# SPEC CPU®2026 Floating Point Rate Result

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## Hewlett Packard Enterprise

(Test Sponsor: HPE)

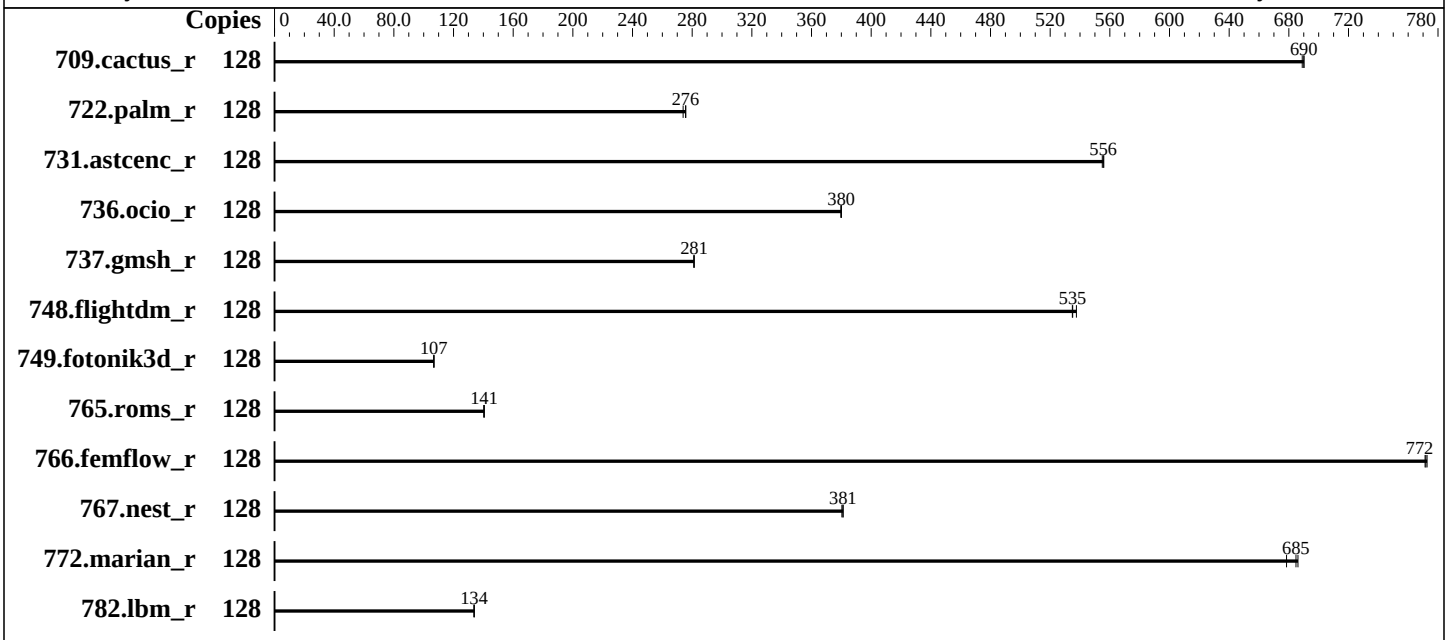
ProLiant DL325 Gen11
(2.25 GHz, AMD EPYC 9754)

**SPECrate®2026_fp_base = 341**

**SPECrate®2026_fp_peak = 341**

**CPU2026 License:** 3
**Test Sponsor:** HPE
**Tested by:** HPE

**Test Date:** Feb-2026
**Hardware Availability:** Aug-2023
**Software Availability:** Jan-2026




### Hardware

| | |
|---|---|
| CPU Name: | AMD EPYC 9754 |
| Max MHz: | 3100 |
| Nominal: | 2250 |
| Enabled: | 128 cores, 1 chip |
| 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: | 256 MB I+D on chip per chip, 16 MB shared / 8 cores |
| Other: | None |
| Memory: | 768 GB (12 x 64 GB 2Rx4 PC5-4800B-R) |
| Storage: | 1 x 480 GB NVMe SSD |
| Cooling: | CLC |
| Other: | None |

### Software

| | |
|---|---|
| OS: | Ubuntu 24.04.3 LTS<br>Kernel 6.8.0-90-generic |
| Compiler: | C/C++/Fortran: Version 5.1.0 of AOCC |
| Compiler Category: | Vendor |
| Firmware: | HPE BIOS Version v2.90 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 and OS is 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 | 128 | **159** | **690** | 159 | 689 | 159 | 690 | 128 | **159** | **690** | 159 | 689 | 159 | 690 |
| 722.palm_r | 128 | **613** | **276** | 613 | 276 | 617 | 274 | 128 | **613** | **276** | 613 | 276 | 617 | 274 |
| 731.astcenc_r | 128 | **194** | **556** | 194 | 555 | 193 | 556 | 128 | **194** | **556** | 194 | 555 | 193 | 556 |
| 736.ocio_r | 128 | 295 | 380 | **295** | **380** | 295 | 380 | 128 | 295 | 380 | **295** | **380** | 295 | 380 |
| 737.gmsh_r | 128 | 209 | 281 | 209 | 281 | **209** | **281** | 128 | 209 | 281 | 209 | 281 | **209** | **281** |
| 748.flightdm_r | 128 | 171 | 535 | **171** | **535** | 170 | 538 | 128 | 171 | 535 | **171** | **535** | 170 | 538 |
| 749.fotonik3d_r | 128 | **1385** | **107** | 1386 | 107 | 1385 | 107 | 128 | **1385** | **107** | 1386 | 107 | 1385 | 107 |
| 765.roms_r | 128 | 1434 | 141 | 1437 | 140 | **1435** | **141** | 128 | 1434 | 141 | 1437 | 140 | **1435** | **141** |
| 766.femflow_r | 128 | **243** | **772** | 243 | 771 | 243 | 773 | 128 | **243** | **772** | 243 | 771 | 243 | 773 |
| 767.nest_r | 128 | **266** | **381** | 266 | 381 | 267 | 380 | 128 | **266** | **381** | 266 | 381 | 267 | 380 |
| 772.marian_r | 128 | 295 | 686 | 298 | 678 | **295** | **685** | 128 | 295 | 686 | 298 | 678 | **295** | **685** |
| 782.lbm_r | 128 | 548 | 134 | 548 | 134 | **548** | **134** | 128 | 548 | 134 | 548 | 134 | **548** | **134** |

**SPECrate®2026_fp_base = 341**

**SPECrate®2026_fp_peak = 341**

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.
```

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## Operating System Notes (Continued)

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:
LD_LIBRARY_PATH =
"/home/cpu2026/amd_rate_aocc510_znver5_A_lib/lib:/home/cpu2026/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
AMD SMT Option set to Disabled
Determinism Control set to Manual
Performance Determinism set to Power Deterministic
Last-Level Cache (LLC) as NUMA Node set to Enabled
NUMA memory domains per socket set to Four memory domains per socket
Memory Patrol Scrubbing set to Disabled
ACPI CST C2 Latency set to 18 microseconds
Thermal Configuration set to Maximum Cooling
Data Fabric C-State Enable set to Force Enabled
Workload Profile set to Custom
Power Regulator set to OS Control Mode
L2 HW Prefetcher set to Disabled

**(Continued on next page)**

## Platform Notes (Continued)

```
Sysinfo program /home/cpu2026/bin/sysinfo
Rev: 069f95da7e7f5d81b2ce48a82150e54f
running on admin1 Tue Feb  3 10:48:39 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. 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
   10:48:39 up  9:15,  4 users,  load average: 0.08, 0.24, 15.82
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT
  admin1            172.16.0.100     25Nov25 69days  0.00s  0.09s sshd: admin1 [priv]
  admin1   tty1     -                25Nov25 69days  0.10s  0.03s -bash

------------------------------------------------------------
3. Username
```

**(Continued on next page)**

## Platform Notes (Continued)

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

------------------------------------------------------------
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              3094437
  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 ./run_fprate_sh.sh
 sudo ./run_fprate_sh.sh
 /bin/bash ./run_fprate_sh.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

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9754 128-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 25
    model           : 160
    stepping        : 1
    microcode       : 0xaa00116
```

**(Continued on next page)**

## Platform Notes (Continued)

```
     bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso vmscape
     TLB size       : 3584 4K pages
     cpu cores      : 128
     siblings       : 128
     1 physical ids (chips)
     128 processors (hardware threads)
     physical id 0: core ids
    0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
     240-247
     physical id 0: apicids
    0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
     240-247
  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 9754 128-Core Processor
  BIOS Model name:                    AMD EPYC 9754 128-Core Processor                CPU @ 2.2GHz
  BIOS CPU family:                      107
  CPU family:                           25
  Model:                                160
  Thread(s) per core:                   1
  Core(s) per socket:                   128
  Socket(s):                            1
  Stepping:                             1
  Frequency boost:                      enabled
  CPU(s) scaling MHz:                   102%
  CPU max MHz:                          2250.0000
  CPU min MHz:                          1500.0000
  BogoMIPS:                             4493.33
  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
```

**(Continued on next page)**

## Platform Notes (Continued)

```
                                 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
                               ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                             avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d
                                        debug_swap ibpb_exit_to_user
  Virtualization:                       AMD-V
  L1d cache:                            4 MiB (128 instances)
  L1i cache:                            4 MiB (128 instances)
  L2 cache:                             128 MiB (128 instances)
  L3 cache:                             256 MiB (16 instances)
  NUMA node(s):                         16
  NUMA node0 CPU(s):                    0-7
  NUMA node1 CPU(s):                    8-15
  NUMA node2 CPU(s):                    16-23
  NUMA node3 CPU(s):                    24-31
  NUMA node4 CPU(s):                    32-39
  NUMA node5 CPU(s):                    40-47
  NUMA node6 CPU(s):                    48-55
  NUMA node7 CPU(s):                    56-63
  NUMA node8 CPU(s):                    64-71
  NUMA node9 CPU(s):                    72-79
  NUMA node10 CPU(s):                   80-87
  NUMA node11 CPU(s):                   88-95
  NUMA node12 CPU(s):                   96-103
  NUMA node13 CPU(s):                   104-111
  NUMA node14 CPU(s):                   112-119
  NUMA node15 CPU(s):                   120-127
  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/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2:             Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
```

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## Platform Notes (Continued)

```
                                 disabled; RSB filling; PBRSB-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       4M    8 Data            1    64        1             64
     L1i       32K       4M    8 Instruction     1    64        1             64
     L2         1M     128M    8 Unified         2  2048        1             64
     L3        16M     256M   16 Unified         3 16384        1             64

------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 16 nodes (0-15)
  node 0 cpus: 0-7
  node 0 size: 48066 MB
  node 0 free: 47224 MB
  node 1 cpus: 8-15
  node 1 size: 48381 MB
  node 1 free: 48160 MB
  node 2 cpus: 16-23
  node 2 size: 48381 MB
  node 2 free: 48146 MB
  node 3 cpus: 24-31
  node 3 size: 48381 MB
  node 3 free: 48145 MB
  node 4 cpus: 32-39
  node 4 size: 48381 MB
  node 4 free: 48194 MB
  node 5 cpus: 40-47
  node 5 size: 48381 MB
  node 5 free: 48186 MB
  node 6 cpus: 48-55
  node 6 size: 48337 MB
  node 6 free: 48152 MB
  node 7 cpus: 56-63
  node 7 size: 48381 MB
  node 7 free: 48215 MB
  node 8 cpus: 64-71
  node 8 size: 48381 MB
  node 8 free: 48201 MB
  node 9 cpus: 72-79
  node 9 size: 48381 MB
  node 9 free: 48190 MB
  node 10 cpus: 80-87
```

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## Platform Notes (Continued)

```
   node 10 size: 48381 MB
   node 10 free: 48172 MB
   node 11 cpus: 88-95
   node 11 size: 48381 MB
   node 11 free: 48206 MB
   node 12 cpus: 96-103
   node 12 size: 48381 MB
   node 12 free: 48134 MB
   node 13 cpus: 104-111
   node 13 size: 48381 MB
   node 13 free: 48205 MB
   node 14 cpus: 112-119
   node 14 size: 48381 MB
   node 14 free: 48197 MB
   node 15 cpus: 120-127
   node 15 size: 48330 MB
   node 15 free: 48131 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
     0:  10  11  11  11  12  12  12  12  12  12  12  12  12  12  12  12
     1:  11  10  11  11  12  12  12  12  12  12  12  12  12  12  12  12
     2:  11  11  10  11  12  12  12  12  12  12  12  12  12  12  12  12
     3:  11  11  11  10  12  12  12  12  12  12  12  12  12  12  12  12
     4:  12  12  12  12  10  11  11  11  12  12  12  12  12  12  12  12
     5:  12  12  12  12  11  10  11  11  12  12  12  12  12  12  12  12
     6:  12  12  12  12  11  11  10  11  12  12  12  12  12  12  12  12
     7:  12  12  12  12  11  11  11  10  12  12  12  12  12  12  12  12
     8:  12  12  12  12  12  12  12  12  10  11  11  11  12  12  12  12
     9:  12  12  12  12  12  12  12  12  11  10  11  11  12  12  12  12
    10:  12  12  12  12  12  12  12  12  11  11  10  11  12  12  12  12
    11:  12  12  12  12  12  12  12  12  11  11  11  10  12  12  12  12
    12:  12  12  12  12  12  12  12  12  12  12  12  12  10  11  11  11
    13:  12  12  12  12  12  12  12  12  12  12  12  12  11  10  11  11
    14:  12  12  12  12  12  12  12  12  12  12  12  12  11  11  10  11
    15:  12  12  12  12  12  12  12  12  12  12  12  12  11  11  11  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       792257720 kB

------------------------------------------------------------
10. who -r
  run-level 5 Nov 25 18:16

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

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## Platform Notes (Continued)

```
   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-sysext
                      systemd-time-wait-sync systemd-timesyncd 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-6.8.0-90-generic
  root=UUID=c8895b10-3344-47fb-81a4-2b6fb85bbd20
  ro

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 48:
    current policy: frequency should be within 1.50 GHz and 2.25 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes
      Boost States: 0
      Total States: 3
      Pstate-P0:  2250MHz

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

------------------------------------------------------------
16. sysctl
```

**(Continued on next page)**

## Platform Notes (Continued)

```
  kernel.numa_balancing               1
  kernel.randomize_va_space           0
  vm.compaction_proactiveness        20
  vm.dirty_background_bytes           0
  vm.dirty_background_ratio          10
  vm.dirty_bytes                      0
  vm.dirty_expire_centisecs        3000
  vm.dirty_ratio                      8
  vm.dirty_writeback_centisecs      500
  vm.dirtytime_expire_seconds     43200
  vm.extfrag_threshold              500
  vm.min_unmapped_ratio               1
  vm.nr_hugepages                     0
  vm.nr_hugepages_mempolicy           0
  vm.nr_overcommit_hugepages          0
  vm.swappiness                       1
  vm.watermark_boost_factor       15000
  vm.watermark_scale_factor          10
  vm.zone_reclaim_mode                1

------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage
  defrag          [always] defer defer+madvise madvise never
  enabled         [always] madvise never
  hpage_pmd_size  2097152
  shmem_enabled   always within_size advise [never] deny force

------------------------------------------------------------
18. /sys/kernel/mm/transparent_hugepage/khugepaged
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000

------------------------------------------------------------
19. OS release
  From /etc/*-release /etc/*-version
  os-release Ubuntu 24.04.3 LTS

------------------------------------------------------------
20. Disk information
SPEC is set to: /home/cpu2026
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 ext4  438G   93G  324G  23% /
```

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## Platform Notes (Continued)

```
 ------------------------------------------------------------
 21. /sys/devices/virtual/dmi/id
     Vendor:          HPE
     Product:         ProLiant DL325 Gen11
     Product Family:  ProLiant
     Serial:          DL325G11-008

 ------------------------------------------------------------
 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:
     3x Hynix HMCG94AEBRA103N 64 GB 2 rank 4800
     1x Hynix HMCG94AEBRA123N 64 GB 2 rank 4800
     8x Hynix HMCG94MEBRA121N 64 GB 2 rank 4800


 ------------------------------------------------------------
 23. BIOS
 (This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       HPE
    BIOS Version:      2.90
    BIOS Date:         01/09/2026
    BIOS Revision:     2.90
    Firmware Revision: 1.70
```

## 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/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
```

**(Continued on next page)**

## Compiler Version Notes (Continued)

```
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`

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-fast-math -DSPEC_LP64`

**(Continued on next page)**

## Base Portability Flags (Continued)

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
-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
```

**(Continued on next page)**

## Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):
-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.astcenc_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

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-Turin-rev1.11.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-Turin-rev1.11.xml
http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.xml


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


Tested with SPEC CPU®2026 v0.902.0 on 2026-02-03 05:48:38-0500.
Report generated on 2026-05-11 16:38:17 by CPU2026 PS formatter (86729d3b).
Originally published on 2026-05-05.