



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

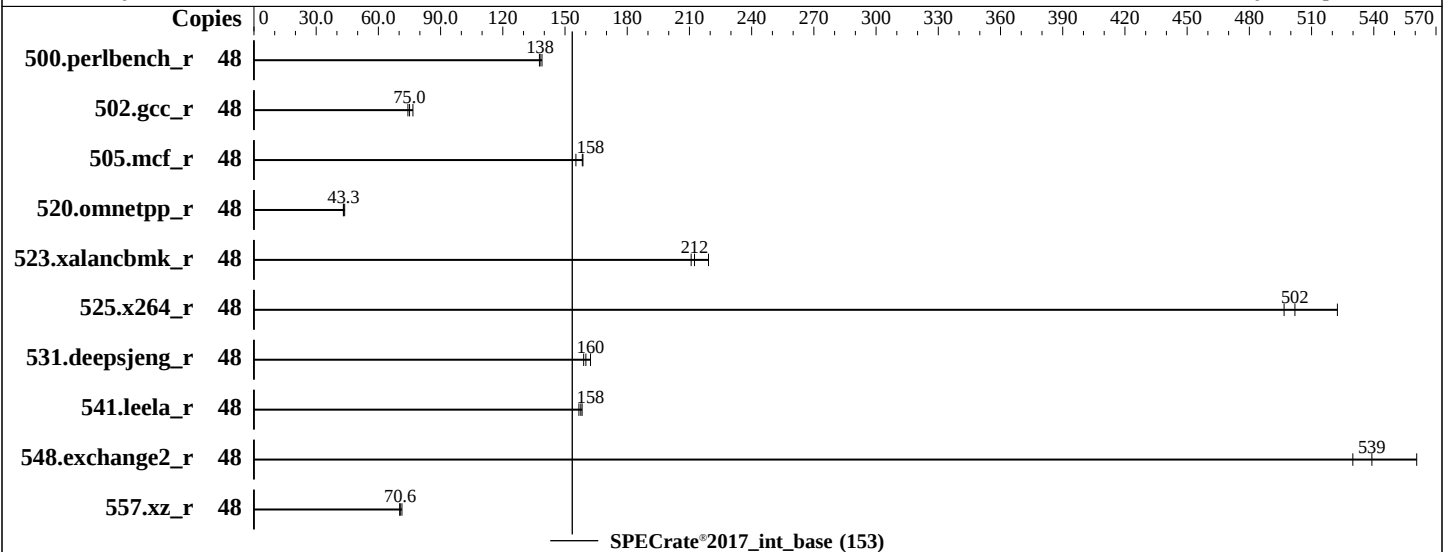
Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025



## Hardware

CPU Name: AMD EPYC 9965  
Max MHz: 3700  
Nominal: 2250  
Enabled: 192 cores, 1 chip, 2 threads/core  
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: 384 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, running at 4000)  
Storage: 1 x 3.2TB NVMe SSD  
Other: CPU Cooling: Air

## Software

OS: Ubuntu 24.04.2 LTS  
Kernel 6.8.0-86-generic  
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC  
Parallel: No  
Firmware: HPE BIOS Version 1.30 09/05/2025 released Sep-2025  
File System: ext4  
System State: Run level 5 (multi-user)  
Base Pointers: 64-bit  
Peak Pointers: Not Applicable  
Other: HPE Morpheus VM Essentials Software version 8.0.9 (Hypervisor OS and software supporting HPE VM Essentials)  
Power Management: BIOS was set to prefer performance at the cost of additional power



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

Hewlett Packard Enterprise

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Results Table

| Benchmark       | Base   |            |             |            |            |             |             | Peak   |         |       |         |       |         |       |
|-----------------|--------|------------|-------------|------------|------------|-------------|-------------|--------|---------|-------|---------|-------|---------|-------|
|                 | Copies | Seconds    | Ratio       | Seconds    | Ratio      | Seconds     | Ratio       | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 500.perlbench_r | 48     | 555        | 138         | 550        | 139        | <u>554</u>  | <u>138</u>  |        |         |       |         |       |         |       |
| 502.gcc_r       | 48     | <b>906</b> | <b>75.0</b> | 887        | 76.7       | 915         | 74.2        |        |         |       |         |       |         |       |
| 505.mcf_r       | 48     | 489        | 159         | <u>490</u> | <u>158</u> | 500         | 155         |        |         |       |         |       |         |       |
| 520.omnetpp_r   | 48     | 1440       | 43.7        | 1461       | 43.1       | <u>1456</u> | <u>43.3</u> |        |         |       |         |       |         |       |
| 523.xalancbmk_r | 48     | 240        | 211         | <u>239</u> | <u>212</u> | 231         | 219         |        |         |       |         |       |         |       |
| 525.x264_r      | 48     | <b>167</b> | <b>502</b>  | 169        | 497        | 161         | 522         |        |         |       |         |       |         |       |
| 531.deepsjeng_r | 48     | 339        | 162         | 346        | 159        | <u>344</u>  | <u>160</u>  |        |         |       |         |       |         |       |
| 541.leela_r     | 48     | 502        | 158         | <b>504</b> | <b>158</b> | 507         | 157         |        |         |       |         |       |         |       |
| 548.exchange2_r | 48     | 237        | 530         | <u>233</u> | <u>539</u> | 224         | 561         |        |         |       |         |       |         |       |
| 557.xz_r        | 48     | <u>735</u> | <b>70.6</b> | 738        | 70.3       | 726         | 71.4        |        |         |       |         |       |         |       |

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

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/>

## 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,  
'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.



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Oct-2025

**Hardware Availability:** Aug-2025

**Software Availability:** Sep-2025

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

LD\_LIBRARY\_PATH =

"/home/cpu2017/amd\_rate\_aocc500\_znver5\_A\_lib/lib:/home/cpu2017/amd\_rate\_aocc500\_znver5\_A\_lib/lib32:"

MALLOC\_CONF = "retain:true"

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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 Configuration on the SUT hosting this virtual machine instance:

Workload Profile set to Virtualization - Max Performance

Determinism Control set to Manual

Performance Determinism set to Power Deterministic

NUMA memory domains per socket set to Four memory domains per socket

Thermal Configuration set to Maximum Cooling

Virtual machine configuration (1 of 8):

This virtual machine was hosted in a ProLiant Compute DL345 Gen12 system, configured with 1 x AMD EPYC 9965 processor and 1536 GB of memory (24 x 64 GB 2Rx4 PC5-6400B-R). The virtual machine instance was provisioned with 48 vCPUs, 148 GB memory and 500 GB of storage. The VM was affinized to cores 0-47 using KVM vcpu pinning.

The memory and storage information reported in the guest are incorrect. The correct memory and storage allocations for this virtual machine are documented in this section. so that this may be verified against the documented firmware version information in the result.

dmidecode -t bios

# dmidecode 3.5

Getting SMBIOS data from sysfs.

SMBIOS 3.7.0 present.

# SMBIOS implementations newer than version 3.5.0 are not

# fully supported by this version of dmidecode.

Handle 0x0006, DMI type 0, 26 bytes

BIOS Information

Vendor: HPE

Version: 1.30

Release Date: 09/05/2025

Address: 0xF0000

Runtime Size: 64 kB

ROM Size: 64 MB

Characteristics:

PCI is supported

PNP is supported

BIOS is upgradeable

BIOS shadowing is allowed

ESCD support is available

Boot from CD is supported

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Platform Notes (Continued)

Selectable boot is supported  
EDD is supported  
5.25"/360 kB floppy services are supported (int 13h)  
5.25"/1.2 MB floppy services are supported (int 13h)  
3.5"/720 kB floppy services are supported (int 13h)  
Print screen service is supported (int 5h)  
8042 keyboard services are supported (int 9h)  
Serial services are supported (int 14h)  
Printer services are supported (int 17h)  
CGA/mono video services are supported (int 10h)  
ACPI is supported  
USB legacy is supported  
BIOS boot specification is supported  
Function key-initiated network boot is supported  
Targeted content distribution is supported  
UEFI is supported  
Manufacturing mode is supported  
BIOS Revision: 1.30  
Firmware Revision: 1.18

Follow these steps to set up the VMs with the required resources and affinity:

Create a service plan that allows customizing resource limits during instance creation

Follow the steps documented in the HPE VM Essentials Guide for Service Plan creation

Choose an appropriate name for the plan (example, systemperf).

Set "PROVISION TYPE" to KVM

Set "STORAGE" to 500 GB

Set "MEMORY" to 158913 (148 GB), and enable the "CUSTOM MEMORY" option

Set "CORE COUNT" to 48, and enable the "CUSTOM CORES" option

Follow the on-screen steps to complete instance creation

Login to the hypervisor host as root

If the instance just created is active, shut it down with "virsh shutdown <domain>"  
(domain is the VM identifier)

Edit the domain xml configuration with "virsh edit <domain>"

To enable vcpu pinning, replace the <vcpu> section with the following:

```
<vcpu placement='static' cpuset='192-239'>48</vcpu>
```

Start the VM

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on dl345g12-vm1 Mon Oct 27 18:44:15 2025

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

### Table of contents

1. uname -a
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 (255.4-1ubuntu8.8)
12. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Platform Notes (Continued)

```
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 -a
Linux dl345g12-vm1 6.8.0-86-generic #87-Ubuntu SMP PREEMPT_DYNAMIC Mon Sep 22 18:03:36 UTC 2025 x86_64
x86_64 x86_64 GNU/Linux
```

```
2. w
18:44:15 up 18 min, 2 users, load average: 0.07, 0.02, 0.00
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
vm1user   -        172.17.1.80     18:28    18:23  0.00s  0.01s  sshd: vm1user [priv]
vm1user   -        172.17.1.80     18:28    18:23  0.00s  ?      sshd: vm1user [priv]
```

```
3. Username
From environment variable $USER: root
From the command 'logname': vm1user
```

```
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            607211
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
```

```
5. sysinfo process ancestry
/sbin/init
sshd: vm1user [priv]
sshd: vm1user@pts/0
-bash
sudo bash
sudo bash
bash
python3 ./run_intrate.py
/bin/bash ./amd_rate_aocc500_znver5_A1.sh
runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune base --reportable --iterations 3 --nopower
--runmode rate --tune base --size test:train:refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.003/temlogs/preenv.intrate.003.0.log --lognum 003.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Oct-2025

**Hardware Availability:** Aug-2025

**Software Availability:** Sep-2025

## Platform Notes (Continued)

```
-----
6. /proc/cpuinfo
   model name       : AMD EPYC 9965 192-Core Processor
   vendor_id        : AuthenticAMD
   cpu family       : 26
   model            : 17
   stepping          : 0
   microcode        : 0xb10104f
   bugs              : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass ibpb_no_ret
   TLB size         : 1024 4K pages
   cpu cores        : 1
   siblings         : 1
   48 physical ids (chips)
   48 processors (hardware threads)
   physical id 0: core ids 0
   physical id 1: core ids 0
   physical id 2: core ids 0
   physical id 3: core ids 0
   physical id 4: core ids 0
   physical id 5: core ids 0
   physical id 6: core ids 0
   physical id 7: core ids 0
   physical id 8: core ids 0
   physical id 9: core ids 0
   physical id 10: core ids 0
   physical id 11: core ids 0
   physical id 12: core ids 0
   physical id 13: core ids 0
   physical id 14: core ids 0
   physical id 15: core ids 0
   physical id 16: core ids 0
   physical id 17: core ids 0
   physical id 18: core ids 0
   physical id 19: core ids 0
   physical id 20: core ids 0
   physical id 21: core ids 0
   physical id 22: core ids 0
   physical id 23: core ids 0
   physical id 24: core ids 0
   physical id 25: core ids 0
   physical id 26: core ids 0
   physical id 27: core ids 0
   physical id 28: core ids 0
   physical id 29: core ids 0
   physical id 30: core ids 0
   physical id 31: core ids 0
   physical id 32: core ids 0
   physical id 33: core ids 0
   physical id 34: core ids 0
   physical id 35: core ids 0
   physical id 36: core ids 0
   physical id 37: core ids 0
   physical id 38: core ids 0
   physical id 39: core ids 0
   physical id 40: core ids 0
   physical id 41: core ids 0
   physical id 42: core ids 0
   physical id 43: core ids 0
   physical id 44: core ids 0
   physical id 45: core ids 0
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Oct-2025

**Hardware Availability:** Aug-2025

**Software Availability:** Sep-2025

## Platform Notes (Continued)

```
physical id 46: core ids 0
physical id 47: core ids 0
physical id 0: apicids 0
physical id 1: apicids 1
physical id 2: apicids 2
physical id 3: apicids 3
physical id 4: apicids 4
physical id 5: apicids 5
physical id 6: apicids 6
physical id 7: apicids 7
physical id 8: apicids 8
physical id 9: apicids 9
physical id 10: apicids 10
physical id 11: apicids 11
physical id 12: apicids 12
physical id 13: apicids 13
physical id 14: apicids 14
physical id 15: apicids 15
physical id 16: apicids 16
physical id 17: apicids 17
physical id 18: apicids 18
physical id 19: apicids 19
physical id 20: apicids 20
physical id 21: apicids 21
physical id 22: apicids 22
physical id 23: apicids 23
physical id 24: apicids 24
physical id 25: apicids 25
physical id 26: apicids 26
physical id 27: apicids 27
physical id 28: apicids 28
physical id 29: apicids 29
physical id 30: apicids 30
physical id 31: apicids 31
physical id 32: apicids 32
physical id 33: apicids 33
physical id 34: apicids 34
physical id 35: apicids 35
physical id 36: apicids 36
physical id 37: apicids 37
physical id 38: apicids 38
physical id 39: apicids 39
physical id 40: apicids 40
physical id 41: apicids 41
physical id 42: apicids 42
physical id 43: apicids 43
physical id 44: apicids 44
physical id 45: apicids 45
physical id 46: apicids 46
physical id 47: apicids 47
```

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
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Platform Notes (Continued)

Byte Order: Little Endian  
CPU(s): 48  
On-line CPU(s) list: 0-47  
Vendor ID: AuthenticAMD  
BIOS Vendor ID: QEMU  
Model name: AMD EPYC 9965 192-Core Processor  
BIOS Model name: pc-q35-8.2 CPU @ 2.0GHz  
BIOS CPU family: 1  
CPU family: 26  
Model: 17  
Thread(s) per core: 1  
Core(s) per socket: 1  
Socket(s): 48  
Stepping: 0  
BogoMIPS: 4493.24  
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflush mmx fxsr sse sse2 syscall nx mmxext fxsr\_opt pdpe1gb rdtscp lm rep\_good nopl cpuid extd\_apicid tsc\_known\_freq pni pclmulqdq ssse3 fma cx16 pcid sse4\_1 sse4\_2 movbe popcnt tsc\_deadline\_timer aes xsave avx f16c rdrand hypervisor lahf\_lm cmp\_legacy svm cr8\_legacy abm sse4a misalignsse 3dnowprefetch osvw perfctr\_core ssbd ibrs ibpb stibp ibrs\_enhanced vmmcall fsgsbase tsc\_adjust bmi1 avx2 smep bmi2 erms invpcid avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb avx512cd sha\_ni avx512bw avx512vl xsaveopt xsavec xgetbv1 xsave avx\_vnni avx512\_bf16 clzero xsaveerptr wbnoinvd arat npt lbrv nrrip\_save tsc\_scale vmcb\_clean flushbyasid pausefilter pfthreshold v\_vmsave\_vmload vgif vnmi avx512vbmi umip pku ospke avx512\_vbmi2 gfni vaes vpclmulqdq avx512\_vnni avx512\_bitalg avx512\_vpopcntdq la57 rdpid movdiri movdir64b fsrm avx512\_vp2intersect flush\_l1d arch\_capabilities  
Virtualization: AMD-V  
Hypervisor vendor: Microsoft  
Virtualization type: full  
L1d cache: 3 MiB (48 instances)  
L1i cache: 3 MiB (48 instances)  
L2 cache: 24 MiB (48 instances)  
L3 cache: 768 MiB (48 instances)  
NUMA node(s): 1  
NUMA node0 CPU(s): 0-47  
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  
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP disabled; RSB filling; 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  | 64K      | 3M       | 2    | Data        | 1     | 512  | 1        | 64             |
| L1i  | 64K      | 3M       | 2    | Instruction | 1     | 512  | 1        | 64             |
| L2   | 512K     | 24M      | 16   | Unified     | 2     | 512  | 1        | 64             |

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Platform Notes (Continued)

L3 16M 768M 16 Unified 3 16384 1 64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 1 nodes (0)

node 0 cpus: 0-47

node 0 size: 151880 MB

node 0 free: 151067 MB

node distances:

node 0

0: 10

9. /proc/meminfo

MemTotal: 155525896 kB

10. who -r

run-level 5 Oct 27 18:25

11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.8)

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 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-sysex

systemd-time-wait-sync upower

indirect systemd-sysupdate systemd-sysupdate-reboot uuid

masked cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

13. Linux kernel boot-time arguments, from /proc/cmdline

BOOT\_IMAGE=/vmlinuz-6.8.0-86-generic

root=/dev/mapper/ubuntu--vg-ubuntu--lv

ro

14. cpupower frequency-info

analyzing CPU 30:

Unable to determine current policy

boost state support:

Supported: no

Active: no

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Platform Notes (Continued)

### 15. sysctl

|                              |       |
|------------------------------|-------|
| kernel.numa_balancing        | 0     |
| 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

|                       |       |
|-----------------------|-------|
| 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 Ubuntu 24.04.2 LTS

### 19. Disk information

SPEC is set to: /home/cpu2017

| Filesystem                        | Type | Size | Used | Avail | Use% | Mounted on |
|-----------------------------------|------|------|------|-------|------|------------|
| /dev/mapper/ubuntu--vg-ubuntu--lv | ext4 | 490G | 18G  | 452G  | 4%   | /          |

### 20. /sys/devices/virtual/dmi/id

|          |                                      |
|----------|--------------------------------------|
| Vendor:  | Morpheus                             |
| Product: | MVM                                  |
| Serial:  | 988FAA01-ED0C-417D-89F9-32690C48CCCC |

### 21. 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

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Platform Notes (Continued)

determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

9x QEMU Not Specified 16 GB

1x QEMU Not Specified 7162 MB

### 22. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: SeaBIOS

BIOS Version: 1.16.3-debian-1.16.3-2

BIOS Date: 04/01/2014

BIOS Revision: 0.0

## Compiler Version Notes

=====  
C | 500.perlbench\_r(base) 502.gcc\_r(base) 505.mcf\_r(base) 525.x264\_r(base) 557.xz\_r(base)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
C++ | 520.omnetpp\_r(base) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base) 541.leela\_r(base)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

=====  
Fortran | 548.exchange2\_r(base)  
=====

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 3

Test Sponsor: HPE

Tested by: HPE

Test Date: Oct-2025

Hardware Availability: Aug-2025

Software Availability: Sep-2025

## Base Portability Flags

500.perlbench\_r: -DSPEC\_LINUX\_X64 -DSPEC\_LP64  
502.gcc\_r: -DSPEC\_LP64  
505.mcf\_r: -DSPEC\_LP64  
520.omnetpp\_r: -DSPEC\_LP64  
523.xalancbmk\_r: -DSPEC\_LINUX -DSPEC\_LP64  
525.x264\_r: -DSPEC\_LP64  
531.deepsjeng\_r: -DSPEC\_LP64  
541.leela\_r: -DSPEC\_LP64  
548.exchange2\_r: -DSPEC\_LP64  
557.xz\_r: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather  
-Wl,-mllvm -Wl,-extra-inliner -z muldefs -O3 -march=znver5  
-fveclib=AMDLIBM -ffast-math -fno-PIE -no-pie -flto  
-fstruct-layout=7 -mllvm -unroll-threshold=50  
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining  
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lflang  
-lamdalloc-ext -ldl

C++ benchmarks:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-do-block-reorder=advanced -z muldefs -O3 -march=znver5  
-fveclib=AMDLIBM -ffast-math -flto -mllvm -unroll-threshold=100  
-mllvm -loop-unswitch-threshold=2000000  
-mllvm -reduce-array-computations=3 -zopt -fno-PIE -no-pie  
-fvirtual-function-elimination -fvisibility=hidden  
-mllvm -do-block-reorder=advanced -lamdlibm -lflang -lamdalloc-ext  
-ldl

Fortran benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop  
-Wl,-mllvm -Wl,-enable-iv-split -z muldefs -O3 -march=znver5  
-fveclib=AMDLIBM -ffast-math -flto  
-fepilog-vectorization-of-inductions -mllvm -optimize-strided-mem-cost  
-floop-transform -mllvm -unroll-aggressive -mllvm -unroll-threshold=500  
-lamdlibm -lflang -lamdalloc -ldl



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2026 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**

(Test Sponsor: HPE)

Virtual Machine Instance on ProLiant Compute  
DL345 Gen12 (2.25 GHz, AMD EPYC 9965)

SPECrate®2017\_int\_base = 153

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 3

**Test Sponsor:** HPE

**Tested by:** HPE

**Test Date:** Oct-2025

**Hardware Availability:** Aug-2025

**Software Availability:** Sep-2025

## Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-Turin-rev1.9.html>

<http://www.spec.org/cpu2017/flags/aocc500-flags.html>

You can also download the XML flags sources by saving the following links:

<http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-AMD-Turin-rev1.9.xml>

<http://www.spec.org/cpu2017/flags/aocc500-flags.xml>

SPEC CPU and SPECrate 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](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2025-10-27 14:44:14-0400.

Report generated on 2026-01-07 10:37:42 by CPU2017 PDF formatter v6716.

Originally published on 2026-01-06.