SPEC CPU®2026 Floating Point Speed Result

Hewlett Packard Enterprise

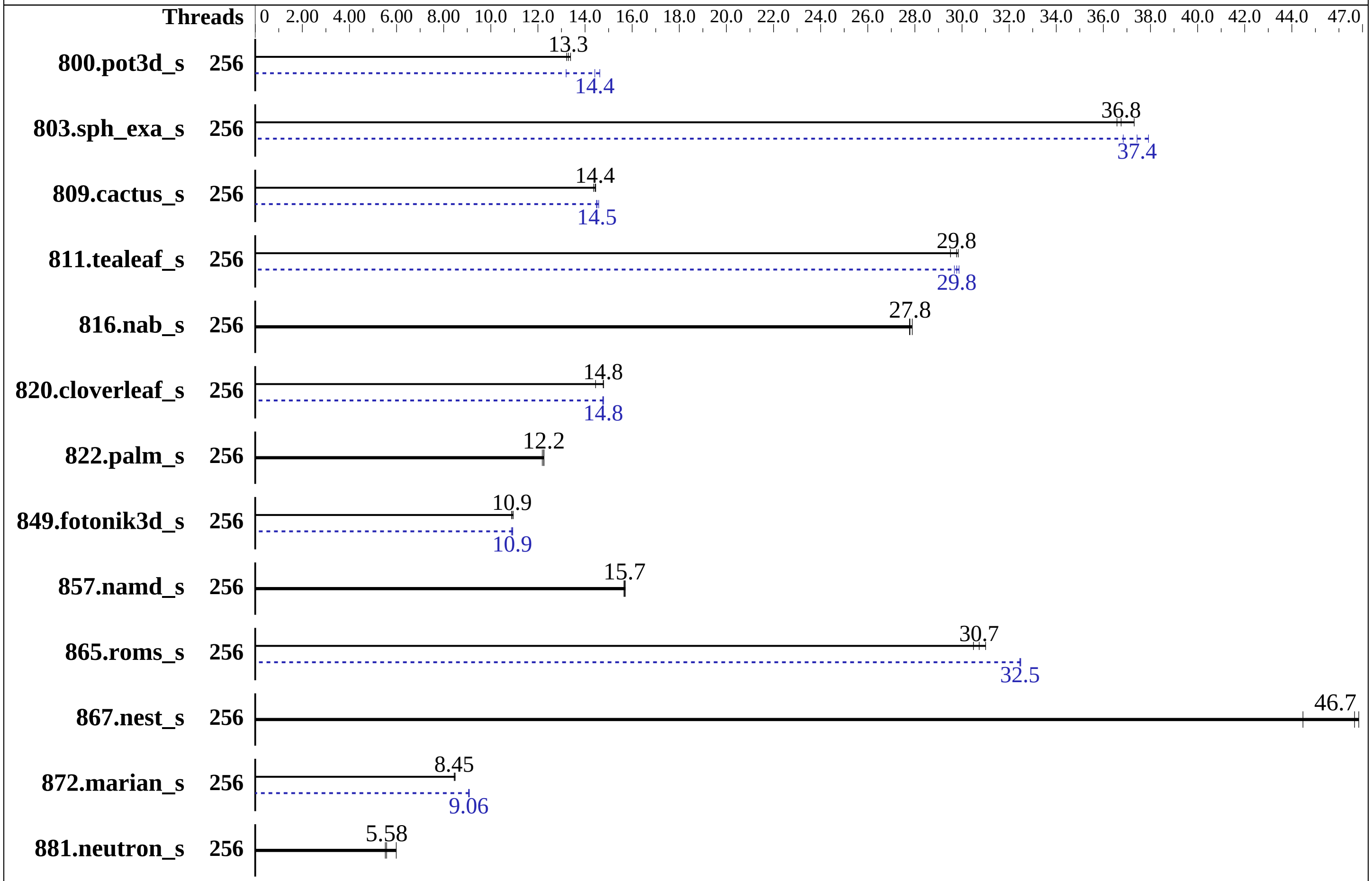
(Test Sponsor: HPE)

ProLiant DL365 Gen11
(2.40 GHz, AMD EPYC 9745)

SPECspeed®2026_fp_base = 17.3

SPECspeed®2026_fp_peak = 17.6

CPU2026 License:	3	**Test Date:**	Sep-2026
Test Sponsor:	HPE	**Hardware Availability:**	Oct-2024
Tested by:	HPE	**Software Availability:**	May-2026



Hardware

CPU Name:	AMD EPYC 9745
Max MHz:	3700
Nominal:	2400
Enabled:	256 cores, 2 chips
Orderable:	1,2 Chips
Cache L1:	32 KB I + 48 KB D on chip per core
L2:	1 MB I+D on chip per core
L3:	256 MB I+D on chip per chip, 32 MB shared / 16 cores
Other:	None
Memory:	1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R)
Storage:	1 x 1.6 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

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
800.pot3d_s	256	50.3	13.4	50.9	13.2	**50.6**	**13.3**	256	46.0	14.6	**46.7**	**14.4**	51.0	13.2
803.sph_exa_s	256	33.2	37.3	33.8	36.6	**33.7**	**36.8**	256	**33.1**	**37.4**	33.6	36.8	32.7	37.9
809.cactus_s	256	78.1	14.4	77.6	14.5	**77.8**	**14.4**	256	**77.3**	**14.5**	77.5	14.5	77.0	14.6
811.tealeaf_s	256	**18.7**	**29.8**	18.7	29.8	18.9	29.5	256	18.6	29.9	**18.7**	**29.8**	18.8	29.7
816.nab_s	256	**40.5**	**27.8**	40.5	27.8	40.4	27.9	256	**40.5**	**27.8**	40.5	27.8	40.4	27.9
820.cloverleaf_s	256	59.3	14.4	58.0	14.8	**58.0**	**14.8**	256	58.0	14.8	**58.0**	**14.8**	58.1	14.7
822.palm_s	256	100	12.3	**100**	**12.2**	101	12.2	256	100	12.3	**100**	**12.2**	101	12.2
849.fotonik3d_s	256	**60.5**	**10.9**	60.6	10.9	60.3	11.0	256	60.4	10.9	60.7	10.9	**60.5**	**10.9**
857.namd_s	256	92.8	15.7	92.4	15.7	**92.6**	**15.7**	256	92.8	15.7	92.4	15.7	**92.6**	**15.7**
865.roms_s	256	**35.5**	**30.7**	35.8	30.5	35.2	31.0	256	33.5	32.5	**33.6**	**32.5**	33.6	32.5
867.nest_s	256	46.1	46.8	48.6	44.5	**46.3**	**46.7**	256	46.1	46.8	48.6	44.5	**46.3**	**46.7**
872.marian_s	256	128	8.45	127	8.49	**128**	**8.45**	256	**119**	**9.06**	119	9.06	119	9.09
881.neutron_s	256	**146**	**5.58**	148	5.52	136	5.99	256	**146**	**5.58**	148	5.52	136	5.99

SPECspeed®2026_fp_base = 17.3

SPECspeed®2026_fp_peak = 17.6

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,
```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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.
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-255"
LD_LIBRARY_PATH =
     "/home/cpu2026/amd_speed_aocc520_znver5_A_lib/lib:/home/cpu2026/amd_spee
     d_aocc520_znver5_A_lib/lib32:"
MALLOC_CONF = "retain:true"
OMP_THREAD_LIMIT = "256"
```

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
ACPI CST C2 Latency set to 18 microseconds
Thermal Configuration set to Maximum Cooling
AMD SMT Option set to Disabled
```

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Platform Notes (Continued)

```
Workload Profile set to Custom
 Power Regulator set to OS Control Mode

 Sysinfo program /home/cpu2026/bin/sysinfo
 Rev: 779ab21020787073335a329f3a45e2cd
 running on localhost Tue Sep 15 20:03:50 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. sysctl
 16. /sys/kernel/mm/transparent_hugepage
 17. /sys/kernel/mm/transparent_hugepage/khugepaged
 18. OS release
 19. Disk information
 20. /sys/devices/virtual/dmi/id
 21. dmidecode
 22. BIOS
 ------------------------------------------------------------

 ------------------------------------------------------------
 1. uname -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
    20:03:51 up 2 min,  4 users,  load average: 0.47, 0.25, 0.10
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT

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

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Platform Notes (Continued)

```
  From environment variable $USER:  root

------------------------------------------------------------
4. ulimit -a
  core file size          (blocks, -c) 0
  data seg size           (kbytes, -d) unlimited
  scheduling priority             (-e) 0
  file size               (blocks, -f) unlimited
  pending signals                 (-i) 6190728
  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) 6190728
  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@notty
 /bin/bash $SPEC/run_fpspeed_sh.sh
 sudo ./run_fpspeed.py
 python3 ./run_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 9745 128-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 17
    stepping        : 0
    microcode       : 0xb101066
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
    TLB size        : 192 4K pages
```

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Platform Notes (Continued)

```
    cpu cores       : 128
    siblings        : 128
    2 physical ids (chips)
    256 processors (hardware threads)
    physical id 0: core ids 0-127
    physical id 1: core ids 0-127
    physical id 0: apicids 0-127
    physical id 1: apicids 128-255
  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):                                  256
  On-line CPU(s) list:                     0-255
  Vendor ID:                               AuthenticAMD
  Model name:                              AMD EPYC 9745 128-Core Processor
  CPU family:                              26
  Model:                                   17
  Thread(s) per core:                      1
  Core(s) per socket:                      128
  Socket(s):                               2
  Stepping:                                0
  Frequency boost:                         enabled
  CPU(s) scaling MHz:                      100%
  CPU max MHz:                             2400.0000
  CPU min MHz:                             1500.0000
  BogoMIPS:                                4792.31
  Flags:                                   fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat
                                           pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt
                                           pdpe1gb rdtscp lm constant_tsc rep_good amd_lbr_v2 nopl
                                           nonstop_tsc cpuid extd_apicid aperfmperf rapl pni pclmulqdq
                                           monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes
                                           xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy
                                           abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce
                                           topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb
                                           cat_l3 cdp_l3 hw_pstate ssbd mba perfmon_v2 ibrs ibpb stibp
                                           ibrs_enhanced vmmcall fsgsbase tsc_adjust bmi1 avx2 smep bmi2 erms
                                           invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma
                                           clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec
                                           xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
```

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Platform Notes (Continued)

```
                                              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:                                  12 MiB (256 instances)
  L1i cache:                                  8 MiB (256 instances)
  L2 cache:                                   256 MiB (256 instances)
  L3 cache:                                   512 MiB (16 instances)
  NUMA node(s):                               2
  NUMA node0 CPU(s):                          0-127
  NUMA node1 CPU(s):                          128-255
  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      12M   12 Data            1    64        1             64
     L1i       32K       8M    8 Instruction     1    64        1             64
     L2         1M     256M   16 Unified         2  1024        1             64
     L3        32M     512M   16 Unified         3 32768        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: 0-127
```

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Platform Notes (Continued)

```
    node 0 size: 773794 MB
    node 0 free: 772381 MB
    node 1 cpus: 128-255
    node 1 size: 773917 MB
    node 1 free: 772388 MB
    node distances:
    node   0   1
      0:  10  32
      1:  32  10

  ------------------------------------------------------------
  9. /proc/meminfo
     MemTotal:       1584856724 kB

  ------------------------------------------------------------
  10. who -r
    run-level 3 Sep 15 20:02

  ------------------------------------------------------------
  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 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 tuned
                     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
```

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Platform Notes (Continued)

```
  root=UUID=d0ab7ebe-8d2b-4ca4-97d8-878a5337a104
  splash=silent
  mitigations=auto
  quiet
  security=apparmor

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 14:
    current policy: frequency should be within 1.50 GHz and 2.40 GHz.
                    The governor "performance" may decide which speed to use
                    within this range.
    boost state support:
      Supported: yes
      Active: yes

------------------------------------------------------------
15. 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

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

------------------------------------------------------------
17. /sys/kernel/mm/transparent_hugepage/khugepaged
```

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Platform Notes (Continued)

```
  alloc_sleep_millisecs   60000
  defrag                      1
  max_ptes_none             511
  max_ptes_shared           256
  max_ptes_swap              64
  pages_to_scan            4096
  scan_sleep_millisecs    10000

------------------------------------------------------------
18. OS release
  From /etc/*-release /etc/*-version
  os-release SUSE Linux Enterprise Server 15 SP7

------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2026
  Filesystem     Type   Size  Used Avail Use% Mounted on
  /dev/nvme1n1p2 btrfs  1.5T   35G  1.5T   3% /home

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         HPE
    Product:        ProLiant DL365 Gen11
    Product Family: ProLiant
    Serial:         DL365G11-008

------------------------------------------------------------
21. 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:
    10x Hynix HMCG94AHBRA480N 64 GB 2 rank 6400
    1x Hynix HMCG94AHBRA487N 64 GB 2 rank 6400
    1x Micron MTC40F2046S1RC64BD2 MWFF 64 GB 2 rank 6400
    12x Micron MTC40F2046S1RC64BD2 QSFF 64 GB 2 rank 6400


------------------------------------------------------------
22. 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: 1.79
```

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

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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

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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: `-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`

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Peak Optimization Flags (Continued)

820.cloverleaf_s: `Same as 800.pot3d_s`

822.palm_s: `basepeak = yes`

849.fotonik3d_s: `Same as 800.pot3d_s`

865.roms_s: `Same as 800.pot3d_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

Tested with SPEC CPU®2026 v1.0.1 on 2026-09-15 10:33:50-0400.
Report generated on 2026-10-07 10:41:50 by CPU2026 PS formatter (86729d3b).
Originally published on 2026-10-06.