



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

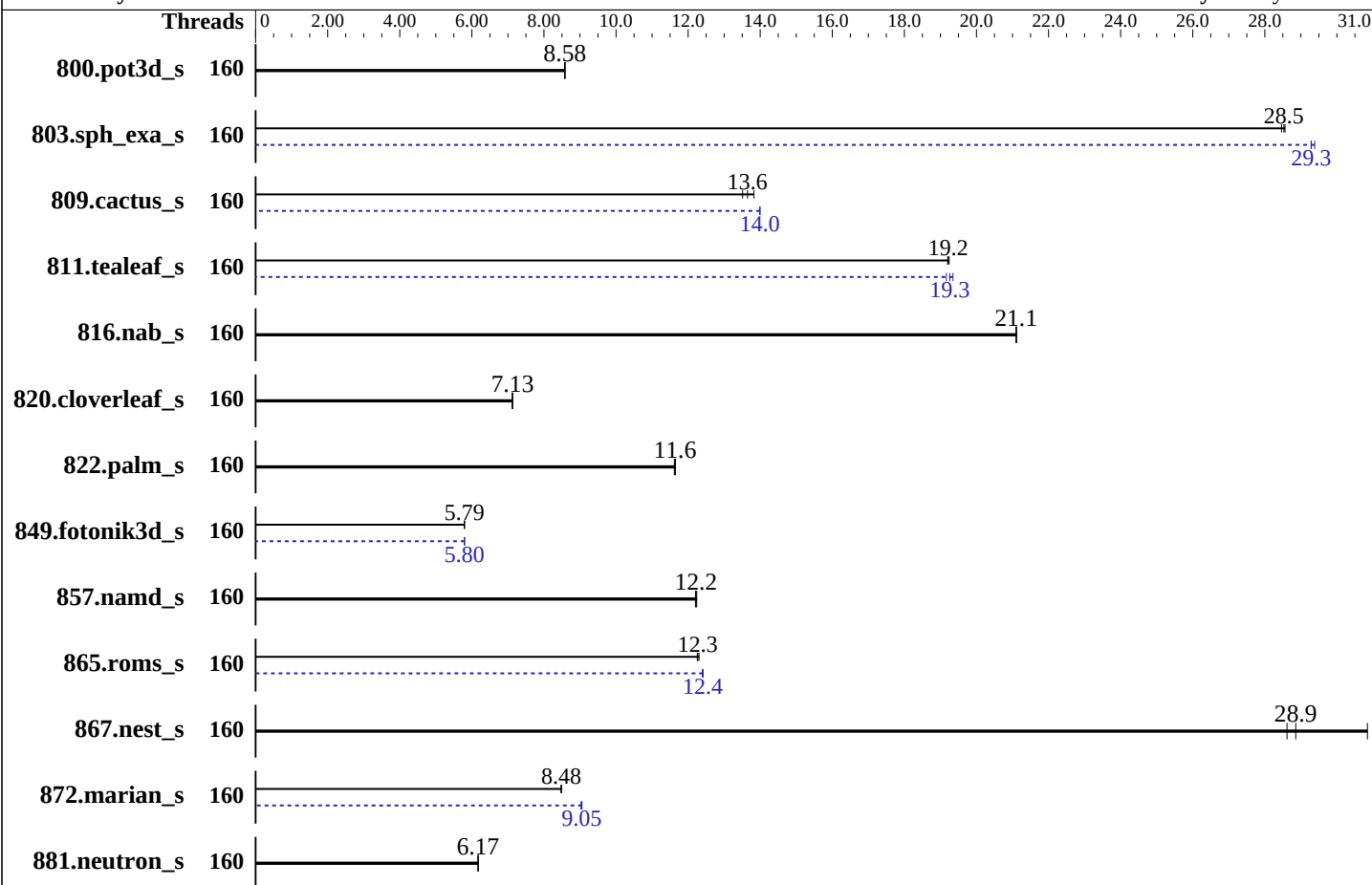
Test Sponsor: HPE

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



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

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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,

(Continued on next page)



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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.

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_speed_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

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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

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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/temlogs/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
```

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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 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

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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:

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; 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	7.5M	12	Data	1	64	1	64

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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
```

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Platform Notes (Continued)

```
7: 11 11 11 11 11 11 11 11 10 11 11
8: 11 11 11 11 11 11 11 11 11 10 11
9: 11 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 nvme-fc-boot-connections nvme-fc-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 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 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

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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

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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

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 HMC94AHBRA480N 64 GB 2 rank 6400

1x Hynix HMC94AHBRA487N 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



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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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Tested by: HPE

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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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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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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
-freemap-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)



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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>

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