



SPEC CPU®2026 Floating Point Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

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

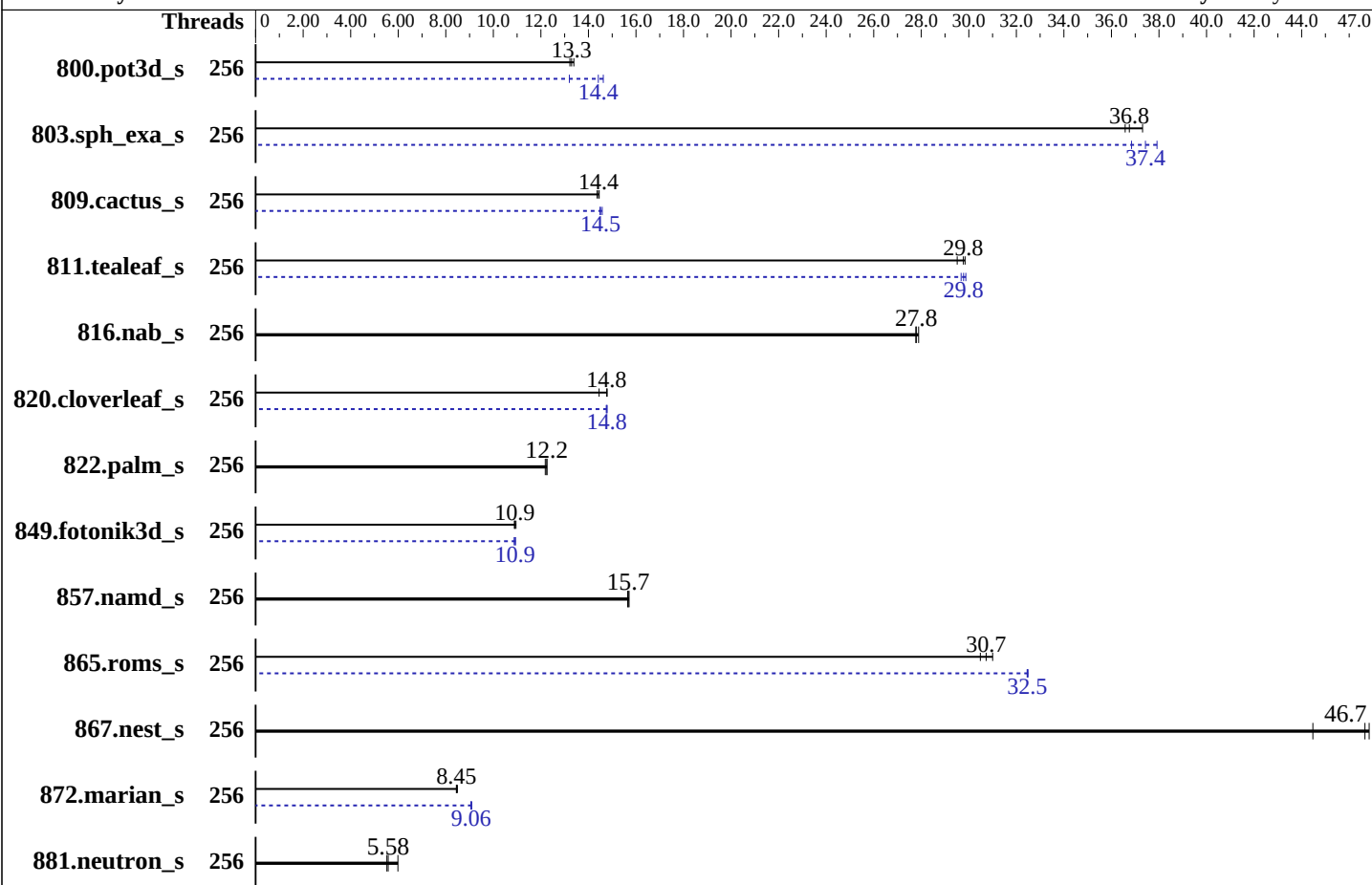
Test Sponsor: HPE

Tested by: HPE

Test Date: Sep-2026

Hardware Availability: Oct-2024

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



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

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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/>

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_speed_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 aperfmpperf 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 pftthreshold 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/swaps barriers and __user pointer
sanitization

Vulnerability Spectre v2:

Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
disabled; PBRSE-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 nvme-fc-boot-connections nvme-fc-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-init-scripts blk-availability bluetooth-mesh boot-sysctl ca-certificates
chrony-wait chronyd console-getty cups cups-browsed debug-shell dnsmasq ebttables
exchange-bmc-os-info firewallld 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-sysexit systemd-time-wait-sync systemd-timesyncd tuned

indirect udisks2 update-system-flatpaks upower vncserver@ wpa_supplicant@

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 HMC94AHBRA480N 64 GB 2 rank 6400
1x Hynix HMC94AHBRA487N 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



SPEC CPU®2026 Floating Point Speed Result

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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 Sponsor: HPE

Tested by: HPE

Test Date: Sep-2026

Hardware Availability: Oct-2024

Software Availability: May-2026

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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Software Availability: May-2026

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=2000000
-mllvm -reduce-array-computations=3 -zopt -fopenmp -DSPEC_OPENMP

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Tested by: HPE

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Hardware Availability: Oct-2024

Software Availability: May-2026

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



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Software Availability: May-2026

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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Software Availability: May-2026

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>

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

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