SPEC CPU®2026 Floating Point Rate Result

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MINIS FORUM

(Test Sponsor: Arm)

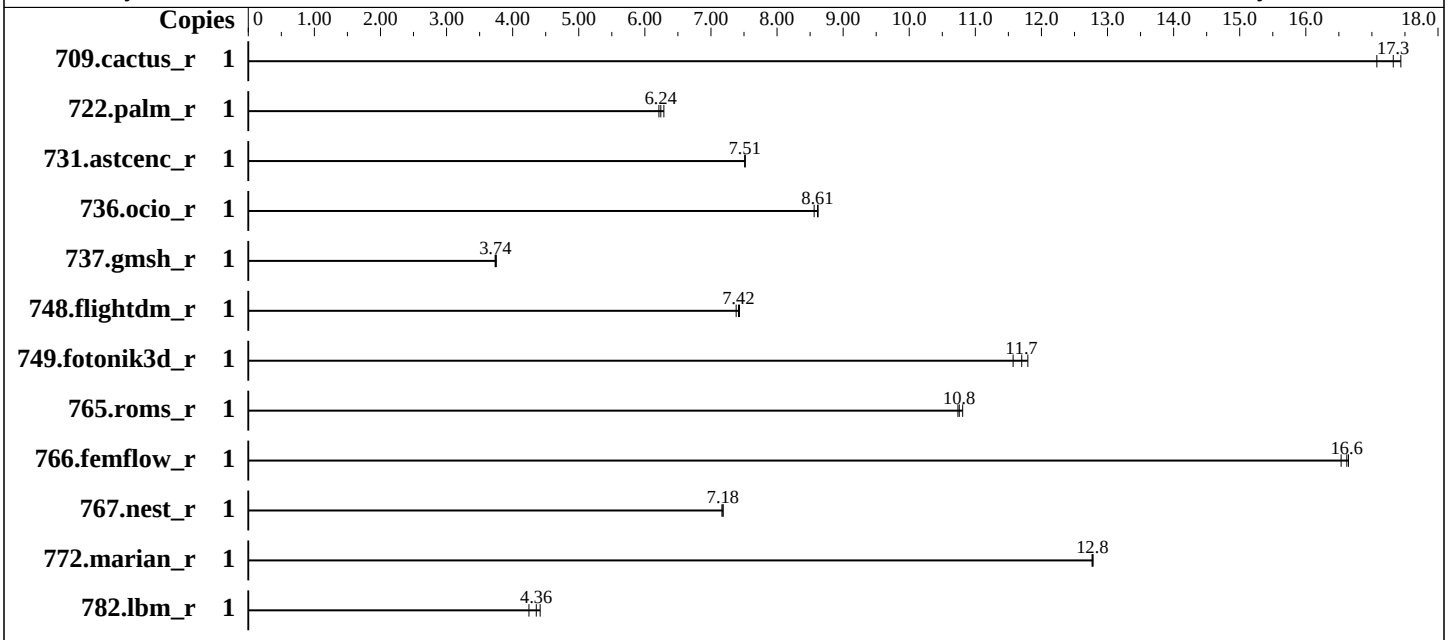
MINISFORUM EliteMini AI370
(2GHz, AMD Ryzen AI 9 HX 370)

SPECrate®2026_fp_base = 8.59

SPECrate®2026_fp_peak = Not Run

CPU2026 License: 9044
Test Sponsor: Arm
Tested by: Arm

Test Date: Feb-2026
Hardware Availability: Jul-2025
Software Availability: Jan-2026



Hardware

CPU Name:	AMD Ryzen AI 9 HX 370
Max MHz:	5100
Nominal:	2000
Enabled:	12 (4x Zen5, 8x Zen5c) cores, 1 chip
Orderable:	1 chips
Cache L1:	32 KB I + 48 KB D on chip per core
L2:	1 MB I+D on chip per core
L3:	24 MB I+D on chip per chip, 16 MB shared / 4 Cores, 8 MB shared / 8 Cores
Other:	None
Memory:	32 GB (4x8 LPDDR5X-7500MT/s)
Storage:	1 x 931.5 GB NVMe SSD
Cooling:	Air
Other:	None

Software

OS:	Ubuntu 24.04.3 LTS 6.14.0-37-generic
Compiler:	C/C++/Fortran: Version 5.1.0 of AOCC, the AMD Optimizing C/C++ and Fortran Compiler
Compiler Category:	Vendor
Firmware:	Version 1.16 released Dec-2024
File System:	ext4
System State:	Run level 5 (graphical multi-user)
Base Pointers:	64-bit
Peak Pointers:	Not Applicable
Other:	None
Power Management:	OS set to prefer performance at the cost of additional power usage

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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
709.cactus_r	1	50.2	17.1	**49.5**	**17.3**	49.2	17.4							
722.palm_r	1	212	6.21	210	6.29	**211**	**6.24**							
731.astcenc_r	1	112	7.51	**112**	**7.51**	112	7.52							
736.ocio_r	1	102	8.56	**102**	**8.61**	101	8.62							
737.gmsh_r	1	122	3.75	**123**	**3.74**	123	3.73							
748.flightdm_r	1	**96.5**	**7.42**	96.3	7.43	97.0	7.38							
749.fotonik3d_r	1	99.9	11.6	**98.8**	**11.7**	98.0	11.8							
765.roms_r	1	147	10.7	146	10.8	**146**	**10.8**							
766.femflow_r	1	**88.3**	**16.6**	88.7	16.5	88.1	16.6							
767.nest_r	1	**110**	**7.18**	111	7.17	110	7.18							
772.marian_r	1	124	12.8	**124**	**12.8**	124	12.8							
782.lbm_r	1	135	4.25	**132**	**4.36**	130	4.42							

SPECrate®2026_fp_base = 8.59

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

Compiler Notes

```
Compiler was retrieved from https://www.amd.com/en/developer/aocc.html in tar format
```

Submit Notes

```
The config file option 'submit' was used.
```

Operating System Notes

```
'ulimit -s unlimited' was used to set environment stack size limit
THP was enabled by running $echo always | sudo tee /sys/kernel/mm/transparent_hugepage/enabled
SMT was disabled by running $sudo sh -c 'echo off > /sys/devices/system/cpu/smt/control'
Performance governor was enabled by running $cpupower frequency-set --governor performance
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/opt/compilers/aocc/aocc-compiler-5.1.0/lib:/lib64:"
```

Platform Notes

```
Sysinfo program /home/fralov/Code/spec2026rc2/bin/sysinfo
```

(Continued on next page)

Platform Notes (Continued)

```
Rev: 069f95da7e7f5d81b2ce48a82150e54f
running on ct-cpu-soph-amd Thu Feb  5 13:04:41 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 255 (255.4-1ubuntu8.12)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
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 6.14.0-37-generic #37~24.04.1-Ubuntu SMP PREEMPT_DYNAMIC Thu Nov 20 10:25:38 UTC 2 x86_64

------------------------------------------------------------
2. w
   13:04:41 up 13 days,  1:22,  3 users,  load average: 1.00, 1.00, 1.00
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT
  rorhol01          10.57.55.9       12:42    2days  0.00s  0.01s sshd: rorhol01 [priv]
  gdm      tty1     -               23Jan26 13days  6:07    ?    /usr/libexec/ibus-portal

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

(Continued on next page)

Platform Notes (Continued)

```
  From the command 'logname':       fralov

------------------------------------------------------------
4. ulimit -a
  time(seconds)        unlimited
  file(blocks)         unlimited
  data(kbytes)         unlimited
  stack(kbytes)        unlimited
  coredump(blocks)     0
  memory(kbytes)       unlimited
  locked memory(kbytes) 3541012
  process              109673
  nofiles              1024
  vmemory(kbytes)      unlimited
  locks                unlimited
  rtprio               0

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --system --deserialize=110 splash
 runcpu --config=aocc-linux-x86-rate1.cfg --action=run --reportable intrate fprate --iterations=4
 runcpu --configfile aocc-linux-x86-rate1.cfg --action run --reportable --iterations 4 --nopower --runmode
   rate --tune base --size refrate fprate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2026.028/templogs/preenv.fprate.028.1.log --lognum 028.1 --from_runcpu 2
 specperl $SPEC/bin/sysinfo -f
$SPEC = /home/fralov/Code/spec2026rc2

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD Ryzen AI 9 HX 370 w/ Radeon 890M
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 36
    stepping        : 0
    microcode       : 0xb204019
    bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso vmscape
    TLB size        : 192 4K pages
    cpu cores       : 12
    siblings        : 12
    1 physical ids (chips)
    12 processors (hardware threads)
    physical id 0: core ids 0-3,8-15
    physical id 0: apicids 0,2,4,6,16,18,20,22,24,26,28,30
  Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
   virtualized systems.  Use the above data carefully.

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

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Platform Notes (Continued)

```
 7. lscpu

 From lscpu from util-linux 2.39.3:
   Architecture:                            x86_64
   CPU op-mode(s):                          32-bit, 64-bit
   Address sizes:                           48 bits physical, 48 bits virtual
   Byte Order:                              Little Endian
   CPU(s):                                  24
   On-line CPU(s) list:                     0-11
   Off-line CPU(s) list:                    12-23
   Vendor ID:                               AuthenticAMD
   BIOS Vendor ID:                          Advanced Micro Devices, Inc.
   Model name:                              AMD Ryzen AI 9 HX 370 w/ Radeon 890M
   BIOS Model name:                         AMD Ryzen AI 9 HX 370 w/ Radeon 890M          Unknown CPU @
                                            2.0GHz
   BIOS CPU family:                         107
   CPU family:                              26
   Model:                                   36
   Thread(s) per core:                      1
   Core(s) per socket:                      12
   Socket(s):                               1
   Stepping:                                0
   Frequency boost:                         enabled
   CPU(s) scaling MHz:                      94%
   CPU max MHz:                             5157.0000
   CPU min MHz:                             0.0000
   BogoMIPS:                                4000.23
   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 xtopology
                                              nonstop_tsc cpuid extd_apicid aperfmperf rapl pni pclmulqdq
                                             monitor ssse3 fma cx16 sse4_1 sse4_2 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 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
                                            rdpid bus_lock_detect movdiri movdir64b overflow_recov succor smca
                                                 fsrm avx512_vp2intersect flush_l1d amd_lbr_pmc_freeze
```

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Platform Notes (Continued)

```
  Virtualization:                          AMD-V
  L1d cache:                               576 KiB (12 instances)
  L1i cache:                               384 KiB (12 instances)
  L2 cache:                                12 MiB (12 instances)
  L3 cache:                                24 MiB (2 instances)
  NUMA node(s):                            1
  NUMA node0 CPU(s):                       0-11
  Vulnerability Gather data sampling:      Not affected
  Vulnerability Ghostwrite:                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:      Mitigation; IBPB on VMEXIT only
  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:                   Mitigation; IBPB on VMEXIT

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL  SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     576K   12 Data            1    64        1             64
     L1i       32K     384K    8 Instruction     1    64        1             64
     L2         1M      12M   16 Unified         2  1024        1             64
     L3        16M      24M   16 Unified         3 16384        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: 0-11
  node 0 size: 27664 MB
  node 0 free: 1865 MB
  node distances:
  node   0
    0:  10

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

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Platform Notes (Continued)

```
 9. /proc/meminfo
    MemTotal:       28328100 kB

------------------------------------------------------------
10. who -r
  run-level 5 Jan 23 11:42

------------------------------------------------------------
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.12)
  Default Target  Status
  graphical       degraded

------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT                     LOAD      ACTIVE SUB    DESCRIPTION
  * snap-firefox-7672.mount not-found failed failed snap-firefox-7672.mount
  Legend: LOAD   -> Reflects whether the unit definition was properly loaded.
          ACTIVE -> The high-level unit activation state, i.e. generalization of SUB.
          SUB    -> The low-level unit activation state, values depend on unit type.
  1 loaded units listed.

------------------------------------------------------------
13. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
                   accounts-daemon anacron apparmor apport avahi-daemon bluetooth cloud-config cloud-final
                   cloud-init cloud-init-local console-setup cron cups cups-browsed dmesg e2scrub_reap getty@
                   gnome-remote-desktop gpu-manager grub-common grub-initrd-fallback kerneloops
                   keyboard-setup networkd-dispatcher openvpn power-profiles-daemon rsyslog secureboot-db
                   setvtrgb snapd ssh ssl-cert sssd switcheroo-control sysstat systemd-oomd systemd-pstore
                   systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw
                   unattended-upgrades wpa_supplicant
  enabled-runtime  netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
  disabled         brltty console-getty debug-shell nftables openvpn-client@ openvpn-server@ openvpn@ rsync
                   rtkit-daemon serial-getty@ speech-dispatcherd systemd-boot-check-no-failures
                   systemd-confext systemd-network-generator systemd-networkd systemd-networkd-wait-online
                   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 wpa_supplicant-nl80211@ wpa_supplicant-wired@
                   wpa_supplicant@
  generated        speech-dispatcher
  indirect         saned@ spice-vdagentd sssd-autofs sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
                   systemd-sysupdate systemd-sysupdate-reboot uuidd
  masked           alsa-utils cryptdisks cryptdisks-early hwclock saned sudo x11-common

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

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Platform Notes (Continued)

```
14. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.14.0-37-generic
  root=UUID=5136668a-0005-4623-86d6-f99bc0eec11e
  ro
  quiet
  splash
  vt.handoff=7

------------------------------------------------------------
15. cpupower frequency-info
  analyzing CPU 4:
    current policy: frequency should be within 1.39 GHz and 3.29 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
16. sysctl
  kernel.numa_balancing               0
  kernel.randomize_va_space           2
  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                     20
  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                      60
  vm.watermark_boost_factor       15000
  vm.watermark_scale_factor          10
  vm.zone_reclaim_mode                0

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

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Platform Notes (Continued)

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

------------------------------------------------------------
20. Disk information
SPEC is set to: /home/fralov/Code/spec2026rc2
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 ext4  915G  320G  549G  37% /

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:         Micro Computer (HK) Tech Limited
    Product:        EliteMini Series
    Product Family: EliteMini
    Serial:         YY516VA370EDMPE00080

------------------------------------------------------------
22. 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:
    4x Micron Technology MT62F2G32D4DS-026 WT 8 GB 2 rank 7500


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       American Megatrends International, LLC.
   BIOS Version:      1.16
   BIOS Date:         12/26/2024
   BIOS Revision:     1.16
   Firmware Revision: 1.16
```

Compiler Version Notes

```
==============================================================================
C       | 782.lbm_r(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.1.0-Build#1994 2025_12_23)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/compilers/aocc/aocc-compiler-5.1.0/bin
------------------------------------------------------------------------------

==============================================================================
C++     | 731.astcenc_r(base) 736.ocio_r(base) 748.flightdm_r(base)
        | 766.femflow_r(base) 767.nest_r(base) 772.marian_r(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.1.0-Build#1994 2025_12_23)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/compilers/aocc/aocc-compiler-5.1.0/bin
------------------------------------------------------------------------------

==============================================================================
C++, C  | 709.cactus_r(base) 737.gmsh_r(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.1.0-Build#1994 2025_12_23)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/compilers/aocc/aocc-compiler-5.1.0/bin
------------------------------------------------------------------------------

==============================================================================
Fortran | 722.palm_r(base) 749.fotonik3d_r(base) 765.roms_r(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.1.0-Build#1994 2025_12_23)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/compilers/aocc/aocc-compiler-5.1.0/bin
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

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Base Compiler Invocation (Continued)

Fortran benchmarks:
flang

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

Base Portability Flags

709.cactus_r: -DSPEC_LP64
722.palm_r: -DSPEC_LP64
731.astcenc_r: -DSPEC_LP64
736.ocio_r: -fno-finite-math-only -DSPEC_LP64
737.gmsh_r: -fno-unsafe-math-optimizations -DSPEC_LP64
748.flightdm_r: -fno-reciprocal-math -DSPEC_LP64
749.fotonik3d_r: -DSPEC_LP64
765.roms_r: -DSPEC_LP64
766.femflow_r: -DSPEC_LP64
767.nest_r: -fno-finite-math-only -DSPEC_LP64
772.marian_r: -DSPEC_LP64
782.lbm_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-m64 -std=c18 -g -ffast-math -flto=full -O3 -march=native

C++ benchmarks:
-m64 -std=c++17 -g -ffast-math -flto=full -O3 -march=native

Fortran benchmarks:
-m64 -std=f2018 -g -ffast-math -flto=full -O3 -march=native

Benchmarks using both C and C++:
-m64 -std=c++17 -std=c18 -g -ffast-math -flto=full -O3
-march=native

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2026/results/flags/aocc-rev-A2.html
http://www.spec.org/cpu2026/results/flags/Minisforum-Platform-Settings-AMD-rev2.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2026/results/flags/aocc-rev-A2.xml
http://www.spec.org/cpu2026/results/flags/Minisforum-Platform-Settings-AMD-rev2.xml

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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