# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

$SPECspeed®2017\_int\_base = 16.1$

$SPECspeed®2017\_int\_peak = 16.3$

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024



Threads — benchmark results:

- **600.perlbench_s**: 128 → 10.3; 1 → 10.3
- **602.gcc_s**: 128 → 15.3
- **605.mcf_s**: 128 → 25.6; 1 → 26.7
- **620.omnetpp_s**: 128 → 12.6
- **623.xalancbmk_s**: 128 → 23.8; 1 → 26.4
- **625.x264_s**: 128 → 25.7; 1 → 25.9
- **631.deepsjeng_s**: 128 → 7.61; 1 → 7.63
- **641.leela_s**: 128 → 5.89; 1 → 5.92
- **648.exchange2_s**: 128 → 32.3; 1 → 32.3
- **657.xz_s**: 128 → 25.4; 256 → 25.5

SPECspeed®2017_int_base (16.1) ——
SPECspeed®2017_int_peak (16.3) ------

## Hardware

CPU Name: AMD EPYC 9745
 Max MHz: 3700
 Nominal: 2400
Enabled: 128 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: 256 MB I+D on chip per chip, 32 MB shared / 16 cores
 Other: None
Memory: 384 GB (12 x 32 GB 2Rx4 PC5-6400B-R, running at 6000)
Storage: 1 x 3.84TB SSD
Other: CPU Cooling: Air

## Software

OS: Ubuntu 24.04.1 LTS
 kernel version
 6.8.0-51-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 7.30.06 released Jan-2025
File System: ext4
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None
Power Management: BIOS set to prefer performance at the cost of additional power usage.

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1
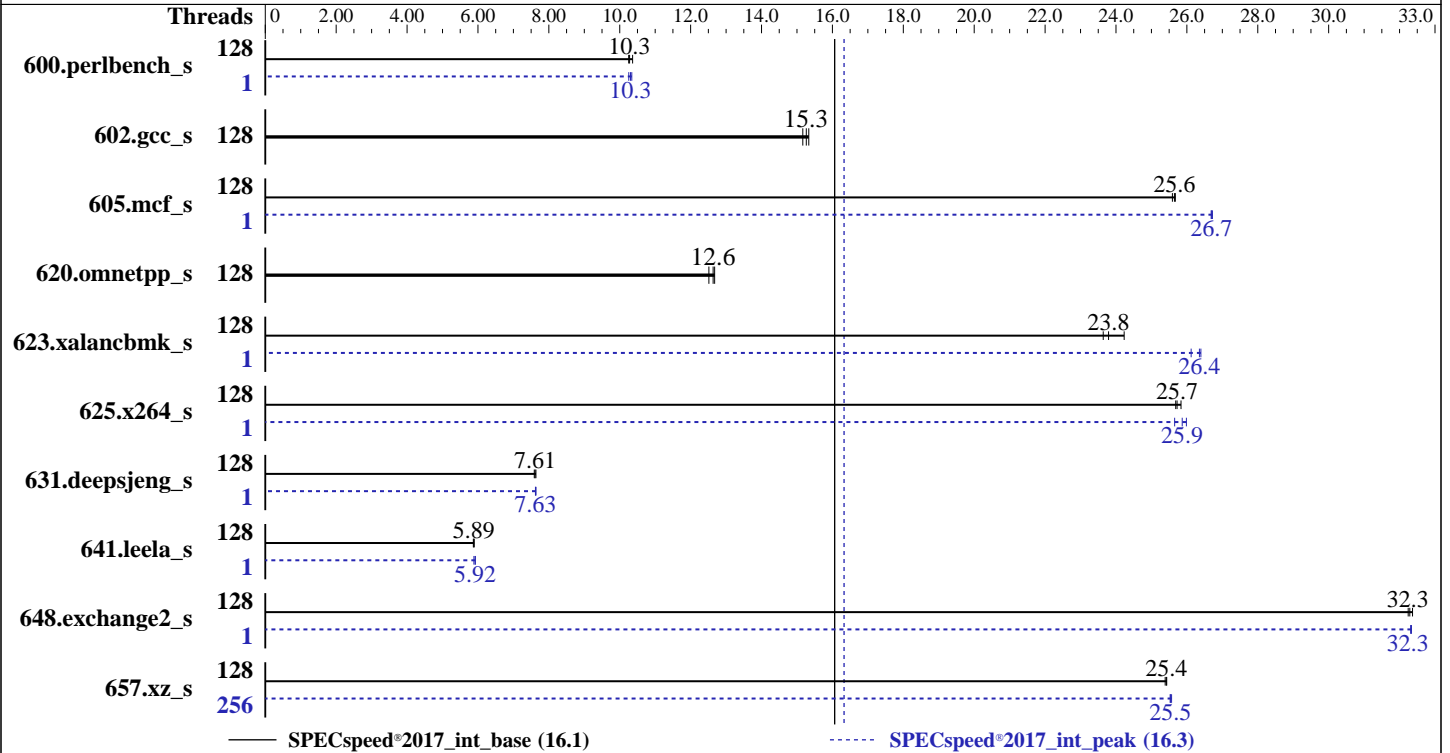
SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 600.perlbench_s | 128 | 171 | 10.4 | **173** | **10.3** | 173 | 10.3 | 1 | 172 | 10.3 | 173 | 10.3 | **172** | **10.3** |
| 602.gcc_s | 128 | **261** | **15.3** | 263 | 15.2 | 260 | 15.3 | 128 | **261** | **15.3** | 263 | 15.2 | 260 | 15.3 |
| 605.mcf_s | 128 | 184 | 25.7 | 184 | 25.6 | **184** | **25.6** | 1 | 177 | 26.7 | 177 | 26.7 | **177** | **26.7** |
| 620.omnetpp_s | 128 | 129 | 12.7 | 130 | 12.5 | **129** | **12.6** | 128 | 129 | 12.7 | 130 | 12.5 | **129** | **12.6** |
| 623.xalancbmk_s | 128 | 58.5 | 24.2 | 59.9 | 23.6 | **59.6** | **23.8** | 1 | 53.7 | 26.4 | **53.8** | **26.4** | 54.2 | 26.1 |
| 625.x264_s | 128 | 68.3 | 25.8 | **68.6** | **25.7** | 68.7 | 25.7 | 1 | 67.9 | 26.0 | **68.2** | **25.9** | 68.8 | 25.7 |
| 631.deepsjeng_s | 128 | 188 | 7.64 | 189 | 7.59 | **188** | **7.61** | 1 | 188 | 7.62 | 188 | 7.64 | **188** | **7.63** |
| 641.leela_s | 128 | 291 | 5.87 | 290 | 5.89 | **290** | **5.89** | 1 | 288 | 5.93 | 290 | 5.89 | **288** | **5.92** |
| 648.exchange2_s | 128 | **91.1** | **32.3** | 91.2 | 32.2 | 90.8 | 32.4 | 1 | 90.9 | 32.3 | **91.0** | **32.3** | 91.0 | 32.3 |
| 657.xz_s | 128 | **243** | **25.4** | 244 | 25.4 | 243 | 25.4 | 256 | **242** | **25.5** | 242 | 25.6 | 242 | 25.5 |
| SPECspeed®2017_int_base = | | | **16.1** | | | | | | | | | | | |
| SPECspeed®2017_int_peak = | | | **16.3** | | | | | | | | | | | |

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.
```

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

$SPECspeed^{®}2017\_int\_base = 16.1$

$SPECspeed^{®}2017\_int\_peak = 16.3$

| | | | |
|---|---|---|---|
| **CPU2017 License:** 9066 | | **Test Date:** | Mar-2025 |
| **Test Sponsor:** | New H3C Technologies Co., Ltd. | **Hardware Availability:** | Oct-2024 |
| **Tested by:** | New H3C Technologies Co., Ltd. | **Software Availability:** | Dec-2024 |

## Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-255"
LD_LIBRARY_PATH =
    "/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib:/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib32:/
    usr/local/mpc-131/lib:/usr/local/gmp-630/lib:/usr/local/mpfr-421/lib:/usr/local/isl-027/lib:/usr/local
    /gcc-1420/lib64:/usr/local/lib:/usr/lib:/usr/local/amd/aocc-compiler-5.0.0/lib:/usr/local/amd/aocc-com
    piler-5.0.0/lib32"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "256"

Environment variables set by runcpu during the 600.perlbench_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 605.mcf_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 623.xalancbmk_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 625.x264_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 631.deepsjeng_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 641.leela_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 648.exchange2_s peak run:
GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-255"
```

## General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 9D64 CPU + 500GiB Memory using Ubuntu 22.04

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 settings:
SMT Control set to Enabled
SVM Mode set to Disabled
Power Profile Selection set to High Performance Mode
Determinism Slider set to Power
cTDP set to 400
```

**(Continued on next page)**

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

$SPECspeed^{®}2017\_int\_base = 16.1$

$SPECspeed^{®}2017\_int\_peak = 16.3$

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Platform Notes (Continued)

```
PPT set to 400
NUMA nodes per socket set to NPS 4

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on h3c Tue Mar  4 22:28:14 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 (255.4-1ubuntu8.4)
 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 -a
   Linux h3c 6.8.0-51-generic #52-Ubuntu SMP PREEMPT_DYNAMIC Thu Dec  5 13:09:44 UTC 2024 x86_64 x86_64 x86_64
   GNU/Linux

 ------------------------------------------------------------
 2. w
   22:28:14 up 2 min,  1 user,  load average: 0.32, 0.30, 0.12
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU  WHAT
   root     tty1     -                22:27   6.00s  1.00s  0.08s /bin/bash ./amd_speed_aocc500_znver5_A1.sh

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

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

*(Continued on next page)*

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

$SPECspeed^®2017\_int\_base = 16.1$

$SPECspeed^®2017\_int\_peak = 16.3$

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Platform Notes (Continued)

```
   process            1545362
   nofiles            1024
   vmemory(kbytes)    unlimited
   locks              unlimited
   rtprio             0


   -------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init
 /bin/login -p --
 -bash
 python3 ./run_amd_speed_aocc500_znver5_A1.py
 /bin/bash ./amd_speed_aocc500_znver5_A1.sh
 runcpu --config amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 intspeed
 runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
   --runmode speed --tune base:peak --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.008/templogs/preenv.intspeed.008.0.log --lognum 008.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017


   -------------------------------------------------------------
6. /proc/cpuinfo
   model name        : AMD EPYC 9745 128-Core Processor
   vendor_id         : AuthenticAMD
   cpu family        : 26
   model             : 17
   stepping          : 0
   microcode         : 0xb101028
   bugs              : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
   TLB size          : 192 4K pages
   cpu cores         : 128
   siblings          : 256
   1 physical ids (chips)
   256 processors (hardware threads)
   physical id 0: core ids 0-127
   physical id 0: apicids 0-255
 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 2.39.3:
  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):                  256
  On-line CPU(s) list:     0-255
  Vendor ID:               AuthenticAMD
  BIOS Vendor ID:          Advanced Micro Devices, Inc.
  Model name:              AMD EPYC 9745 128-Core Processor
  BIOS Model name:         AMD EPYC 9745 128-Core Processor          Unknown CPU @ 2.4GHz
  BIOS CPU family:         107
  CPU family:              26
  Model:                   17
  Thread(s) per core:      2
  Core(s) per socket:      128
  Socket(s):               1
  Stepping:                0
```

**(Continued on next page)**

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Platform Notes (Continued)

```
Frequency boost:                     enabled
CPU(s) scaling MHz:                  43%
CPU max MHz:                         3707.8120
CPU min MHz:                         1500.0000
BogoMIPS:                            4792.69
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 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 user_shstk avx_vnni avx512_bf16 clzero irperf
                                     xsaveerptr rdpru wbnoinvd amd_ppin cppc 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
L1d cache:                           6 MiB (128 instances)
L1i cache:                           4 MiB (128 instances)
L2 cache:                            128 MiB (128 instances)
L3 cache:                            256 MiB (8 instances)
NUMA node(s):                        4
NUMA node0 CPU(s):                   0-31,128-159
NUMA node1 CPU(s):                   32-63,160-191
NUMA node2 CPU(s):                   64-95,192-223
NUMA node3 CPU(s):                   96-127,224-255
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:     Vulnerable
Vulnerability Spectre v1:            Vulnerable: __user pointer sanitization and usercopy barriers only;
                                     no swapgs barriers
Vulnerability Spectre v2:            Vulnerable; IBPB: disabled; STIBP: disabled; PBRSB-eIBRS: Not
                                     affected; BHI: Not affected
Vulnerability Srbds:                 Not affected
Vulnerability Tsx async abort:       Not affected

From lscpu --cache:
    NAME ONE-SIZE ALL-SIZE WAYS TYPE         LEVEL   SETS PHY-LINE COHERENCY-SIZE
    L1d       48K       6M   12 Data             1     64        1             64
    L1i       32K       4M    8 Instruction      1     64        1             64
    L2         1M     128M   16 Unified          2   1024        1             64
    L3        32M     256M   16 Unified          3  32768        1             64

    -------------------------------------------------------------
8. numactl --hardware
```

(Continued on next page)

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Platform Notes (Continued)

```
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 4 nodes (0-3)
  node 0 cpus: 0-31,128-159
  node 0 size: 96287 MB
  node 0 free: 95742 MB
  node 1 cpus: 32-63,160-191
  node 1 size: 96746 MB
  node 1 free: 96196 MB
  node 2 cpus: 64-95,192-223
  node 2 size: 96703 MB
  node 2 free: 96200 MB
  node 3 cpus: 96-127,224-255
  node 3 size: 96674 MB
  node 3 free: 96237 MB
  node distances:
  node   0   1   2   3
    0:  10  12  12  12
    1:  12  10  12  12
    2:  12  12  10  12
    3:  12  12  12  10


  -------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       395685444 kB


  -------------------------------------------------------------
10. who -r
   run-level 3 Mar 4 22:26


  -------------------------------------------------------------
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.4)
   Default Target  Status
   multi-user      running


  -------------------------------------------------------------
12. Services, from systemctl list-unit-files
   STATE            UNIT FILES
   enabled          ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online 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 lm-sensors 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 wpa_supplicant
   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 wpa_supplicant-nl80211@ wpa_supplicant-wired@
                    wpa_supplicant@
   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=/vmlinuz-6.8.0-51-generic
   root=UUID=5079c432-fd48-464d-92df-94ceb7591bc8
   ro
```

**(Continued on next page)**

# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Platform Notes (Continued)

```
     iommu=pt
     mitigations=off
     security=none


    ----------------------------------------------------------
 14. cpupower frequency-info
    analyzing CPU 137:
      current policy: frequency should be within 1.50 GHz and 2.40 GHz.
                      The governor "schedutil" may decide which speed to use
                      within this range.
      boost state support:
        Supported: yes
        Active: yes
        Boost States: 0
        Total States: 3
        Pstate-P0:  2400MHz


    ----------------------------------------------------------
 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
    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 24.04.1 LTS
```

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Platform Notes (Continued)

```
         ----------------------------------------------------------
         19. Disk information
         SPEC is set to: /home/cpu2017
           Filesystem      Type  Size  Used Avail Use% Mounted on
           /dev/sda4       ext4  3.4T   19G  3.2T   1% /


         ----------------------------------------------------------
         20. /sys/devices/virtual/dmi/id
             Vendor:         AMD Corporation
             Product:        Quartz
             Product Family: Rack


         ----------------------------------------------------------
         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
           determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
           "DMTF SMBIOS" standard.
           Memory:
             9x Samsung M321R4GA3EB2-CCPPC 32 GB 2 rank 6400, configured at 6000
             1x Samsung M321R4GA3PB1-CCPPC 32 GB 2 rank 6400, configured at 6000
             2x Samsung M321R4GA3PB2-CCPPC 32 GB 2 rank 6400, configured at 6000


         ----------------------------------------------------------
         22. BIOS
         (This section combines info from /sys/devices and dmidecode.)
             BIOS Vendor:       American Megatrends International, LLC.
             BIOS Version:      7.30.06
             BIOS Date:         01/20/2025
             BIOS Revision:     5.35
             Firmware Revision: 2.2
```

## Compiler Version Notes

```
==================================================================================================
C       | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
        | 657.xz_s(base, peak)
--------------------------------------------------------------------------------------------------
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++     | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
        | 641.leela_s(base, peak)
--------------------------------------------------------------------------------------------------
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 | 648.exchange2_s(base, peak)
--------------------------------------------------------------------------------------------------
```

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

## Compiler Version Notes (Continued)

```
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`

## Base Portability Flags

600.perlbench_s: `-DSPEC_LINUX_X64 -DSPEC_LP64`
602.gcc_s: `-DSPEC_LP64`
605.mcf_s: `-DSPEC_LP64`
620.omnetpp_s: `-DSPEC_LP64`
623.xalancbmk_s: `-DSPEC_LINUX -DSPEC_LP64`
625.x264_s: `-DSPEC_LP64`
631.deepsjeng_s: `-DSPEC_LP64`
641.leela_s: `-DSPEC_LP64`
648.exchange2_s: `-DSPEC_LP64`
657.xz_s: `-DSPEC_LP64`

## Base Optimization Flags

C benchmarks:
```
-m64 -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
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP
-flto -fremap-arrays -fstrip-mining -fstruct-layout=7
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp -lamdlibm
-lflang -lamdalloc
```

(Continued on next page)

# SPEC CPU®2017 Integer Speed Result

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066          **Test Date:** Mar-2025
**Test Sponsor:** New H3C Technologies Co., Ltd.          **Hardware Availability:** Oct-2024
**Tested by:** New H3C Technologies Co., Ltd.          **Software Availability:** Dec-2024

# Base Optimization Flags (Continued)

C++ benchmarks:
```
-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP -flto
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -mllvm -unroll-threshold=100 -zopt
-fvirtual-function-elimination -fvisibility=hidden -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc-ext
```

Fortran benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -O3 -march=znver5 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```

# Base Other Flags

C benchmarks:
```
-Wno-return-type -Wno-unused-command-line-argument
```

C++ benchmarks:
```
-Wno-unused-command-line-argument
```

Fortran benchmarks:
```
-Wno-unused-command-line-argument
```

# Peak Compiler Invocation

C benchmarks:
```
clang
```

C++ benchmarks:
```
clang++
```

Fortran benchmarks:
```
flang
```

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066　　　　　　　　　　　　　　　　**Test Date:** Mar-2025
**Test Sponsor:** New H3C Technologies Co., Ltd.　　　　**Hardware Availability:** Oct-2024
**Tested by:** New H3C Technologies Co., Ltd.　　　　　**Software Availability:** Dec-2024

# Peak Portability Flags

```
Same as Base Portability Flags
```

# Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-extra-inliner -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang
```

```
602.gcc_s: basepeak = yes
```

```
605.mcf_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-extra-inliner -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang
```

```
625.x264_s: Same as 600.perlbench_s
```

```
657.xz_s: Same as 600.perlbench_s
```

C++ benchmarks:

```
620.omnetpp_s: basepeak = yes
```

```
623.xalancbmk_s: -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 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -DSPEC_OPENMP -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=100 -zopt
```

**(Continued on next page)**

Copyright 2017-2025 Standard Performance Evaluation Corporation

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

**CPU2017 License:** 9066
**Test Sponsor:** New H3C Technologies Co., Ltd.
**Tested by:** New H3C Technologies Co., Ltd.

**Test Date:** Mar-2025
**Hardware Availability:** Oct-2024
**Software Availability:** Dec-2024

# Peak Optimization Flags (Continued)

623.xalancbmk_s (continued):
```
-fvirtual-function-elimination -fvisibility=hidden
-mllvm -do-block-reorder=advanced -fopenmp=libomp -lomp
-lamdlibm -lamdalloc-ext -lflang
```

631.deepsjeng_s: `-m64 -std=c++14`
```
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -DSPEC_OPENMP -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=100 -zopt
-fvirtual-function-elimination -fvisibility=hidden
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```

641.leela_s: `Same as 631.deepsjeng_s`

Fortran benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-iv-split -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -O3 -march=znver5 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang
```

# Peak Other Flags

C benchmarks:
```
-Wno-return-type -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/aocc500-flags.2024-10-10.html
http://www.spec.org/cpu2017/flags/New_H3C-Platform-AMD-Settings-V1.5-Turin.html

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.xml
http://www.spec.org/cpu2017/flags/New_H3C-Platform-AMD-Settings-V1.5-Turin.xml

# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## New H3C Technologies Co., Ltd.

H3C UniServer R3350 G7
AMD EPYC 9745

SPECspeed®2017_int_base = 16.1

SPECspeed®2017_int_peak = 16.3

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

Tested with SPEC CPU®2017 v1.1.9 on 2025-03-04 17:28:13-0500.
Report generated on 2025-03-26 10:32:25 by CPU2017 PDF formatter v6716.
Originally published on 2025-03-25.