cam4_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 -Mrecursive
-mrecip=none -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang
```

```
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
```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASUSTeK Computer Inc.

ASUS RS720A-E13-RS8U
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2017_fp_base = 516

SPECspeed®2017_fp_peak = 525

CPU2017 License: 9016

Test Sponsor: ASUSTeK Computer Inc.

Tested by: ASUSTeK Computer Inc.

Test Date: Dec-2024

Hardware Availability: Dec-2024

Software Availability: Oct-2024

Peak Optimization Flags (Continued)

628.pop2_s (continued):

```
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -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-V1.1.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-V1.1.xml>

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.00.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 2024-12-23 09:23:50-0500.

Report generated on 2025-01-15 12:35:15 by CPU2017 PDF formatter v6716.

Originally published on 2025-01-14.