SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

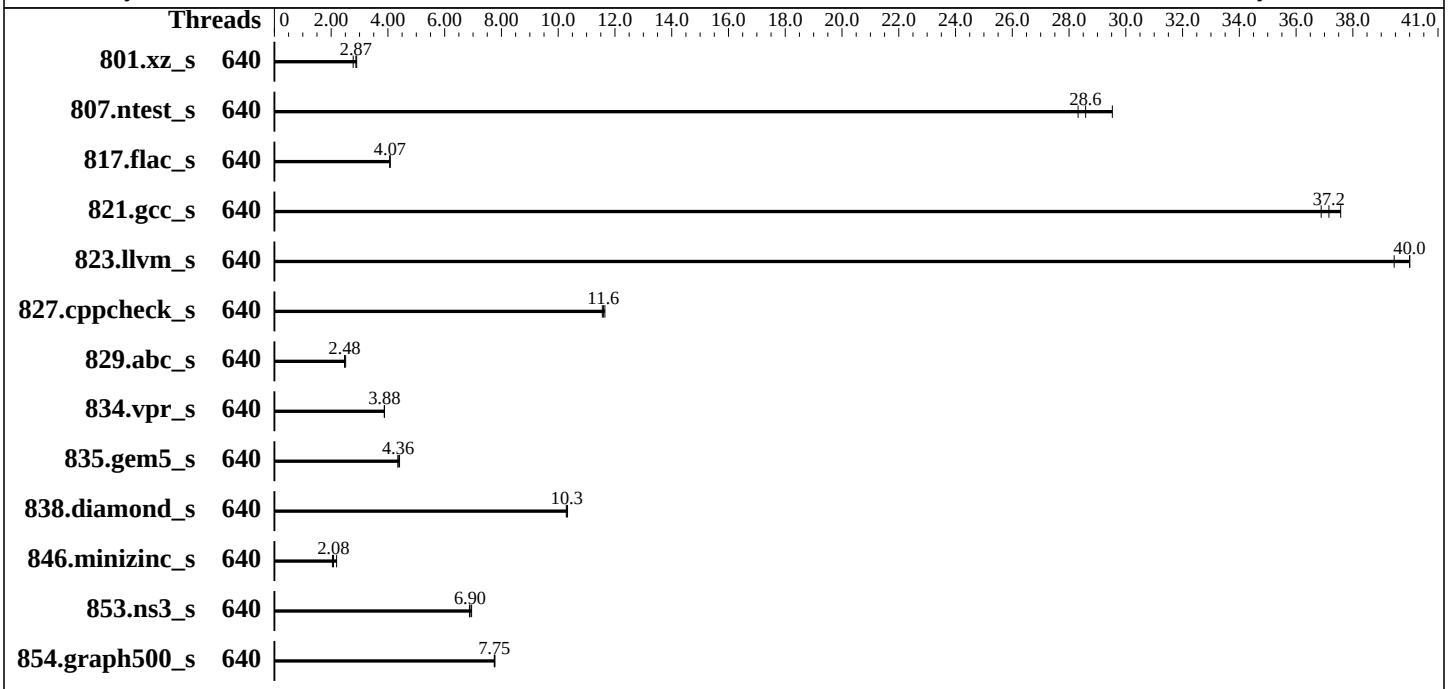
ProLiant DL385 Gen11
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2026_int_base = 7.59

SPECspeed®2026_int_peak = 7.59

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

Test Date: Feb-2026
Hardware Availability: Mar-2025
Software Availability: Jan-2026



Hardware

CPU Name:	AMD EPYC 9845
Max MHz:	3700
Nominal:	2100
Enabled:	320 cores, 2 chips, 2 threads/core
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:	320 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:	Ubuntu 24.04.3 LTS Kernel 6.8.0-90-generic
Compiler:	C/C++: Version 5.1.0 of AOCC Fortran: Flang v22
Compiler Category:	Vendor
Firmware:	HPE BIOS Version v2.90 released Jan-2026
File System:	ext4
System State:	Run level 5 (multi-user)
Base Pointers:	64-bit
Peak Pointers:	64-bit
Other:	None
Power Management:	BIOS and OS is set to prefer performance at the cost of additional power usage

SPEC CPU®2026 Integer Speed Result

Copyright 2026 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL385 Gen11
(2.10 GHz, AMD EPYC 9845)

SPECspeed®2026_int_base = 7.59

SPECspeed®2026_int_peak = 7.59

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

Test Date: Feb-2026
Hardware Availability: Mar-2025
Software Availability: Jan-2026

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
801.xz_s	640	204	2.90	213	2.78	**206**	**2.87**	640	204	2.90	213	2.78	**206**	**2.87**
807.ntest_s	640	38.6	29.5	**39.9**	**28.6**	40.3	28.3	640	38.6	29.5	**39.9**	**28.6**	40.3	28.3
817.flac_s	640	**426**	**4.07**	426	4.07	427	4.07	640	**426**	**4.07**	426	4.07	427	4.07
821.gcc_s	640	55.1	37.6	**55.7**	**37.2**	56.1	36.9	640	55.1	37.6	**55.7**	**37.2**	56.1	36.9
823.llvm_s	640	35.3	40.0	**35.3**	**40.0**	35.8	39.5	640	35.3	40.0	**35.3**	**40.0**	35.8	39.5
827.cppcheck_s	640	**96.5**	**11.6**	96.1	11.6	96.8	11.6	640	**96.5**	**11.6**	96.1	11.6	96.8	11.6
829.abc_s	640	336	2.47	331	2.51	**336**	**2.48**	640	336	2.47	331	2.51	**336**	**2.48**
834.vpr_s	640	246	3.88	246	3.87	**246**	**3.88**	640	246	3.88	246	3.87	**246**	**3.88**
835.gem5_s	640	258	4.41	**261**	**4.36**	262	4.35	640	258	4.41	**261**	**4.36**	262	4.35
838.diamond_s	640	96.9	10.3	**97.1**	**10.3**	97.3	10.3	640	96.9	10.3	**97.1**	**10.3**	97.3	10.3
846.minizinc_s	640	328	2.04	**322**	**2.08**	306	2.19	640	328	2.04	**322**	**2.08**	306	2.19
853.ns3_s	640	**167**	**6.90**	166	6.95	168	6.87	640	**167**	**6.90**	166	6.95	168	6.87
854.graph500_s	640	**78.8**	**7.75**	78.6	7.77	78.9	7.75	640	**78.8**	**7.75**	78.6	7.77	78.9	7.75

SPECspeed®2026_int_base = 7.59

SPECspeed®2026_int_peak = 7.59

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 --interleave=all runcpu <etc>

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

(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.
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-639"
LD_LIBRARY_PATH =
     "/home/cpu2026/amd_speed_aocc510_flang22_znver5_A_lib/lib:/home/cpu2026/
     amd_speed_aocc510_flang22_znver5_A_lib/lib32:"
MALLOC_CONF = "retain:true"
```

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
Thermal Configuration set to Maximum Cooling
NUMA memory domains per socket set to Two memory domains per socket
Workload Profile set to Custom
Power Regulator set to OS Control Mode

 Sysinfo program /home/cpu2026/bin/sysinfo
```

(Continued on next page)

Platform Notes (Continued)

```
Rev: 069f95da7e7f5d81b2ce48a82150e54f
running on admin1 Sun Feb  8 20:35:53 2026

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

------------------------------------------------------------
Table of contents
------------------------------------------------------------
 1. uname -srvm
 2. w
 3. Username
 4. ulimit -a
 5. sysinfo process ancestry
 6. /proc/cpuinfo
 7. lscpu
 8. numactl --hardware
 9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.12)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
------------------------------------------------------------

------------------------------------------------------------
1. uname -srvm
  Linux 6.8.0-90-generic #91-Ubuntu SMP PREEMPT_DYNAMIC Tue Nov 18 14:14:30 UTC 2025 x86_64

------------------------------------------------------------
2. w
   20:35:53 up 8 min,  2 users,  load average: 0.07, 0.02, 0.00
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT
  admin1            172.16.0.100     20:35    2:50   0.00s  0.02s sshd: admin1 [priv]
  admin1   tty1     -                20:29    1:53   0.05s  0.02s sudo su

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

(Continued on next page)

Platform Notes (Continued)

```
  From the command 'logname':       admin1

------------------------------------------------------------
4. ulimit -a
  time(seconds)        unlimited
  file(blocks)         unlimited
  data(kbytes)         unlimited
  stack(kbytes)        unlimited
  coredump(blocks)     0
  memory(kbytes)       unlimited
  locked memory(kbytes) 2097152
  process              6189296
  nofiles              1024
  vmemory(kbytes)      unlimited
  locks                unlimited
  rtprio               0

------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init
 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
 sshd: admin1 [priv]
 sshd: admin1@pts/1
 -bash
 sudo su
 sudo su
 su
 bash
 python3 ./run_amd_speed_aocc510_flang22_znver5_A1.py
 /bin/bash ./amd_speed_aocc510_flang22_znver5_A1.sh
runcpu --config amd_speed_aocc510_flang22_znver5_A1.cfg --tune base --reportable --iterations 3 intspeed
runcpu --configfile amd_speed_aocc510_flang22_znver5_A1.cfg --tune base --reportable --iterations 3
  --nopower --runmode speed --tune base --size test:train:refspeed intspeed --nopreenv --note-preenv
  --logfile $SPEC/tmp/CPU2026.001/templogs/preenv.intspeed.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
    microcode       : 0xb101054
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
    TLB size        : 192 4K pages
```

(Continued on next page)

Platform Notes (Continued)

```
     cpu cores       : 160
     siblings        : 320
     2 physical ids (chips)
     640 processors (hardware threads)
     physical id 0: core ids 0-159
     physical id 1: core ids 0-159
     physical id 0: apicids 0-319
     physical id 1: apicids 512-831
   Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
    virtualized systems.  Use the above data carefully.

 ------------------------------------------------------------
 7. lscpu

 From lscpu from util-linux 2.39.3:
   Architecture:                         x86_64
   CPU op-mode(s):                       32-bit, 64-bit
   Address sizes:                        52 bits physical, 57 bits virtual
   Byte Order:                           Little Endian
   CPU(s):                               640
   On-line CPU(s) list:                  0-639
   Vendor ID:                            AuthenticAMD
   BIOS Vendor ID:                       Advanced Micro Devices, Inc.
   Model name:                           AMD EPYC 9845 160-Core Processor
   BIOS Model name:                    AMD EPYC 9845 160-Core Processor                CPU @ 2.1GHz
   BIOS CPU family:                      107
   CPU family:                           26
   Model:                                17
   Thread(s) per core:                   2
   Core(s) per socket:                   160
   Socket(s):                            2
   Stepping:                             0
   Frequency boost:                      enabled
   CPU(s) scaling MHz:                   101%
   CPU max MHz:                          2100.0000
   CPU min MHz:                          1500.0000
   BogoMIPS:                             4193.83
   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
```

(Continued on next page)

Platform Notes (Continued)

```
                        avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
                             xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
                           cqm_mbm_local user_shstk 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
  Virtualization:                   AMD-V
  L1d cache:                        15 MiB (320 instances)
  L1i cache:                        10 MiB (320 instances)
  L2 cache:                         320 MiB (320 instances)
  L3 cache:                         640 MiB (20 instances)
  NUMA node(s):                     20
  NUMA node0 CPU(s):                0-15,320-335
  NUMA node1 CPU(s):                16-31,336-351
  NUMA node2 CPU(s):                32-47,352-367
  NUMA node3 CPU(s):                48-63,368-383
  NUMA node4 CPU(s):                64-79,384-399
  NUMA node5 CPU(s):                80-95,400-415
  NUMA node6 CPU(s):                96-111,416-431
  NUMA node7 CPU(s):                112-127,432-447
  NUMA node8 CPU(s):                128-143,448-463
  NUMA node9 CPU(s):                144-159,464-479
  NUMA node10 CPU(s):               160-175,480-495
  NUMA node11 CPU(s):               176-191,496-511
  NUMA node12 CPU(s):               192-207,512-527
  NUMA node13 CPU(s):               208-223,528-543
  NUMA node14 CPU(s):               224-239,544-559
  NUMA node15 CPU(s):               240-255,560-575
  NUMA node16 CPU(s):               256-271,576-591
  NUMA node17 CPU(s):               272-287,592-607
  NUMA node18 CPU(s):               288-303,608-623
  NUMA node19 CPU(s):               304-319,624-639
  Vulnerability Gather data sampling:   Not affected
  Vulnerability Itlb multihit:          Not affected
  Vulnerability L1tf:                   Not affected
  Vulnerability Mds:                    Not affected
  Vulnerability Meltdown:               Not affected
  Vulnerability Mmio stale data:        Not affected
  Vulnerability Reg file data sampling: Not affected
  Vulnerability Retbleed:               Not affected
  Vulnerability Spec rstack overflow:   Not affected
  Vulnerability Spec store bypass:      Mitigation; Speculative Store Bypass disabled via prctl
  Vulnerability Spectre v1:             Mitigation; usercopy/swapgs barriers and __user pointer sanitization
```

(Continued on next page)

Platform Notes (Continued)

```
  Vulnerability Spectre v2:             Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
                                        always-on; RSB filling; PBRSB-eIBRS Not affected; BHI Not affected
   Vulnerability Srbds:                 Not affected
   Vulnerability Tsx async abort:       Not affected
   Vulnerability Vmscape:               Not affected

 From lscpu --cache:
      NAME ONE-SIZE ALL-SIZE WAYS TYPE        LEVEL  SETS PHY-LINE COHERENCY-SIZE
      L1d       48K      15M   12 Data            1    64        1             64
      L1i       32K      10M    8 Instruction     1    64        1             64
      L2         1M     320M   16 Unified         2  1024        1             64
      L3        32M     640M   16 Unified         3 32768        1             64

 ------------------------------------------------------------
 8. numactl --hardware
 NOTE: a numactl 'node' might or might not correspond to a physical chip.
   available: 20 nodes (0-19)
   node 0 cpus: 0-15,320-335
   node 0 size: 76893 MB
   node 0 free: 76506 MB
   node 1 cpus: 16-31,336-351
   node 1 size: 77403 MB
   node 1 free: 77138 MB
   node 2 cpus: 32-47,352-367
   node 2 size: 77401 MB
   node 2 free: 77134 MB
   node 3 cpus: 48-63,368-383
   node 3 size: 77405 MB
   node 3 free: 77155 MB
   node 4 cpus: 64-79,384-399
   node 4 size: 77405 MB
   node 4 free: 77174 MB
   node 5 cpus: 80-95,400-415
   node 5 size: 77405 MB
   node 5 free: 77057 MB
   node 6 cpus: 96-111,416-431
   node 6 size: 77405 MB
   node 6 free: 77078 MB
   node 7 cpus: 112-127,432-447
   node 7 size: 77403 MB
   node 7 free: 76210 MB
   node 8 cpus: 128-143,448-463
   node 8 size: 77403 MB
   node 8 free: 77110 MB
   node 9 cpus: 144-159,464-479
   node 9 size: 77401 MB
   node 9 free: 76142 MB
```

(Continued on next page)

Platform Notes (Continued)

```
node 10 cpus: 160-175,480-495
node 10 size: 77403 MB
node 10 free: 77114 MB
node 11 cpus: 176-191,496-511
node 11 size: 77403 MB
node 11 free: 77172 MB
node 12 cpus: 192-207,512-527
node 12 size: 77401 MB
node 12 free: 77058 MB
node 13 cpus: 208-223,528-543
node 13 size: 77405 MB
node 13 free: 77163 MB
node 14 cpus: 224-239,544-559
node 14 size: 77405 MB
node 14 free: 77135 MB
node 15 cpus: 240-255,560-575
node 15 size: 77361 MB
node 15 free: 77043 MB
node 16 cpus: 256-271,576-591
node 16 size: 77405 MB
node 16 free: 77177 MB
node 17 cpus: 272-287,592-607
node 17 size: 77403 MB
node 17 free: 76792 MB
node 18 cpus: 288-303,608-623
node 18 size: 77403 MB
node 18 free: 77138 MB
node 19 cpus: 304-319,624-639
node 19 size: 77289 MB
node 19 free: 76999 MB
node distances:
node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19
  0:  10  11  11  11  11  12  12  12  12  12  32  32  32  32  32  32  32  32  32  32
  1:  11  10  11  11  11  12  12  12  12  12  32  32  32  32  32  32  32  32  32  32
  2:  11  11  10  11  11  12  12  12  12  12  32  32  32  32  32  32  32  32  32  32
  3:  11  11  11  10  11  12  12  12  12  12  32  32  32  32  32  32  32  32  32  32
  4:  11  11  11  11  10  12  12  12  12  12  32  32  32  32  32  32  32  32  32  32
  5:  12  12  12  12  12  10  11  11  11  11  32  32  32  32  32  32  32  32  32  32
  6:  12  12  12  12  12  11  10  11  11  11  32  32  32  32  32  32  32  32  32  32
  7:  12  12  12  12  12  11  11  10  11  11  32  32  32  32  32  32  32  32  32  32
  8:  12  12  12  12  12  11  11  11  10  11  32  32  32  32  32  32  32  32  32  32
  9:  12  12  12  12  12  11  11  11  11  10  32  32  32  32  32  32  32  32  32  32
 10:  32  32  32  32  32  32  32  32  32  32  10  11  11  11  11  12  12  12  12  12
 11:  32  32  32  32  32  32  32  32  32  32  11  10  11  11  11  12  12  12  12  12
 12:  32  32  32  32  32  32  32  32  32  32  11  11  10  11  11  12  12  12  12  12
 13:  32  32  32  32  32  32  32  32  32  32  11  11  11  10  11  12  12  12  12  12
 14:  32  32  32  32  32  32  32  32  32  32  11  11  11  11  10  12  12  12  12  12
```

(Continued on next page)

Platform Notes (Continued)

```
    15:  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  10  11  11  11  11
    16:  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  11  10  11  11  11
    17:  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  11  11  10  11  11
    18:  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  11  11  11  10  11
    19:  32  32  32  32  32  32  32  32  32  32  12  12  12  12  12  11  11  11  11  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       1584541772 kB

------------------------------------------------------------
10. who -r
  run-level 5 Feb 8 20:27

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

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          ModemManager apparmor apport blk-availability cloud-config cloud-final cloud-init
                   cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager
                     grub-common grub-initrd-fallback keyboard-setup lvm2-monitor multipathd
                   networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb
                     snapd sysstat systemd-networkd systemd-networkd-wait-online systemd-pstore
                   systemd-resolved systemd-timesyncd thermald tuned ua-reboot-cmds ubuntu-advantage udisks2
                     ufw unattended-upgrades vgauth
  enabled-runtime  netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
  disabled         console-getty debug-shell iscsid nftables rsync serial-getty@ ssh
                   systemd-boot-check-no-failures systemd-confext systemd-network-generator
                 systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code
                 systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy
                 systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysext
                     systemd-time-wait-sync upower
  indirect           systemd-sysupdate systemd-sysupdate-reboot uuidd
  masked           cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-6.8.0-90-generic
  root=UUID=57c72845-ed81-43ec-a744-5b744b5d91fe
  ro

------------------------------------------------------------
14. cpupower frequency-info
```

(Continued on next page)

Platform Notes (Continued)

```
  analyzing CPU 115:
    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
      Boost States: 0
      Total States: 3
      Pstate-P0:  2100MHz

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

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

(Continued on next page)

Platform Notes (Continued)

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

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

------------------------------------------------------------
20. Disk information
SPEC is set to: /home/cpu2026
  Filesystem     Type  Size  Used Avail Use% Mounted on
  /dev/nvme1n1p2 ext4  1.5T   32G  1.4T   3% /

------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:          HPE
    Product:         ProLiant DL385 Gen11
    Product Family: ProLiant
    Serial:          DL385G11-012

------------------------------------------------------------
22. dmidecode
  Additional information from dmidecode 3.5 follows.  WARNING: Use caution when you interpret this section.
  The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
  determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
   "DMTF SMBIOS" standard.
   Memory:
     19x Hynix HMCG94AHBRA480N 64 GB 2 rank 6400
     1x Micron MTC40F2046S1RC64BD2 MWFF 64 GB 2 rank 6400
     4x Micron MTC40F2046S1RC64BD2 QSFF 64 GB 2 rank 6400


------------------------------------------------------------
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
    BIOS Vendor:       HPE
    BIOS Version:      2.90
    BIOS Date:         01/09/2026
    BIOS Revision:     2.90
    Firmware Revision: 1.73
```

Compiler Version Notes

```
==============================================================================
C      | 854.graph500_s(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.1.0-Build#1994 2025_12_23)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin
------------------------------------------------------------------------------

==============================================================================
C++    | 807.ntest_s(base) 827.cppcheck_s(base) 853.ns3_s(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.1.0-Build#1994 2025_12_23)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin
------------------------------------------------------------------------------

==============================================================================
C++, C | 801.xz_s(base) 817.flac_s(base) 821.gcc_s(base) 823.llvm_s(base)
       | 829.abc_s(base) 834.vpr_s(base) 835.gem5_s(base) 838.diamond_s(base)
       | 846.minizinc_s(base)
------------------------------------------------------------------------------
AMD clang version 17.0.6 (CLANG: AOCC_5.1.0-Build#1994 2025_12_23)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
clang

C++ benchmarks:
clang++

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

Base Portability Flags

801.xz_s: -DSPEC_LP64

(Continued on next page)

Base Portability Flags (Continued)

807.ntest_s: -DSPEC_LP64
817.flac_s: -DSPEC_LP64
821.gcc_s: -DSPEC_LP64
823.llvm_s: -DSPEC_LP64
827.cppcheck_s: -DSPEC_LP64
829.abc_s: -DSPEC_LP64
834.vpr_s: -fno-finite-math-only -DSPEC_LP64
835.gem5_s: -fno-finite-math-only -DSPEC_LP64
838.diamond_s: -DSPEC_LP64
846.minizinc_s: -DSPEC_LP64
853.ns3_s: -fno-finite-math-only -DSPEC_LP64
854.graph500_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
-Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-extra-inliner -O3 -flto
-march=znver5 -fveclib=AMDLIBM -ffast-math -zopt -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

C++ benchmarks:
-m64 -std=c++17 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -flto -march=znver5
-fveclib=AMDLIBM -ffast-math -zopt -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -fopenmp -DSPEC_OPENMP
-fvirtual-function-elimination -fvisibility=hidden -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
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -flto -march=znver5
-fveclib=AMDLIBM -ffast-math -zopt -fremap-arrays -fstrip-mining
-fstruct-layout=7 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -mllvm -unroll-threshold=50
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000
-fopenmp -DSPEC_OPENMP -fvirtual-function-elimination
-fvisibility=hidden -lamdalloc -lamdlibm -fopenmp=libomp -lomp

Base Other Flags

C benchmarks:
`-Wno-return-type`

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

Peak Optimization Flags

C benchmarks:

854.graph500_s: `basepeak = yes`

C++ benchmarks:

807.ntest_s: `basepeak = yes`

827.cppcheck_s: `basepeak = yes`

853.ns3_s: `basepeak = yes`

Benchmarks using both C and C++:

801.xz_s: `basepeak = yes`

817.flac_s: `basepeak = yes`

821.gcc_s: `basepeak = yes`

823.llvm_s: `basepeak = yes`

829.abc_s: `basepeak = yes`

834.vpr_s: `basepeak = yes`

835.gem5_s: `basepeak = yes`

838.diamond_s: `basepeak = yes`

846.minizinc_s: `basepeak = yes`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Turin-rev1.11.html`
`http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.html`

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2026/results/flags/HPE-Platform-Flags-AMD-Turin-rev1.11.xml
http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.xml

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 v0.902.0 on 2026-02-08 15:35:53-0500.
Report generated on 2026-05-04 23:33:38 by CPU2026 PS formatter (86729d3b).
Originally published on 2026-05-05.