SPEC CPU®2026 Floating Point Speed Result

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ASUSTeK Computer Inc.

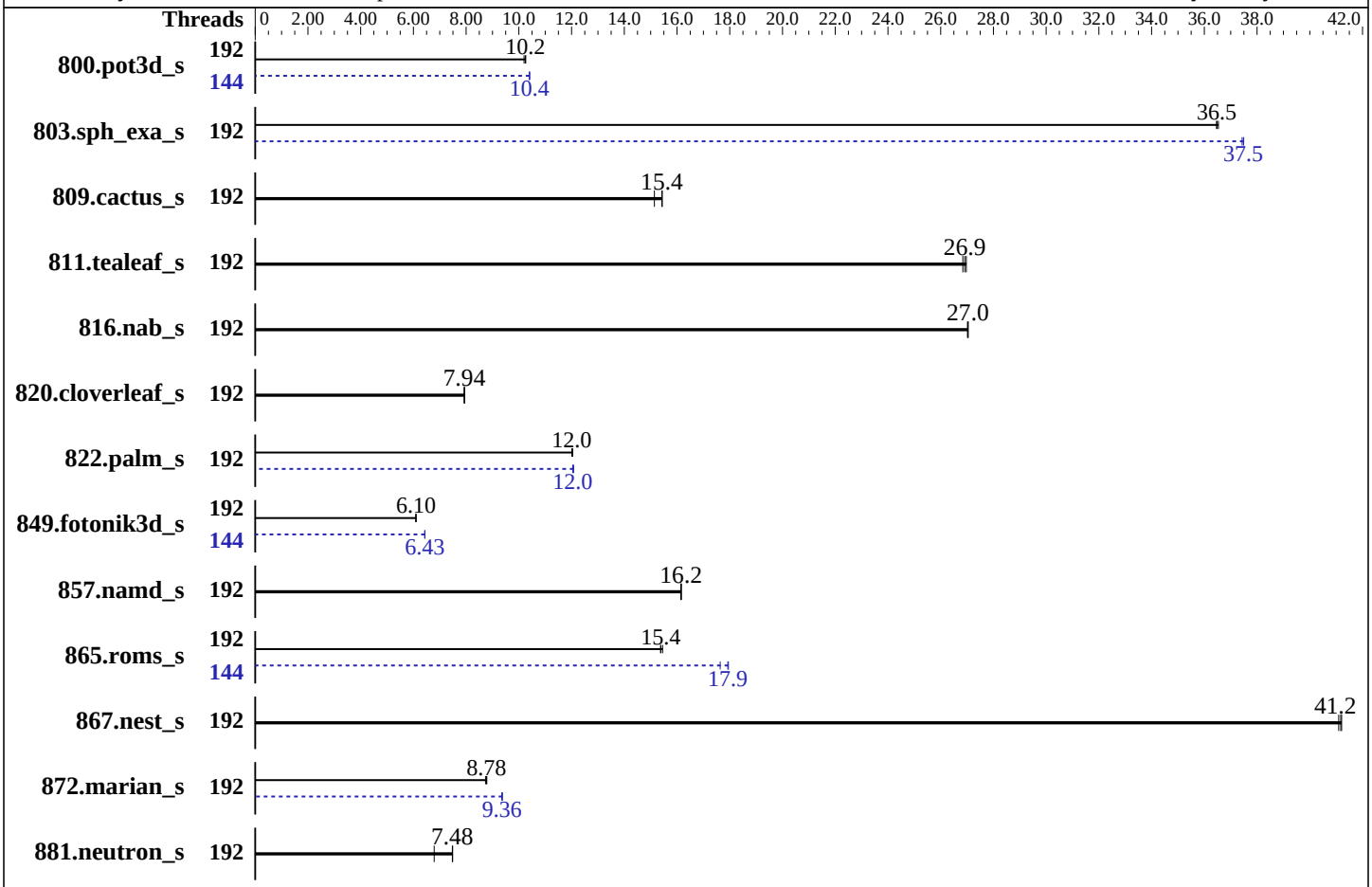
ASUS RS520QA-E13-RS8U
(2.25 GHz, AMD EPYC 9965)

SPECspeed®2026_fp_base = 14.8

SPECspeed®2026_fp_peak = 15.2

CPU2026 License: 9016
Test Sponsor: ASUSTeK Computer Inc.
Tested by: ASUSTeK Computer Inc.

Test Date: Jul-2026
Hardware Availability: Jun-2025
Software Availability: May-2026



Hardware

CPU Name:	AMD EPYC 9965
Max MHz:	3700
Nominal:	2250
Enabled:	192 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:	384 MB I+D on chip per chip, 32 MB shared / 16 cores
Other:	None
Memory:	384 GB (12 x 32 GB 2Rx4 PC5-6400B-R)
Storage:	1 x 4.0 TB PCIe NVMe SSD
Cooling:	Air
Other:	None

Software

OS:	SUSE Linux Enterprise Server 15 SP6 (x86_64) Kernel 6.4.0-150600.21-default
Compiler:	C/C++: Version 5.2.0 of AOCC Fortran: Flang v22
Compiler Category:	Vendor
Firmware:	Version 0302 released Jun-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
800.pot3d_s	192	66.0	10.2	65.6	10.3	**65.7**	**10.2**	144	**64.7**	**10.4**	64.7	10.4	64.7	10.4
803.sph_exa_s	192	33.9	36.5	34.0	36.5	**33.9**	**36.5**	192	33.1	37.4	**33.0**	**37.5**	33.0	37.5
809.cactus_s	192	74.1	15.1	72.7	15.4	**72.7**	**15.4**	192	74.1	15.1	72.7	15.4	**72.7**	**15.4**
811.tealeaf_s	192	20.8	26.8	20.7	27.0	**20.7**	**26.9**	192	20.8	26.8	20.7	27.0	**20.7**	**26.9**
816.nab_s	192	41.6	27.0	41.7	27.0	**41.7**	**27.0**	192	41.6	27.0	41.7	27.0	**41.7**	**27.0**
820.cloverleaf_s	192	108	7.93	108	7.94	**108**	**7.94**	192	108	7.93	108	7.94	**108**	**7.94**
822.palm_s	192	**102**	**12.0**	102	12.0	102	12.0	192	**102**	**12.0**	102	12.0	102	12.1
849.fotonik3d_s	192	108	6.09	108	6.10	**108**	**6.10**	144	**103**	**6.43**	103	6.43	103	6.44
857.namd_s	192	89.8	16.2	**89.9**	**16.2**	90.0	16.1	192	89.8	16.2	**89.9**	**16.2**	90.0	16.1
865.roms_s	192	70.9	15.4	70.5	15.5	**70.9**	**15.4**	144	**60.8**	**17.9**	61.8	17.6	60.7	17.9
867.nest_s	192	52.6	41.1	52.4	41.2	**52.5**	**41.2**	192	52.6	41.1	52.4	41.2	**52.5**	**41.2**
872.marian_s	192	**123**	**8.78**	124	8.74	123	8.78	192	**116**	**9.36**	116	9.36	115	9.38
881.neutron_s	192	**109**	**7.48**	109	7.49	120	6.79	192	**109**	**7.48**	109	7.49	120	6.79

SPECspeed®2026_fp_base = 14.8

SPECspeed®2026_fp_peak = 15.2

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/
Flang v22 is available at
https://flang.llvm.org/
```

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 --physcpubind=0-15 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.
```

(Continued on next page)

Operating System Notes (Continued)

```
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.

To disable Transparent Hugepages (THP) for 816.nab_s,865.roms_s=peak:
'echo never > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo never > /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 = "0-191"
LD_LIBRARY_PATH =
     "/aocc520/amd_speed_aocc520_znver5_A_lib/lib:/aocc520/amd_speed_aocc520_
     znver5_A_lib/lib32:"
MALLOC_CONF = "retain:true"
OMP_THREAD_LIMIT = "192"
```

General Notes

```
Binaries were compiled on a system with an AMD EPYC 9754 CPU + 768 GiB Memory using Ubuntu 24.04
```

Platform Notes

```
BIOS Configuration:
SR-IOV Support = Disabled
SVM Mode = Disabled
APBDIS = 1
Determinism Control = Manual
DRAM Scrub time = Disabled
Engine Boost = Aggressive
TDP Control = Manual
TDP = 500
PPT Control = Manual
PPT = 500
SMT Control = Disable
BMC Configuration:
Fan mode = Full speed mode
```

(Continued on next page)

Platform Notes (Continued)

```
Sysinfo program /aocc520/bin/sysinfo
Rev: 779ab21020787073335a329f3a45e2cd
running on localhost Thu Jul 30 19:22:52 2026

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

------------------------------------------------------------
Table of contents
------------------------------------------------------------
 1. uname -srvm
 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 -srvm
  Linux 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09) x86_64

------------------------------------------------------------
2. w
   19:22:52 up  8:36,  3 users,  load average: 35.56, 75.12, 109.34
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                10:47    1:52m  1.35s  0.26s python3
  ./run_amd_speed_aocc520_znver5_A1.py
  root     tty2     -                14:02    2:15m  0.05s  0.05s -bash
  root     tty3     -                17:08    2:14m  0.04s  0.04s -bash
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
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) 1543880
  max locked memory       (kbytes, -l) 2048
  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) 1543880
  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_aocc520_znver5_A1.py
 runcpu --config amd_speed_aocc520_znver5_A1.cfg --tune all --reportable --iterations 3 fpspeed
 runcpu --configfile amd_speed_aocc520_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/CPU2026.055/templogs/preenv.fpspeed.055.0.log --lognum 055.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /aocc520

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9965 192-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 17
    stepping        : 0
    microcode       : 0xb101047
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
```

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Platform Notes (Continued)

```
     TLB size        : 192 4K pages
     cpu cores       : 192
     siblings        : 192
     1 physical ids (chips)
     192 processors (hardware threads)
     physical id 0: core ids 0-191
     physical id 0: apicids 0-191
   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):                               192
   On-line CPU(s) list:                  0-191
   Vendor ID:                            AuthenticAMD
   BIOS Vendor ID:                       Advanced Micro Devices, Inc.
   Model name:                           AMD EPYC 9965 192-Core Processor
   BIOS Model name:                      AMD EPYC 9965 192-Core Processor             Unknown CPU @ 2.2GHz
   BIOS CPU family:                      107
   CPU family:                           26
   Model:                                17
   Thread(s) per core:                   1
   Core(s) per socket:                   192
   Socket(s):                            1
   Stepping:                             0
   Frequency boost:                      enabled
   CPU(s) scaling MHz:                   63%
   CPU max MHz:                          3700.1951
   CPU min MHz:                          1500.0000
   BogoMIPS:                             4493.22
   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
```

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Platform Notes (Continued)

```
                                    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:                        9 MiB (192 instances)
  L1i cache:                        6 MiB (192 instances)
  L2 cache:                         192 MiB (192 instances)
  L3 cache:                         384 MiB (12 instances)
  NUMA node(s):                     1
  NUMA node0 CPU(s):                0-191
  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
  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       9M   12 Data            1    64        1             64
     L1i       32K       6M    8 Instruction     1    64        1             64
     L2         1M     192M   16 Unified         2  1024        1             64
     L3        32M     384M   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: 0-191
  node 0 size: 385996 MB
  node 0 free: 384764 MB
  node distances:
  node   0
```

(Continued on next page)

Platform Notes (Continued)

```
     0:  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       395260004 kB

------------------------------------------------------------
10. who -r
  run-level 3 Jul 30 10:47

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

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 31:
    current policy: frequency should be within 1.50 GHz and 2.25 GHz.
                    The governor "performance" may decide which speed to use
```

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Platform Notes (Continued)

```
                    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               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
  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
```

(Continued on next page)

Platform Notes (Continued)

```
   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: /aocc520
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/nvme0n1p4 xfs   2.0T  550G  1.5T  27% /

 ------------------------------------------------------------
 21. /sys/devices/virtual/dmi/id
     Vendor:          ASUSTeK COMPUTER INC.
     Product:         RS520QA-E13-RS8U
     Product Family: Server
     Serial:          /psn/

 ------------------------------------------------------------
 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:
      12x Samsung M321R4GA3PB2-CCPKC 32 GB 2 rank 6400


 ------------------------------------------------------------
 23. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       American Megatrends Inc.
    BIOS Version:      0302
    BIOS Date:         06/26/2025
    BIOS Revision:     3.2
```

Compiler Version Notes

```
==============================================================================
C       | 811.tealeaf_s(base, peak) 816.nab_s(base, peak) 881.neutron_s(base,
        | peak)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.2.0-Build#2035 2026_04_10)
Target: x86_64-unknown-linux-gnu
```

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Compiler Version Notes (Continued)

```
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.2.0-4925-2035/bin
------------------------------------------------------------------------------

==============================================================================
C++     | 803.sph_exa_s(base, peak) 857.namd_s(base, peak) 867.nest_s(base,
        | peak) 872.marian_s(base, peak)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.2.0-Build#2035 2026_04_10)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.2.0-4925-2035/bin
------------------------------------------------------------------------------

==============================================================================
C++, C  | 809.cactus_s(base, peak)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.2.0-Build#2035 2026_04_10)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.2.0-4925-2035/bin
------------------------------------------------------------------------------

==============================================================================
Fortran | 800.pot3d_s(base, peak) 820.cloverleaf_s(base, peak)
        | 822.palm_s(base, peak) 849.fotonik3d_s(base, peak) 865.roms_s(base,
        | peak)
------------------------------------------------------------------------------
flang version 22.1.0-rc2 (https://github.com/llvm/llvm-project
  a47b42eb9f9b302167b4fc413e6c92798d65dd0b)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/llvm/llvm-22.1.0-rc2/install/bin
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang-22

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Base Compiler Invocation (Continued)

Benchmarks using both C and C++:
clang++ clang

Base Portability Flags

800.pot3d_s: -DSPEC_LP64
803.sph_exa_s: -DSPEC_LP64
809.cactus_s: -DSPEC_LP64
811.tealeaf_s: -DSPEC_LP64
816.nab_s: -DSPEC_LP64
820.cloverleaf_s: -DSPEC_LP64
822.palm_s: -DSPEC_LP64
849.fotonik3d_s: -DSPEC_LP64
857.namd_s: -DSPEC_LP64
865.roms_s: -DSPEC_LP64
867.nest_s: -fno-finite-math-only -DSPEC_LP64
872.marian_s: -DSPEC_LP64
881.neutron_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -std=c18 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -flto -march=znver5
-fveclib=AMDLIBM -ffast-math -fremap-arrays -fstrip-mining
-fstruct-layout=7 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -mllvm -unroll-threshold=50 -zopt
-mrecip=none -fopenmp -DSPEC_OPENMP -lamdalloc -lamdlibm
-fopenmp=libomp -lomp

C++ benchmarks:
-m64 -std=c++17 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -flto -march=znver5
-fveclib=AMDLIBM -ffast-math -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -fopenmp -DSPEC_OPENMP
-pthread -lamdalloc -lamdlibm -fopenmp=libomp -lomp

Fortran benchmarks:
-m64 -std=f2018 -O3 -flto -march=znver5 -fveclib=AMDLIBM
-ffast-math -funroll-loops -DSPEC_OPENMP -fopenmp
-fdo-concurrent-to-openmp=host -lamdalloc -lamdlibm -fopenmp=libomp

(Continued on next page)

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
-lomp

Benchmarks using both C and C++:
-m64 -std=c++17 -std=c18 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -flto -march=znver5
-fveclib=AMDLIBM -ffast-math -fremap-arrays -fstrip-mining
-fstruct-layout=7 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -mllvm -unroll-threshold=50 -zopt
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000
-mrecip=none -fopenmp -DSPEC_OPENMP -pthread -lamdalloc -lamdlibm
-fopenmp=libomp -lomp

Base Other Flags

C benchmarks:
-Wno-return-type -Wno-unused-command-line-argument

Benchmarks using both C and C++:
-Wno-return-type -Wno-unused-command-line-argument

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang-22

Benchmarks using both C and C++:
clang++ clang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

811.tealeaf_s: `basepeak = yes`

816.nab_s: `basepeak = yes`

881.neutron_s: `basepeak = yes`

C++ benchmarks:

803.sph_exa_s: `-m64 -std=c++17`
`-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3`
`-fprofile-instr-generate`(pass 1)
`-fprofile-instr-use`(pass 2) `-O3 -flto -march=znver5`
`-fveclib=AMDLIBM -ffast-math`
`-mllvm -reduce-array-computations=3`
`-mllvm -unroll-threshold=100 -fopenmp -DSPEC_OPENMP`
`-pthread -lamdalloc -lamdlibm -fopenmp=libomp -lomp`

857.namd_s: `basepeak = yes`

867.nest_s: `basepeak = yes`

872.marian_s: `Same as 803.sph_exa_s`

Fortran benchmarks:

800.pot3d_s: `-m64 -std=f2018 -O3 -flto -march=znver5`
`-fveclib=AMDLIBM -ffast-math -funroll-loops`
`-DSPEC_OPENMP -fopenmp -fdo-concurrent-to-openmp=host`
`-lamdalloc -lamdlibm -fopenmp=libomp -lomp`

820.cloverleaf_s: `basepeak = yes`

822.palm_s: `Same as 800.pot3d_s`

849.fotonik3d_s: `Same as 800.pot3d_s`

865.roms_s: `Same as 800.pot3d_s`

Benchmarks using both C and C++:

809.cactus_s: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-Wno-return-type -Wno-unused-command-line-argument`

Benchmarks using both 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/cpu2026/results/flags/aocc-flags.2026-08-11.00.html`
`http://www.spec.org/cpu2026/results/flags/ASUSTekPlatform-Settings-AMD-K15-V1.1.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-08-11.00.xml`
`http://www.spec.org/cpu2026/results/flags/ASUSTekPlatform-Settings-AMD-K15-V1.1.xml`

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