SPEC CPU®2026 Floating Point Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

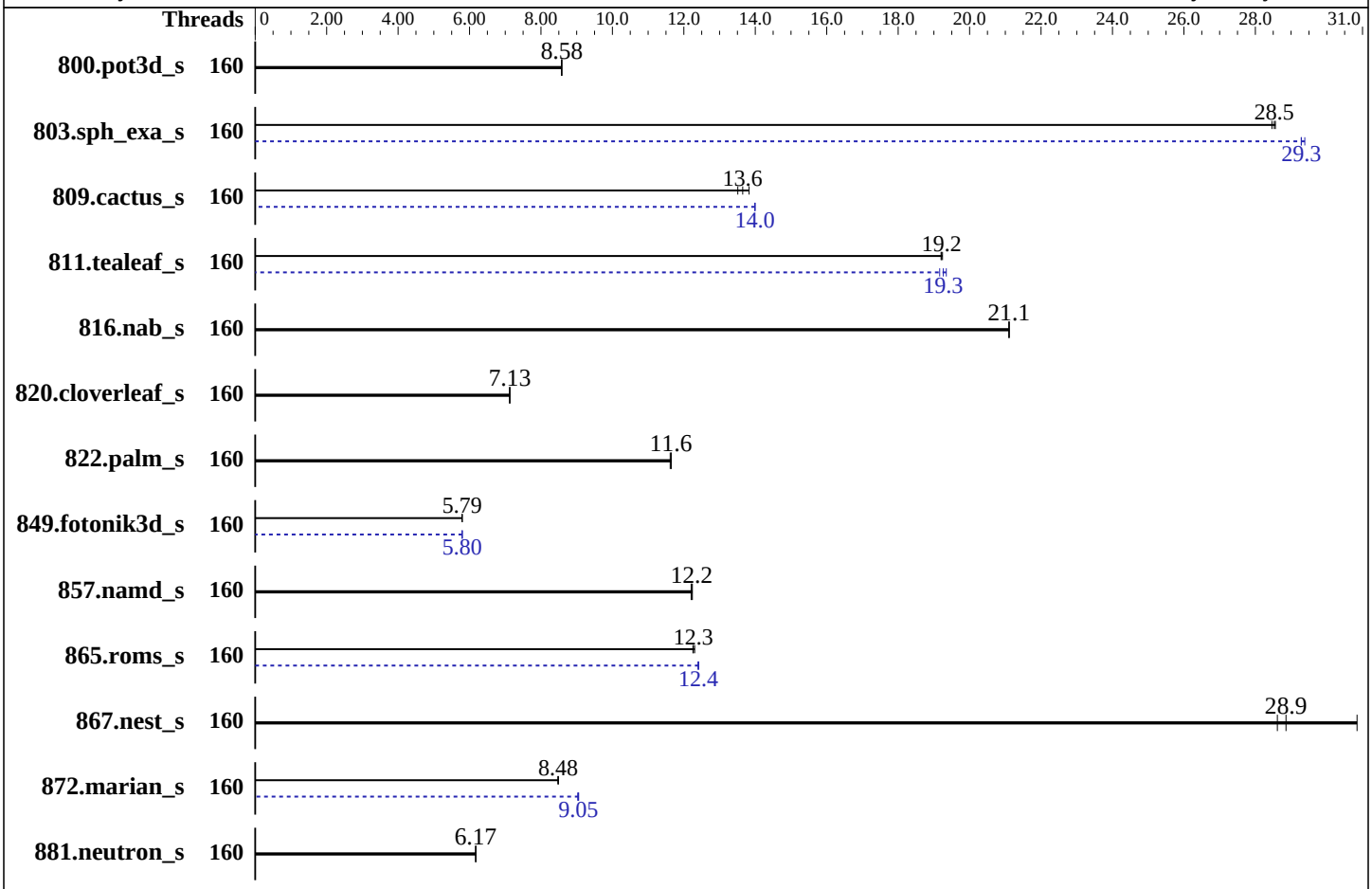
ProLiant DL345 Gen11
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2026_fp_base = 12.3

SPECspeed®2026_fp_peak = 12.4

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

Test Date: Sep-2026
Hardware Availability: Jan-2025
Software Availability: May-2026



Hardware

CPU Name:	AMD EPYC 9845
Max MHz:	3700
Nominal:	2100
Enabled:	160 cores, 1 chip
Orderable:	1 Chip
Cache L1:	32 KB I + 48 KB D on chip per core
L2:	1 MB I+D on chip per core
L3:	320 MB I+D on chip per chip, 32 MB shared / 16 cores
Other:	None
Memory:	768 GB (12 x 64 GB 2Rx4 PC5-6400B-R)
Storage:	1 x 3.2 TB NVMe SSD
Cooling:	Air
Other:	None

Software

OS:	SUSE Linux Enterprise Server 15 SP7 Kernel 6.4.0-150700.53.6-default
Compiler:	C/C++: Version 5.2.0 of AOCC Fortran: Flang v22
Compiler Category:	Vendor
Firmware:	HPE BIOS Version v3.22 08/20/2026 released Aug-2026
File System:	btrfs
System State:	Run level 3 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	None
Power Management:	BIOS and OS set to prefer performance at the cost of additional power usage

SPEC CPU®2026 Floating Point Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL345 Gen11
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2026_fp_base = 12.3

SPECspeed®2026_fp_peak = 12.4

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

Test Date: Sep-2026
Hardware Availability: Jan-2025
Software Availability: May-2026

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
800.pot3d_s	160	78.5	8.57	**78.4**	**8.58**	78.4	8.59	160	78.5	8.57	**78.4**	**8.58**	78.4	8.59
803.sph_exa_s	160	**43.4**	**28.5**	43.3	28.6	43.5	28.5	160	42.1	29.4	**42.3**	**29.3**	42.3	29.3
809.cactus_s	160	**82.2**	**13.6**	83.0	13.5	81.1	13.8	160	80.2	14.0	**80.2**	**14.0**	80.2	14.0
811.tealeaf_s	160	28.9	19.2	**29.0**	**19.2**	29.0	19.2	160	**28.9**	**19.3**	29.1	19.2	28.8	19.3
816.nab_s	160	**53.4**	**21.1**	53.4	21.1	53.3	21.1	160	**53.4**	**21.1**	53.4	21.1	53.3	21.1
820.cloverleaf_s	160	120	7.13	120	7.12	**120**	**7.13**	160	120	7.13	120	7.12	**120**	**7.13**
822.palm_s	160	**106**	**11.6**	105	11.6	106	11.6	160	**106**	**11.6**	105	11.6	106	11.6
849.fotonik3d_s	160	114	5.79	114	5.79	**114**	**5.79**	160	114	5.80	**114**	**5.80**	114	5.79
857.namd_s	160	119	12.2	**119**	**12.2**	119	12.2	160	119	12.2	**119**	**12.2**	119	12.2
865.roms_s	160	88.6	12.3	88.9	12.3	**88.8**	**12.3**	160	87.8	12.4	**87.8**	**12.4**	87.9	12.4
867.nest_s	160	**74.8**	**28.9**	75.5	28.6	70.0	30.8	160	**74.8**	**28.9**	75.5	28.6	70.0	30.8
872.marian_s	160	128	8.47	127	8.49	**128**	**8.48**	160	119	9.06	120	9.03	**120**	**9.05**
881.neutron_s	160	132	6.17	**132**	**6.17**	132	6.18	160	132	6.17	**132**	**6.17**	132	6.18

SPECspeed®2026_fp_base = 12.3

SPECspeed®2026_fp_peak = 12.4

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

Compiler Notes

```
The AMD64 AOCC Compiler Suite is available at
http://developer.amd.com/amd-aocc/
Flang v22 is available at
https://flang.llvm.org/
```

Submit Notes

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

Operating System Notes

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

runcpu command invoked through numactl i.e.:
    numactl --physcpubind=0-15 runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
```

(Continued on next page)

Operating System Notes (Continued)

```
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

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

To disable Transparent Hugepages (THP) for 816.nab_s,865.roms_s=peak:
'echo never > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo never > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
tuned-adm profile was set to throughput-performance using 'tuned-adm profile throughput-performance'
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-159"
LD_LIBRARY_PATH =
     "/home/cpu2026/amd_speed_aocc520_znver5_A_lib/lib:/home/cpu2026/amd_spee
     d_aocc520_znver5_A_lib/lib32:/usr/local/python3.12/lib:"
MALLOC_CONF = "retain:true"
OMP_THREAD_LIMIT = "160"
```

General Notes

```
Binaries were compiled on a system with an AMD EPYC 9754 CPU + 768 GiB
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 Peak Frequency Compute
Determinism Control set to Manual
Performance Determinism set to Power Deterministic
Memory Patrol Scrubbing set to Disabled
Last-Level Cache (LLC) as NUMA Node set to Enabled
ACPI CST C2 Latency set to 18 microseconds
```

(Continued on next page)

Platform Notes (Continued)

```
Thermal Configuration set to Maximum Cooling
AMD SMT Option set to Disabled
Workload Profile set to Custom
 Power Regulator set to OS Control Mode

 Sysinfo program /home/cpu2026/bin/sysinfo
 Rev: 779ab21020787073335a329f3a45e2cd
 running on localhost Wed Sep 16 10:50:44 2026

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

 ------------------------------------------------------------
 Table of contents
 ------------------------------------------------------------
  1. uname -srvm
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 254 (254.27+suse.167.g130293e510)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. tuned-adm active
 16. sysctl
 17. /sys/kernel/mm/transparent_hugepage
 18. /sys/kernel/mm/transparent_hugepage/khugepaged
 19. OS release
 20. Disk information
 21. /sys/devices/virtual/dmi/id
 22. dmidecode
 23. BIOS
 ------------------------------------------------------------

 ------------------------------------------------------------
 1. uname -srvm
   Linux 6.4.0-150700.53.6-default #1 SMP PREEMPT_DYNAMIC Tue Jul  1 14:54:47 UTC 2025 (8ab7501) x86_64

 ------------------------------------------------------------
 2. w
    10:50:44 up 56 min,  6 users,  load average: 0.00, 0.00, 0.00
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
```

(Continued on next page)

Platform Notes (Continued)

```
  root     pts/0    172.16.0.100     10:47   27.00s  1.71s  0.72s python3 ./run_520_fpspeed.py

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

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) unlimited
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 3094452
  max locked memory       (kbytes, -l) 2048
  max memory size         (kbytes, -m) unlimited
  open files                      (-n) 1024
  pipe size            (512 bytes, -p) 8
  POSIX message queues     (bytes, -q) 819200
  real-time priority              (-r) 0
  stack size              (kbytes, -s) unlimited
  cpu time               (seconds, -t) unlimited
  max user processes              (-u) 3094452
  virtual memory          (kbytes, -v) unlimited
  file locks                      (-x) unlimited

------------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize=42
 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
 sshd: root [priv]
 sshd: root@pts/0
 -bash
 python3 ./run_520_fpspeed.py
 runcpu --config amd_speed_aocc520_znver5_A1.cfg --tune all --reportable --iterations 3 fpspeed
 runcpu --configfile amd_speed_aocc520_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
   --runmode speed --tune base:peak --size test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2026.001/templogs/preenv.fpspeed.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2026

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9845 160-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 17
    stepping        : 0
```

(Continued on next page)

Platform Notes (Continued)

```
     microcode       : 0xb101066
     bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
     TLB size        : 192 4K pages
     cpu cores       : 160
     siblings        : 160
     1 physical ids (chips)
     160 processors (hardware threads)
     physical id 0: core ids 0-159
     physical id 0: apicids 0-159
   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 2.40.4:
   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):                                  160
   On-line CPU(s) list:                     0-159
   Vendor ID:                               AuthenticAMD
   Model name:                              AMD EPYC 9845 160-Core Processor
   CPU family:                              26
   Model:                                   17
   Thread(s) per core:                      1
   Core(s) per socket:                      160
   Socket(s):                               1
   Stepping:                                0
   Frequency boost:                         enabled
   CPU(s) scaling MHz:                      100%
   CPU max MHz:                             2100.0000
   CPU min MHz:                             1500.0000
   BogoMIPS:                                4193.29
   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
```

(Continued on next page)

Platform Notes (Continued)

```
                                    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 hv_inuse_wr_allowed
                                             srso_user_kernel_no amd_lbr_pmc_freeze
  Virtualization:                            AMD-V
  L1d cache:                                 7.5 MiB (160 instances)
  L1i cache:                                 5 MiB (160 instances)
  L2 cache:                                  160 MiB (160 instances)
  L3 cache:                                  320 MiB (10 instances)
  NUMA node(s):                              10
  NUMA node0 CPU(s):                         0-15
  NUMA node1 CPU(s):                         16-31
  NUMA node2 CPU(s):                         32-47
  NUMA node3 CPU(s):                         48-63
  NUMA node4 CPU(s):                         64-79
  NUMA node5 CPU(s):                         80-95
  NUMA node6 CPU(s):                         96-111
  NUMA node7 CPU(s):                         112-127
  NUMA node8 CPU(s):                         128-143
  NUMA node9 CPU(s):                         144-159
  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:        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
                                              disabled; PBRSB-eIBRS Not affected; BHI Not affected
  Vulnerability Srbds:                       Not affected
  Vulnerability Tsx async abort:             Not affected

From lscpu --cache:
     NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL  SETS PHY-LINE COHERENCY-SIZE
     L1d       48K     7.5M   12 Data            1    64        1             64
```

(Continued on next page)

Platform Notes (Continued)

```
      L1i       32K       5M    8 Instruction     1    64        1              64
      L2         1M     160M   16 Unified         2  1024        1              64
      L3        32M     320M   16 Unified         3 32768        1              64

 ------------------------------------------------------------
 8. numactl --hardware
 NOTE: a numactl 'node' might or might not correspond to a physical chip.
   available: 10 nodes (0-9)
   node 0 cpus: 0-15
   node 0 size: 77055 MB
   node 0 free: 76756 MB
   node 1 cpus: 16-31
   node 1 size: 77409 MB
   node 1 free: 77225 MB
   node 2 cpus: 32-47
   node 2 size: 77411 MB
   node 2 free: 77144 MB
   node 3 cpus: 48-63
   node 3 size: 77409 MB
   node 3 free: 77218 MB
   node 4 cpus: 64-79
   node 4 size: 77411 MB
   node 4 free: 76943 MB
   node 5 cpus: 80-95
   node 5 size: 77411 MB
   node 5 free: 77110 MB
   node 6 cpus: 96-111
   node 6 size: 77409 MB
   node 6 free: 77207 MB
   node 7 cpus: 112-127
   node 7 size: 77411 MB
   node 7 free: 77225 MB
   node 8 cpus: 128-143
   node 8 size: 77411 MB
   node 8 free: 77228 MB
   node 9 cpus: 144-159
   node 9 size: 77300 MB
   node 9 free: 76916 MB
   node distances:
   node   0   1   2   3   4   5   6   7   8   9
     0:  10  11  11  11  11  11  11  11  11  11
     1:  11  10  11  11  11  11  11  11  11  11
     2:  11  11  10  11  11  11  11  11  11  11
     3:  11  11  11  10  11  11  11  11  11  11
     4:  11  11  11  11  10  11  11  11  11  11
     5:  11  11  11  11  11  10  11  11  11  11
     6:  11  11  11  11  11  11  10  11  11  11
```

(Continued on next page)

Platform Notes (Continued)

```
     7:  11  11  11  11  11  11  11  10  11  11
     8:  11  11  11  11  11  11  11  11  10  11
     9:  11  11  11  11  11  11  11  11  11  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       792210248 kB

------------------------------------------------------------
10. who -r
  run-level 3 Sep 16 09:54

------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.27+suse.167.g130293e510)
  Default Target  Status
  multi-user      running

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE             UNIT FILES
  enabled          ModemManager YaST2-Firstboot YaST2-Second-Stage apparmor appstream-sync-cache auditd
                    bluetooth cron display-manager getty@ irqbalance issue-generator kbdsettings klog
                   lvm2-monitor nscd nvmefc-boot-connections nvmf-autoconnect postfix purge-kernels rollback
                   rsyslog smartd sshd systemd-pstore tuned wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
                       wickedd-nanny wpa_supplicant
  enabled-runtime  systemd-remount-fs
  disabled        NetworkManager NetworkManager-dispatcher NetworkManager-wait-online accounts-daemon autofs
                    autoyast-initscripts blk-availability bluetooth-mesh boot-sysctl ca-certificates
                    chrony-wait chronyd console-getty cups cups-browsed debug-shell dnsmasq ebtables
                    exchange-bmc-os-info firewalld fsidd gnome-remote-desktop gpm grub2-once haveged
                   hwloc-dump-hwdata ipmi ipmievd issue-add-ssh-keys kexec-load lunmask man-db-create
                   multipathd nfs nfs-blkmap nmb openvpn@ ostree-remount ostree-state-overlay@ rpcbind
                  rpmconfigcheck rsyncd rtkit-daemon samba-bgqd serial-getty@ smartd_generate_opts smb snmpd
                     snmptrapd speech-dispatcherd systemd-boot-check-no-failures systemd-confext
                  systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2
                       update-system-flatpaks upower vncserver@ wpa_supplicant@
  indirect             pcscd saned@ systemd-userdbd wickedd

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.4.0-150700.53.6-default
  root=UUID=3deb62b8-ae07-42ef-8d32-e9be1662f4ec
  splash=silent
  mitigations=auto
  quiet
  security=apparmor
```

(Continued on next page)

Platform Notes (Continued)

```
------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 47:
    current policy: frequency should be within 1.50 GHz and 2.10 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. tuned-adm active
  Current active profile: throughput-performance

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

(Continued on next page)

Platform Notes (Continued)

```
  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 SUSE Linux Enterprise Server 15 SP7

------------------------------------------------------------
20. Disk information
SPEC is set to: /home/cpu2026
  Filesystem     Type   Size  Used Avail Use% Mounted on
  /dev/nvme0n1p2 btrfs  3.0T   29G  2.9T   1% /home

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:          HPE
    Product:         ProLiant DL345 Gen11
    Product Family: ProLiant
    Serial:          DL345G11-002

------------------------------------------------------------
22. dmidecode
  Additional information from dmidecode 3.6 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:
     11x Hynix HMCG94AHBRA480N 64 GB 2 rank 6400
     1x Hynix HMCG94AHBRA487N 64 GB 2 rank 6400


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
   BIOS Vendor:       HPE
   BIOS Version:      3.22
   BIOS Date:         08/20/2026
   BIOS Revision:     3.22
   Firmware Revision: 1.77
```

Compiler Version Notes

```
==============================================================================
C       | 811.tealeaf_s(base, peak) 816.nab_s(base, peak) 881.neutron_s(base,
        | peak)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.2.0-Build#2035 2026_04_10)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.2.0-4925-2035/bin
------------------------------------------------------------------------------

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

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

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

Base Compiler Invocation

C benchmarks:
clang

(Continued on next page)

Base Compiler Invocation (Continued)

C++ benchmarks:
clang++

Fortran benchmarks:
flang-22

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

Base Portability Flags

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

Base Optimization Flags

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

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

(Continued on next page)

Base Optimization Flags (Continued)

C++ benchmarks (continued):
-pthread -lamdalloc -lamdlibm -fopenmp=libomp -lomp

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

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

Base Other Flags

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

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

Peak Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

Fortran benchmarks:
flang-22

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

811.tealeaf_s: -m64 -std=c18
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -flto
-march=znver5 -fveclib=AMDLIBM -ffast-math
-fremap-arrays -fstrip-mining -fstruct-layout=7
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -fopenmp -DSPEC_OPENMP
-lamdalloc -lamdlibm -fopenmp=libomp -lomp

816.nab_s: basepeak = yes

881.neutron_s: basepeak = yes

C++ benchmarks:

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

857.namd_s: basepeak = yes

867.nest_s: basepeak = yes

872.marian_s: Same as 803.sph_exa_s

Fortran benchmarks:

800.pot3d_s: basepeak = yes

820.cloverleaf_s: basepeak = yes

(Continued on next page)

Peak Optimization Flags (Continued)

822.palm_s: `basepeak = yes`

849.fotonik3d_s: `-m64 -std=f2018 -O3 -flto -march=znver5 -fveclib=AMDLIBM -ffast-math -funroll-loops -DSPEC_OPENMP -fopenmp -fdo-concurrent-to-openmp=host -lamdalloc -lamdlibm -fopenmp=libomp -lomp`

865.roms_s: `Same as 849.fotonik3d_s`

Benchmarks using both C and C++:
`-m64 -std=c++17 -std=c18 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6 -Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -flto -march=znver5 -fveclib=AMDLIBM -ffast-math -fremap-arrays -fstrip-mining -fstruct-layout=7 -mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3 -mllvm -unroll-threshold=50 -mllvm -unroll-threshold=100 -fopenmp -DSPEC_OPENMP -pthread -lamdalloc -lamdlibm -fopenmp=libomp -lomp`

Peak Other Flags

C benchmarks (except as noted below):
`-Wno-return-type -Wno-unused-command-line-argument`

811.tealeaf_s: `-Wno-return-type`

Benchmarks using both C and C++:
`-Wno-return-type`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-10-07.00.html`
`http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Turin-rev1.12.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-10-07.00.xml`
`http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Turin-rev1.12.xml`

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2026 v1.0.1 on 2026-09-16 01:20:44-0400.
Report generated on 2026-10-07 10:41:50 by CPU2026 PS formatter (86729d3b).
Originally published on 2026-10-06.