SPEC CPU®2017 Floating Point Speed Result

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Supermicro

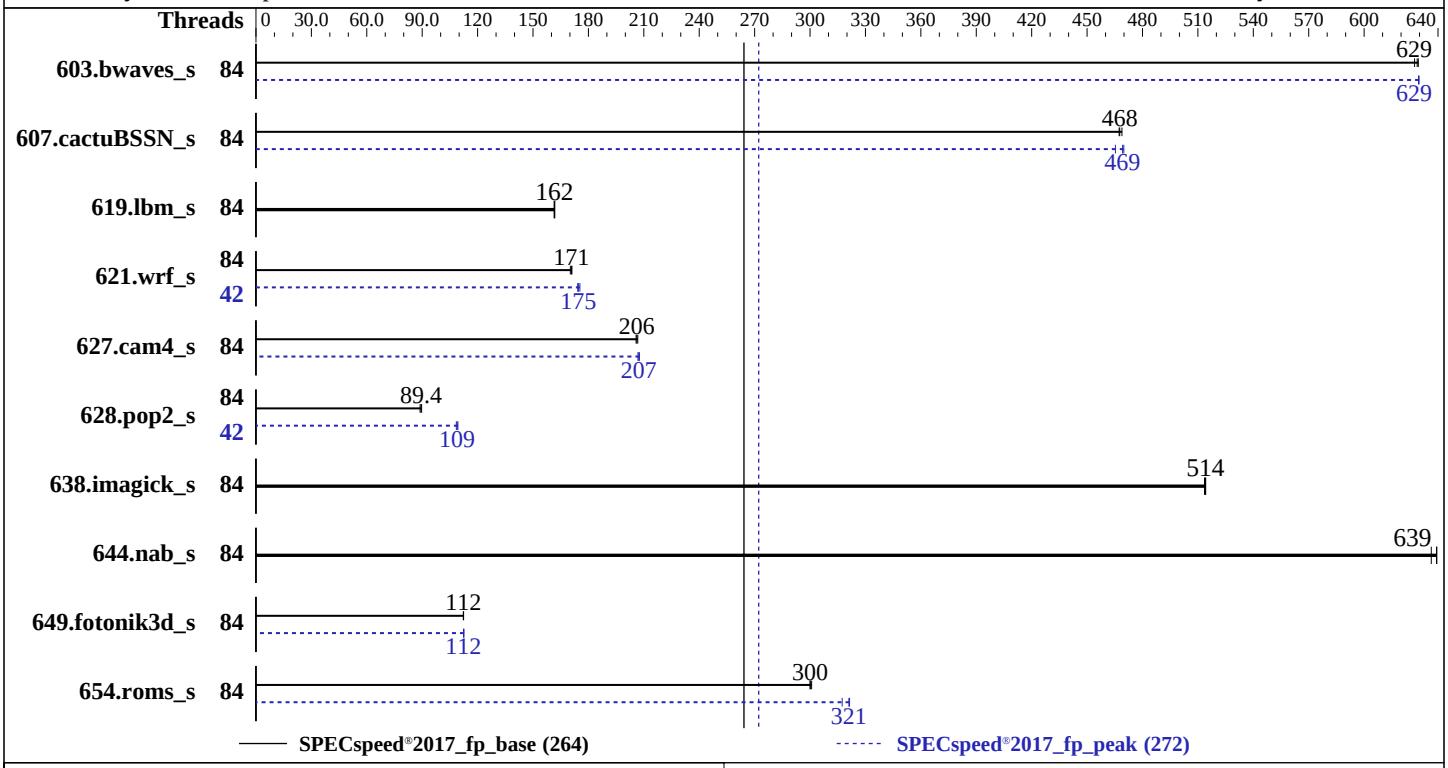
WIO A+ Server AS -1015SV-WTNRT
(H13SVW-NT , AMD EPYC 8635P)

SPECspeed®2017_fp_base = 264

SPECspeed®2017_fp_peak = 272

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Apr-2026
Hardware Availability: May-2026
Software Availability: Mar-2026



Hardware

CPU Name:	AMD EPYC 8635P
Max MHz:	4500
Nominal:	1600
Enabled:	84 cores, 1 chip, 2 threads/core
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 / 7 cores
Other:	None
Memory:	384 GB (6 x 64 GB 2Rx4 PC5-6400B-R)
Storage:	1 x 480 GB NVMe SSD
Other:	CPU Cooling: Air

Software

OS:	Ubuntu 24.04.3 LTS 6.8.0-106-generic
Compiler:	C/C++/Fortran: Version 5.0.0 of AOCC
Parallel:	Yes
Firmware:	Version 2.0 released Mar-2026
File System:	ext4
System State:	Run level 5 (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.

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	84	94.0	627	93.7	629	**93.8**	**629**	84	93.7	629	93.7	630	**93.7**	**629**
607.cactuBSSN_s	84	**35.6**	**468**	35.6	469	35.7	467	84	35.5	470	35.8	465	**35.5**	**469**
619.lbm_s	84	32.4	162	**32.4**	**162**	32.4	161	84	32.4	162	**32.4**	**162**	32.4	161
621.wrf_s	84	**77.4**	**171**	77.3	171	77.7	170	42	**75.8**	**175**	75.4	175	75.9	174
627.cam4_s	84	43.1	206	42.9	207	**43.0**	**206**	84	**42.8**	**207**	42.7	208	42.9	207
628.pop2_s	84	132	89.7	**133**	**89.4**	134	88.9	42	109	108	109	109	**109**	**109**
638.imagick_s	84	28.1	514	**28.1**	**514**	28.1	514	84	28.1	514	**28.1**	**514**	28.1	514
644.nab_s	84	27.5	636	27.3	639	**27.3**	**639**	84	27.5	636	27.3	639	**27.3**	**639**
649.fotonik3d_s	84	81.2	112	**81.2**	**112**	81.1	112	84	81.1	112	**81.1**	**112**	80.9	113
654.roms_s	84	52.5	300	52.3	301	**52.5**	**300**	84	**49.0**	**321**	49.0	321	49.6	317

SPECspeed®2017_fp_base = 264

SPECspeed®2017_fp_peak = 272

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

```
The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/
```

Submit Notes

```
The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-167"
LD_LIBRARY_PATH =
     "/spec/cpu2017aocca1.5speed/amd_speed_aocc500_znver5_A_lib/lib:/spec/cpu2017aocca1.5speed/amd_speed_ao
     cc500_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 = "168"

Environment variables set by runcpu during the 603.bwaves_s peak run:
GOMP_CPU_AFFINITY = "0-83"

Environment variables set by runcpu during the 607.cactuBSSN_s peak run:
GOMP_CPU_AFFINITY = "0-83"

Environment variables set by runcpu during the 621.wrf_s peak run:
GOMP_CPU_AFFINITY =
     "0,84,1,85,2,86,3,87,4,88,5,89,6,90,7,91,8,92,9,93,10,94,11,95,12,96,13,97,14,98,15,99,16,100,17,101,1
     8,102,19,103,20,104"

Environment variables set by runcpu during the 627.cam4_s peak run:
GOMP_CPU_AFFINITY = "0-83"

Environment variables set by runcpu during the 628.pop2_s peak run:
GOMP_CPU_AFFINITY = "0-41"

Environment variables set by runcpu during the 649.fotonik3d_s peak run:
GOMP_CPU_AFFINITY = "0-83"

Environment variables set by runcpu during the 654.roms_s peak run:
GOMP_CPU_AFFINITY = "0-83"
```

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 settings:
Determinism Control = Manual
Determinism Enable = Power
TDP control = Manual
TDP = 225
Package Power Limit = 225
Package Power Limit Control = Manual
SMEE = Disabled
```

(Continued on next page)

Platform Notes (Continued)

```
Sysinfo program /spec/cpu2017aocca1.5speed/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on smc9027sorano-u24-os Wed Apr  1 06:27:11 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 255 (255.4-1ubuntu8.14)
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 smc9027sorano-u24-os 6.8.0-106-generic #106-Ubuntu SMP PREEMPT_DYNAMIC Fri Mar  6 07:58:08 UTC 2026
  x86_64 x86_64 x86_64 GNU/Linux

------------------------------------------------------------
2. w
   06:27:11 up  5:44,  2 users,  load average: 7.66, 7.06, 4.38
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT
  root             10.23.202.142    03:54    5:44m  0.00s  0.03s sshd: root@pts/1
  root             10.23.202.142    03:49    5:44m  0.00s  0.16s sshd: root@pts/0

------------------------------------------------------------
3. Username
  From environment variable $USER:  root

------------------------------------------------------------
4. ulimit -a
  time(seconds)        unlimited
  file(blocks)         unlimited
  data(kbytes)         unlimited
  stack(kbytes)        unlimited
  coredump(blocks)     0
  memory(kbytes)       unlimited
  locked memory(kbytes) 2097152
  process              1544569
```

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Platform Notes (Continued)

```
   nofiles              1024
   vmemory(kbytes)      unlimited
   locks                unlimited
   rtprio               0

------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init
 SCREEN -S cpu
 /bin/bash
 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/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /spec/cpu2017aocca1.5speed

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 8635P 84-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 2
    stepping        : 1
    microcode       : 0xb002162
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
    TLB size        : 192 4K pages
    cpu cores       : 84
    siblings        : 168
    1 physical ids (chips)
    168 processors (hardware threads)
    physical id 0: core ids 0-6,8-14,16-22,24-30,32-38,40-46,48-54,56-62,64-70,72-78,80-86,88-94
    physical id 0: apicids 0-13,16-29,32-45,48-61,64-77,80-93,96-109,112-125,128-141,144-157,160-173,176-189
  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):                               168
  On-line CPU(s) list:                  0-167
  Vendor ID:                            AuthenticAMD
  BIOS Vendor ID:                       Advanced Micro Devices, Inc.
  Model name:                           AMD EPYC 8635P 84-Core Processor
  BIOS Model name:                      AMD EPYC 8635P 84-Core Processor                Unknown CPU @
                                        1.6GHz
  BIOS CPU family:                      107
  CPU family:                           26
  Model:                                2
  Thread(s) per core:                   2
  Core(s) per socket:                   84
  Socket(s):                            1
  Stepping:                             1
```

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Platform Notes (Continued)

```
   Frequency boost:                         enabled
   CPU(s) scaling MHz:                      39%
   CPU max MHz:                             4532.8120
   CPU min MHz:                             1500.0000
   BogoMIPS:                                3200.00
   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 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 amd_ibpb_ret 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 srso_user_kernel_no
   Virtualization:                          AMD-V
   L1d cache:                               3.9 MiB (84 instances)
   L1i cache:                               2.6 MiB (84 instances)
   L2 cache:                                84 MiB (84 instances)
   L3 cache:                                384 MiB (12 instances)
   NUMA node(s):                            1
   NUMA node0 CPU(s):                       0-167
   Vulnerability Gather data sampling:      Not affected
   Vulnerability Indirect target selection: 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
                                            always-on; PBRSB-eIBRS Not affected; BHI Not affected
   Vulnerability Srbds:                     Not affected
   Vulnerability Tsa:                       Not affected
   Vulnerability Tsx async abort:           Not affected
   Vulnerability Vmscape:                   Not affected

 From lscpu --cache:
      NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL  SETS PHY-LINE COHERENCY-SIZE
      L1d       48K     3.9M   12 Data            1    64        1             64
      L1i       32K     2.6M    8 Instruction     1    64        1             64
      L2         1M      84M   16 Unified         2  1024        1             64
      L3        32M     384M   16 Unified         3 32768        1             64
```

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Platform Notes (Continued)

```
------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 1 nodes (0)
  node 0 cpus: 0-167
  node 0 size: 386224 MB
  node 0 free: 383812 MB
  node distances:
  node   0
    0:  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       395493396 kB

------------------------------------------------------------
10. who -r
  run-level 5 Apr 1 00:42

------------------------------------------------------------
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.14)
  Default Target  Status
  graphical       running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          ModemManager apparmor apport blk-availability cloud-config cloud-final cloud-init
                   cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager
                   grub-common grub-initrd-fallback keyboard-setup lvm2-monitor multipathd
                   networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb
                   snapd sysstat systemd-networkd systemd-networkd-wait-online systemd-pstore
                   systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw
                   unattended-upgrades vgauth
  enabled-runtime  netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
  disabled         console-getty debug-shell iscsid nftables rsync serial-getty@ ssh
                   systemd-boot-check-no-failures systemd-confext systemd-network-generator
                   systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code
                   systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy
                   systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysext
                   systemd-time-wait-sync upower
  indirect         systemd-sysupdate systemd-sysupdate-reboot uuidd
  masked           cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.8.0-106-generic
  root=UUID=1bee86d1-7232-471a-ab77-0c9fc9498fa1
  ro

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 74:
    current policy: frequency should be within 1.50 GHz and 1.60 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes
      Boost States: 0
```

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Platform Notes (Continued)

```
      Total States: 3
      Pstate-P0:  1600MHz

------------------------------------------------------------
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
  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 Ubuntu 24.04.3 LTS

------------------------------------------------------------
19. Disk information
SPEC is set to: /spec/cpu2017aocca1.5speed
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 ext4  457G   73G  361G  17% /

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         Supermicro
    Product:        Super Server
    Product Family: SMC H13
    Serial:         0123456789
```

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Platform Notes (Continued)

```
 ------------------------------------------------------------
 21. dmidecode
   Additional information from dmidecode 3.5 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:
     5x Micron Technology MTC40F2046S1RC64BD2 MWFF 64 GB 2 rank 6400
     1x Micron Technology MTC40F2046S1RC64BD2 MXCC 64 GB 2 rank 6400


 ------------------------------------------------------------
 22. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       American Megatrends International, LLC.
    BIOS Version:      2.0
    BIOS Date:         03/23/2026
    BIOS Revision:     5.42
```

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
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)
--------------------------------------------------------------------------------------------------------------
```

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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
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`
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`

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Base Optimization Flags (Continued)

C benchmarks (continued):
-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
-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

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Base Other Flags (Continued)

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: `basepeak = yes`

638.imagick_s: `basepeak = yes`

644.nab_s: `basepeak = yes`

Fortran benchmarks:

(Continued on next page)

Peak Optimization Flags (Continued)

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: -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: 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
-mllvm -lsr-in-nested-loop -Mrecursive -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang

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
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp

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Peak Optimization Flags (Continued)

628.pop2_s (continued):
-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++:
-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 -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 -mllvm -unroll-threshold=100
-Mrecursive -fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

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/aocc500-flags.2024-10-10.html
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Sorano-revB.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.xml
http://www.spec.org/cpu2017/flags/Supermicro-Platform-Settings-V1.2-Sorano-revB.xml

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