



# SPEC CPU®2026 Floating Point Rate Result

Copyright 2026 Standard Performance Evaluation Corporation

## Hewlett Packard Enterprise

(Test Sponsor: HPE)

### ProLiant DL145 Gen11

(2.30 GHz, AMD EPYC 8534P)

## SPECrate®2026\_fp\_base = 173

## SPECrate®2026\_fp\_peak = 173

**CPU2026 License:** 3

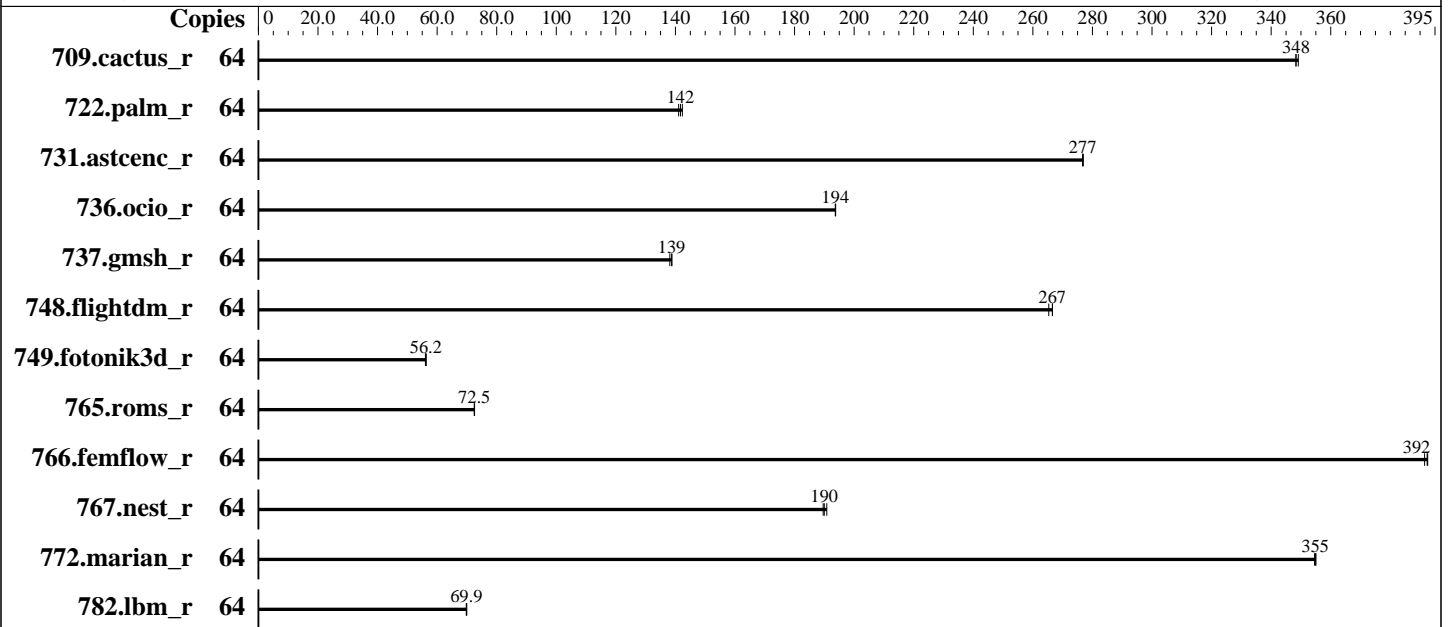
**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Feb-2026

**Hardware Availability:** Oct-2024

**Software Availability:** Jan-2026



### Hardware

CPU Name: AMD EPYC 8534P  
 Max MHz: 3100  
 Nominal: 2300  
 Enabled: 64 cores, 1 chip, 2 threads/core  
 Orderable: 1 chip  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 128 MB I+D on chip per chip,  
 16 MB shared / 8 cores  
 Other: None  
 Memory: 768 GB (6 x 128 GB 4Rx4 PC5-4800B-R)  
 Storage: 1 x 480 GB NVMe SSD  
 Cooling: Air  
 Other: None

### Software

OS: Ubuntu 24.04.3 LTS  
 Kernel 6.8.0-90-generic  
 Compiler: C/C++/Fortran: Version 5.1.0 of AOCC  
 Compiler Category: Vendor  
 Firmware: HPE BIOS Version v2.10  
 released Jan-2026  
 File System: ext4  
 System State: Run level 5 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None  
 Power Management: BIOS set to prefer performance at  
 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	64	157	349	<b>158</b>	<b>348</b>	158	348	64	157	349	<b>158</b>	<b>348</b>	158	348
722.palm_r	64	599	141	594	142	<b>596</b>	<b>142</b>	64	599	141	594	142	<b>596</b>	<b>142</b>
731.ascenc_r	64	194	277	194	277	<b>194</b>	<b>277</b>	64	194	277	194	277	<b>194</b>	<b>277</b>
736.ocio_r	64	289	194	<b>289</b>	<b>194</b>	289	194	64	289	194	<b>289</b>	<b>194</b>	289	194
737.gmsh_r	64	213	138	<b>212</b>	<b>139</b>	212	139	64	213	138	<b>212</b>	<b>139</b>	212	139
748.flightdm_r	64	173	265	172	267	<b>172</b>	<b>267</b>	64	173	265	172	267	<b>172</b>	<b>267</b>
749.fotonik3d_r	64	<b>1315</b>	<b>56.2</b>	1319	56.1	1314	56.3	64	<b>1315</b>	<b>56.2</b>	1319	56.1	1314	56.3
765.roms_r	64	1391	72.5	<b>1390</b>	<b>72.5</b>	1389	72.6	64	1391	72.5	<b>1390</b>	<b>72.5</b>	1389	72.6
766.femflow_r	64	240	392	<b>239</b>	<b>392</b>	239	393	64	240	392	<b>239</b>	<b>392</b>	239	393
767.nest_r	64	266	191	268	190	<b>267</b>	<b>190</b>	64	266	191	268	190	<b>267</b>	<b>190</b>
772.marian_r	64	285	355	<b>285</b>	<b>355</b>	285	355	64	285	355	<b>285</b>	<b>355</b>	285	355
782.lbm_r	64	526	69.8	<b>525</b>	<b>69.9</b>	524	69.9	64	526	69.8	<b>525</b>	<b>69.9</b>	524	69.9

SPECrate®2026\_fp\_base = 173

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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.

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## Operating System Notes (Continued)

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:

LD\_LIBRARY\_PATH =

"/home/cpu2026\_new/amd\_rate\_aocc510\_znver5\_A\_lib/lib:/home/cpu2026\_new/amd\_rate\_aocc510\_znver5\_A\_lib/lib32:"

MALLOC\_CONF = "retain:true"

## General Notes

Binaries were compiled on a system with 2x AMD EPYC Venice256 CPU + 2TiB

Memory using Ubuntu 24.04

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 Configurations : Parameters are selected in the order shown below

Workload Profile set to General Throughput Compute

Determinism Control set to Manual

Performance Determinism set to Power Deterministic

AMD Periodic Directory Rinse Tuning set to Cache-Bound

Memory Patrol Scrubbing set to Disabled

NUMA memory domains per socket set to Two memory domains per socket

ACPI CST C2 Latency set to 18 microseconds

Thermal Configuration set to Maximum Cooling

Workload Profile set to Custom

L2 HW Prefetcher set to Disabled

Sysinfo program /home/cpu2026\_new/bin/sysinfo

Rev: 069f95da7e7f5d81b2ce48a82150e54f

running on admin1 Sun Feb 1 10:27:52 2026

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## Platform Notes (Continued)

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-lubuntu8.12)`
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 6.8.0-90-generic #91-Ubuntu SMP PREEMPT_DYNAMIC Tue Nov 18 14:14:30 UTC 2025 x86_64
```

```
2. w
10:27:52 up 12 min, 3 users, load average: 0.13, 0.03, 0.01
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
admin1    tty1     172.16.0.100  10:22      12:37      0.00s      0.02s      sshd: admin1 [priv]
admin1    tty1     -             10:22      5:44       0.06s      0.01s      -bash
admin1    tty1     172.16.0.100  10:17      12:37      0.00s      0.01s      sshd: admin1 [priv]
```

```
3. Username
From environment variable $USER:  root
From the command 'logname':      admin1
```

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## Platform Notes (Continued)

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                3094461
nofiles                1024
vmemory(kbytes)        unlimited
locks                  unlimited
rtprio                 0

```

5. sysinfo process ancestry

```

/sbin/init
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: admin1 [priv]
sshd: admin1@pts/0
-bash
sudo -i
sudo -i
-bash
/bin/bash ./fprate.sh
sudo ./run_fprate.py
sudo ./run_fprate.py
python3 ./run_fprate.py
/bin/bash ./amd_rate_aocc510_znver5_A1.sh
runcpu --config amd_rate_aocc510_znver5_A1.cfg --tune base --reportable --iterations 3 fprate
runcpu --configfile amd_rate_aocc510_znver5_A1.cfg --tune base --reportable --iterations 3 --nopower
--runmode rate --tune base --size test:train:refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2026.001/templogs/preenv.fprate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2026_new

```

6. /proc/cpuinfo

```

model name      : AMD EPYC 8534P 64-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 160
stepping       : 2
microcode      : 0xaa0021c
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso vmscape
TLB size       : 3584 4K pages

```

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## Platform Notes (Continued)

```
cpu cores      : 64
siblings      : 128
1 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-63
physical id 0: apicids 0-127
```

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):                       128
On-line CPU(s) list:         0-127
Vendor ID:                    AuthenticAMD
BIOS Vendor ID:              Advanced Micro Devices, Inc.
Model name:                   AMD EPYC 8534P 64-Core Processor
BIOS Model name:              AMD EPYC 8534P 64-Core Processor          CPU @ 2.3GHz
BIOS CPU family:              107
CPU family:                   25
Model:                        160
Thread(s) per core:          2
Core(s) per socket:          64
Socket(s):                    1
Stepping:                     2
BogoMIPS:                     4593.24
```

```
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 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 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 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
```

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## Platform Notes (Continued)

```
ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_lld
debug_swap ibpb_exit_to_user
```

```

Virtualization: AMD-V
L1d cache: 2 MiB (64 instances)
L1i cache: 2 MiB (64 instances)
L2 cache: 64 MiB (64 instances)
L3 cache: 128 MiB (8 instances)
NUMA node(s): 2
NUMA node0 CPU(s): 0-31,64-95
NUMA node1 CPU(s): 32-63,96-127
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: Mitigation; Safe RET
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
always-on; RSB filling; PBRSE-eIBRS Not affected; BHI Not affected
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected
Vulnerability Vmscape: Mitigation; IBPB before exit to userspace

```

From `lscpu --cache:`

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	2M	8	Data	1	64	1	64
L1i	32K	2M	8	Instruction	1	64	1	64
L2	1M	64M	8	Unified	2	2048	1	64
L3	16M	128M	16	Unified	3	16384	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: 0-31,64-95
node 0 size: 386734 MB
node 0 free: 385716 MB
node 1 cpus: 32-63,96-127
node 1 size: 386960 MB
node 1 free: 386077 MB
node distances:
node  0  1

```

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## Platform Notes (Continued)

```
0: 10 12
1: 12 10
```

```
-----
9. /proc/meminfo
   MemTotal:          792263900 kB
```

```
-----
10. who -r
     run-level 5 Feb 1 10:15
```

```
-----
11. Systemd service manager version: systemd 255 (255.4-lubuntu8.12)
     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 thermald tuned 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-sysex
                        systemd-time-wait-sync systemd-timesyncd upower
     indirect         systemd-sysupdate systemd-sysupdate-reboot uidd
     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-6.8.0-90-generic
     root=UUID=61dfa28b-3b9d-4547-a60d-5242374593a9
     ro
```

```
-----
14. cpupower frequency-info
     analyzing CPU 110:
     Unable to determine current policy
     boost state support:
```

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## Platform Notes (Continued)

Supported: yes  
Active: yes  
Boost States: 0  
Total States: 3  
Pstate-P0: 2300MHz

-----  
15. tuned-adm active  
Current active profile: balanced

-----  
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

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## Platform Notes (Continued)

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/cpu2026\_new

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	ext4	438G	39G	378G	10%	/

### 21. /sys/devices/virtual/dmi/id

Vendor: HPE  
 Product: ProLiant DL145 Gen11  
 Product Family: ProLiant  
 Serial: 41600016J0A1

### 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:

1x Hynix HMCT04MEERA129N 128 GB 4 rank 4800  
 1x Hynix HMCT04MEERA131N 128 GB 4 rank 4800  
 4x Hynix HMCT04MEERA133N 128 GB 4 rank 4800

### 23. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: HPE  
 BIOS Version: 2.10  
 BIOS Date: 01/27/2026  
 BIOS Revision: 2.10  
 Firmware Revision: 1.66

## Compiler Version Notes

C | 782.lbm\_r(base)

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**SPECrate®2026\_fp\_base = 173**

**SPECrate®2026\_fp\_peak = 173**

**CPU2026 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Feb-2026

**Hardware Availability:** Oct-2024

**Software Availability:** Jan-2026

## Compiler Version Notes (Continued)

```

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/AMD/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/AMD/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/AMD/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/AMD/aocc/aocc-compiler-5.1.0/bin

```

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

(Continued on next page)



# SPEC CPU®2026 Floating Point Rate Result

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(Test Sponsor: HPE)

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## Base Compiler Invocation (Continued)

Benchmarks using both C and C++:

clang++ clang

## Base Portability Flags

709.cactus\_r: -DSPEC\_LP64  
 722.palm\_r: -DSPEC\_LP64  
 731.ascenc\_r: -DSPEC\_LP64  
 736.ocio\_r: -fno-finite-math-only -DSPEC\_LP64  
 737.gmsh\_r: -fno-fast-math -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 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
 -Wl,-mllvm -Wl,-reduce-array-computations=3  
 -Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather  
 -ffast-math -O3 -march=znver5 -fveclib=AMDLIBM -fno-PIE -no-pie  
 -flto -fstruct-layout=7 -mllvm -unroll-threshold=50  
 -mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining  
 -mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc  
 -lflang

C++ benchmarks:

-m64 -std=c++17 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
 -Wl,-mllvm -Wl,-reduce-array-computations=3  
 -Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner  
 -ffast-math -O3 -march=znver5 -fveclib=AMDLIBM -flto  
 -mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000  
 -mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc  
 -lflang

Fortran benchmarks:

-m64 -Mstandard -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
 -Wl,-mllvm -Wl,-reduce-array-computations=3

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## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-Wl,-mllvm -Wl,-enable-X86-prefetching
-Wl,-mllvm -Wl,-enable-aggressive-gather=true
-Wl,-mllvm -Wl,-enable-masked-gather-sequence=false -ffast-math -O3
-march=znver5 -fveclib=AMDLIBM -flto -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc
-lflang
```

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
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-ffast-math -O3 -march=znver5 -fveclib=AMDLIBM -fno-PIE -no-pie
-flto -fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000 -lamdlibm -lamdalloc -lflang
```

## Peak Optimization Flags

C benchmarks:

782.lbm\_r: basepeak = yes

C++ benchmarks:

731.ascenc\_r: basepeak = yes

736.ocio\_r: basepeak = yes

748.flightdm\_r: basepeak = yes

766.femflow\_r: basepeak = yes

767.nest\_r: basepeak = yes

772.marian\_r: basepeak = yes

Fortran benchmarks:

722.palm\_r: basepeak = yes

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## Peak Optimization Flags (Continued)

749.fotonik3d\_r: basepeak = yes

765.roms\_r: basepeak = yes

Benchmarks using both C and C++:

709.cactus\_r: basepeak = yes

737.gmsh\_r: basepeak = yes

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Siena-rev1.2.html>

<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Siena-rev1.2.xml>

<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.xml>

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