



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

H3C UniServer R4950 G7
AMD EPYC 9965

SPECrate®2017_int_base = 3130

SPECrate®2017_int_peak = 3290

CPU2017 License: 9066

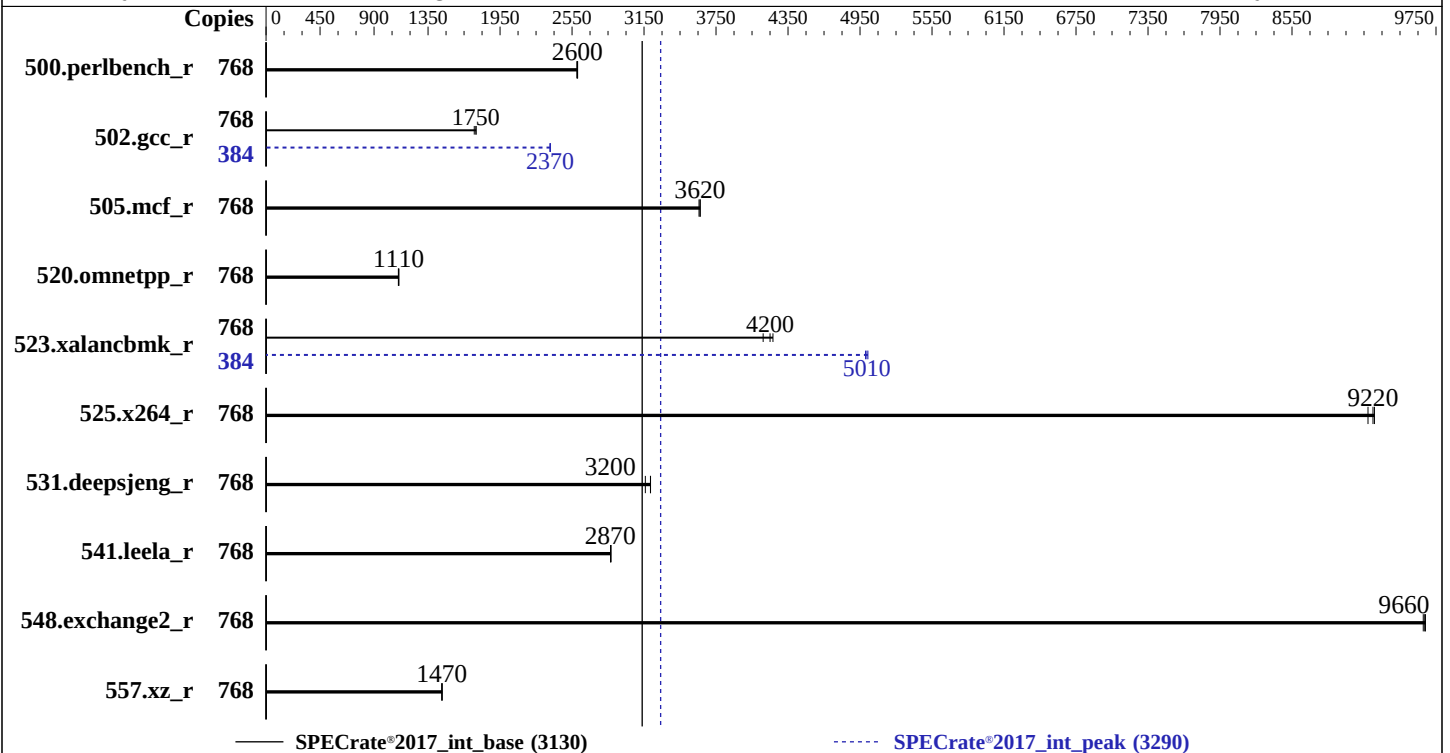
Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2025

Hardware Availability: Oct-2024

Software Availability: Oct-2024



Hardware

CPU Name: AMD EPYC 9965
Max MHz: 3700
Nominal: 2250
Enabled: 384 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: 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)

Storage: 1 x 3.84TB SATA SSD
Other: CPU Cooling: Air

Software

OS: Ubuntu 24.04.1 LTS
kernel version 6.8.0-41-generic
C/C++/Fortran: Version 5.0.0 of AOCC
Compiler: No
Parallel: Version 7.30.10 released May-2025
Firmware: ext4
File System: Run level 3 (multi-user)
System State: 64-bit
Base Pointers: 32/64-bit
Peak Pointers: None
Other: BIOS and OS set to prefer performance at the cost of additional power usage
Power Management:



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	768	471	2600	472	2590	<u>471</u>	<u>2600</u>	768	471	2600	472	2590	<u>471</u>	<u>2600</u>
502.gcc_r	768	621	1750	627	1740	<u>622</u>	<u>1750</u>	384	<u>230</u>	<u>2370</u>	230	2370	229	2370
505.mcf_r	768	344	3610	343	3620	<u>343</u>	<u>3620</u>	768	344	3610	343	3620	<u>343</u>	<u>3620</u>
520.omnetpp_r	768	<u>912</u>	<u>1110</u>	914	1100	911	1110	768	<u>912</u>	<u>1110</u>	914	1100	911	1110
523.xalancbmk_r	768	<u>193</u>	<u>4200</u>	196	4140	192	4220	384	81.2	5000	80.8	5020	<u>81.0</u>	<u>5010</u>
525.x264_r	768	146	9180	<u>146</u>	<u>9220</u>	146	9240	768	146	9180	<u>146</u>	<u>9220</u>	146	9240
531.deepsjeng_r	768	275	3200	278	3160	<u>275</u>	<u>3200</u>	768	275	3200	278	3160	<u>275</u>	<u>3200</u>
541.leela_r	768	442	2880	<u>443</u>	<u>2870</u>	443	2870	768	442	2880	<u>443</u>	<u>2870</u>	443	2870
548.exchange2_r	768	208	9660	<u>208</u>	<u>9660</u>	209	9640	768	208	9660	<u>208</u>	<u>9660</u>	209	9640
557.xz_r	768	565	1470	<u>566</u>	<u>1470</u>	566	1460	768	565	1470	<u>566</u>	<u>1470</u>	566	1460

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

The AMD64 AOCC Compiler Suite is available at
<http://developer.amd.com/amd-aocc/>

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.



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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:/usr/local/amd/aocc-compiler-5.0.0/lib:/usr/local/amd/aocc-compiler-5.0.0/lib32:/usr/lib:/usr/local/mpc-1.31/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"

MALLOC_CONF = "retain:true"

Environment variables set by runcpu during the 523.xalancbmk_r peak run:

MALLOC_CONF = "thp:always"

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 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 500

PPT set to 500

NUMA nodes per socket set to NPS 4

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on h3c Mon Nov 24 23:22:13 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. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline

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Platform Notes (Continued)

```
15. cpupower frequency-info
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 -a
Linux h3c 6.8.0-41-generic #41-Ubuntu SMP PREEMPT_DYNAMIC Fri Aug 2 20:41:06 UTC 2024 x86_64 x86_64 x86_64
GNU/Linux
```

```
2. w
23:22:13 up 6:02, 1 user, load average: 0.08, 0.02, 0.01
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1      -             17:23    13.00s 1.33s  0.21s /bin/bash ./amd_rate_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
process            6188496
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
```

```
5. sysinfo process ancestry
/sbin/init
/bin/login -p --
-bash
python3 ./run_amd_rate_aocc500_znver5_A1.py
/bin/bash ./amd_rate_aocc500_znver5_A1.sh
runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode rate --tune base:peak --size test:train:refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.015/templogs/preenv.intrate.015.0.log --lognum 015.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

```
6. /proc/cpuinfo
model name      : AMD EPYC 9965 192-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 26
```

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Platform Notes (Continued)

```
model          : 17
stepping       : 0
microcode      : 0xb101047
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size       : 192 4K pages
cpu cores      : 192
siblings       : 384
2 physical ids (chips)
768 processors (hardware threads)
physical id 0: core ids 0-191
physical id 1: core ids 0-191
physical id 0: apicids 0-383
physical id 1: apicids 512-895
```

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):                 768
On-line CPU(s) list:    0-767
Vendor ID:              AuthenticAMD
BIOS Vendor ID:         Advanced Micro Devices, Inc.
Model name:             AMD EPYC 9965 192-Core Processor
BIOS Model name:        AMD EPYC 9965 192-Core Processor
BIOS CPU family:        107
CPU family:             26
Model:                  17
Thread(s) per core:     2
Core(s) per socket:     192
Socket(s):              2
Stepping:               0
Frequency boost:        enabled
CPU(s) scaling MHz:     100%
CPU max MHz:            3700.0000
CPU min MHz:            1200.0000
BogoMIPS:               4489.76
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 bpxt
                        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
```

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Platform Notes (Continued)

```
movdiri movdir64b overflow_recov succor smca fsrm avx512_vp2intersect
flush_l1d debug_swap
L1d cache: 18 MiB (384 instances)
L1i cache: 12 MiB (384 instances)
L2 cache: 384 MiB (384 instances)
L3 cache: 768 MiB (24 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-47,384-431
NUMA node1 CPU(s): 48-95,432-479
NUMA node2 CPU(s): 96-143,480-527
NUMA node3 CPU(s): 144-191,528-575
NUMA node4 CPU(s): 192-239,576-623
NUMA node5 CPU(s): 240-287,624-671
NUMA node6 CPU(s): 288-335,672-719
NUMA node7 CPU(s): 336-383,720-767
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
always-on; 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	48K	18M	12	Data	1	64	1	64
L1i	32K	12M	8	Instruction	1	64	1	64
L2	1M	384M	16	Unified	2	1024	1	64
L3	32M	768M	16	Unified	3	32768	1	64

8. `numactl --hardware`

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

```
available: 8 nodes (0-7)
node 0 cpus: 0-47,384-431
node 0 size: 192840 MB
node 0 free: 191971 MB
node 1 cpus: 48-95,432-479
node 1 size: 193460 MB
node 1 free: 192342 MB
node 2 cpus: 96-143,480-527
node 2 size: 193503 MB
node 2 free: 192573 MB
node 3 cpus: 144-191,528-575
node 3 size: 193503 MB
node 3 free: 192935 MB
node 4 cpus: 192-239,576-623
node 4 size: 193503 MB
node 4 free: 192409 MB
node 5 cpus: 240-287,624-671
node 5 size: 193503 MB
node 5 free: 192901 MB
```

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Platform Notes (Continued)

```
node 6 cpus: 288-335,672-719
node 6 size: 193503 MB
node 6 free: 192915 MB
node 7 cpus: 336-383,720-767
node 7 size: 193383 MB
node 7 free: 192066 MB
node distances:
node  0  1  2  3  4  5  6  7
0: 10 12 12 12 32 32 32 32
1: 12 10 12 12 32 32 32 32
2: 12 12 10 12 32 32 32 32
3: 12 12 12 10 32 32 32 32
4: 32 32 32 32 10 12 12 12
5: 32 32 32 32 12 10 12 12
6: 32 32 32 32 12 12 10 12
7: 32 32 32 32 12 12 12 10
```

```
-----
9. /proc/meminfo
MemTotal:      1584333996 kB
```

```
-----
10. who -r
run-level 3 Nov 24 17:22
```

```
-----
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.8)
Default Target Status
multi-user      degraded
```

```
-----
12. Failed units, from systemctl list-units --state=failed
UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
* systemd-networkd-wait-online.service loaded failed failed Wait for Network to be Configured
Legend: LOAD    -> Reflects whether the unit definition was properly loaded.
          ACTIVE -> The high-level unit activation state, i.e. generalization of SUB.
          SUB    -> The low-level unit activation state, values depend on unit type.
1 loaded units listed.
```

```
-----
13. 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
           e2scrub_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback keyboard-setup
           lvm2-monitor mariadb multipathd networkd-dispatcher open-iscsi pollinate secureboot-db
           setvtrgb snapd systemd-networkd systemd-networkd-wait-online systemd-pstore
           systemd-resolved systemd-timesyncd thermald unattended-upgrades wpa_supplicant
enabled-runtime netplan-ovs-cleanup rc-local systemd-fsck-root systemd-remount-fs
disabled      console-getty debug-shell ipmiev d iscsid mariadb@ 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@
generated     cpufrequtils loadcpufreq openipmi
indirect      systemd-sysupdate systemd-sysupdate-reboot
masked        cryptdisks cryptdisks-early hwclock multipath-tools-boot sudo x11-common
```

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Platform Notes (Continued)

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

```
BOOT_IMAGE=/vmlinuz-6.8.0-41-generic  
root=/dev/mapper/ubuntu--vg-ubuntu--lv  
ro  
iommu=pt  
amd_pstate=passive
```

15. cpupower frequency-info

```
analyzing CPU 134:  
current policy: frequency should be within 1.20 GHz and 3.70 GHz.  
The governor "performance" may decide which speed to use  
within this range.  
boost state support:  
Supported: yes  
Active: yes
```

16. sysctl

```
kernel.numa_balancing          1  
kernel.randomize_va_space      0  
vm.compaction_proactiveness    20  
vm.dirty_background_bytes      0  
vm.dirty_background_ratio      10  
vm.dirty_bytes                 0  
vm.dirty_expire_centisecs      3000  
vm.dirty_ratio                 8  
vm.dirty_writeback_centisecs   500  
vm.dirtytime_expire_seconds    43200  
vm.extfrag_threshold           500  
vm.min_unmapped_ratio          1  
vm.nr_hugepages                0  
vm.nr_hugepages_mempolicy      0  
vm.nr_overcommit_hugepages     0  
vm.swappiness                   1  
vm.watermark_boost_factor      15000  
vm.watermark_scale_factor      10  
vm.zone_reclaim_mode           1
```

17. /sys/kernel/mm/transparent_hugepage

```
defrag      [always] defer defer+madvise madvise never  
enabled     [always] madvise never  
hpage_pmd_size 2097152  
shmem_enabled always within_size advise [never] deny force
```

18. /sys/kernel/mm/transparent_hugepage/khugepaged

```
alloc_sleep_millisecs 60000  
defrag                1  
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
```

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Platform Notes (Continued)

os-release Ubuntu 24.04.1 LTS

20. Disk information

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/ubuntu--vg-ubuntu--lv	ext4	3.5T	155G	3.2T	5%	/

21. /sys/devices/virtual/dmi/id

Vendor: New H3C Technologies Co., Ltd.
Product: H3C UniServer R4950 G7
Product Family: Rack
Serial: 210235A55C0123456715

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:

9x SK Hynix HMC94AHBRA480N 64 GB 2 rank 6400
4x SK Hynix HMC94AHBRA481N 64 GB 2 rank 6400
5x SK Hynix HMC94AHBRA485N 64 GB 2 rank 6400
6x SK Hynix HMC94AHBRA487N 64 GB 2 rank 6400

23. BIOS

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

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 7.30.10
BIOS Date: 05/24/2025
BIOS Revision: 5.35
Firmware Revision: 2.2

Compiler Version Notes

C | 502.gcc_r(peak)

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: i386-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

C | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
| 557.xz_r(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

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SPEC CPU®2017 Integer Rate Result

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New H3C Technologies Co., Ltd.

H3C UniServer R4950 G7
AMD EPYC 9965

SPECrate®2017_int_base = 3130

SPECrate®2017_int_peak = 3290

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Nov-2025

Hardware Availability: Oct-2024

Software Availability: Oct-2024

Compiler Version Notes (Continued)

C | 502.gcc_r(peak)

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)

Target: i386-unknown-linux-gnu

Thread model: posix

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

C | 500.perlbench_r(base, peak) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak)
| 557.xz_r(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++ | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak)
| 541.leela_r(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 | 548.exchange2_r(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

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang



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Hardware Availability: Oct-2024

Software Availability: Oct-2024

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



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Base Other Flags

C benchmarks:

-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

Peak Portability Flags

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64

502.gcc_r: -D_FILE_OFFSET_BITS=64

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

Peak Optimization Flags

C benchmarks:

500.perlbench_r: basepeak = yes

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Peak Optimization Flags (Continued)

```
502.gcc_r: -m32 -flto -Wl,-mllvm -Wl,-ldist-scalar-expand
-fenable-aggressive-gather -Wl,-mllvm -Wl,-extra-inliner
-z muldefs -Ofast -march=znver5 -fveclib=AMDLIBM
-ffast-math -fstruct-layout=7 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -fgnu89-inline
-lamdalloc
```

505.mcf_r: basepeak = yes

525.x264_r: basepeak = yes

557.xz_r: basepeak = yes

C++ benchmarks:

520.omnetpp_r: basepeak = yes

```
523.xalancbmk_r: -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 -flto
-mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden
-mllvm -do-block-reorder=advanced -lamdlibm -lflang
-lamdalloc-ext -ldl
```

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

Peak Other Flags

C benchmarks (except as noted below):

-Wno-unused-command-line-argument

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Peak Other Flags (Continued)

502.gcc_r: -L/usr/lib32 -Wno-unused-command-line-argument
-L/home/work/cpu2017/v119/aocc5/1316/amd_rate_aocc500_znver5_A_lib/lib32

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-V2.0-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-V2.0-Turin.xml

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

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