



SPEC CPU®2017 Integer Rate Result

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New H3C Technologies Co., Ltd.

SPECrate®2017_int_base = 958

H3C UniServer R3950 G6 (AMD EPYC 9754)

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9066

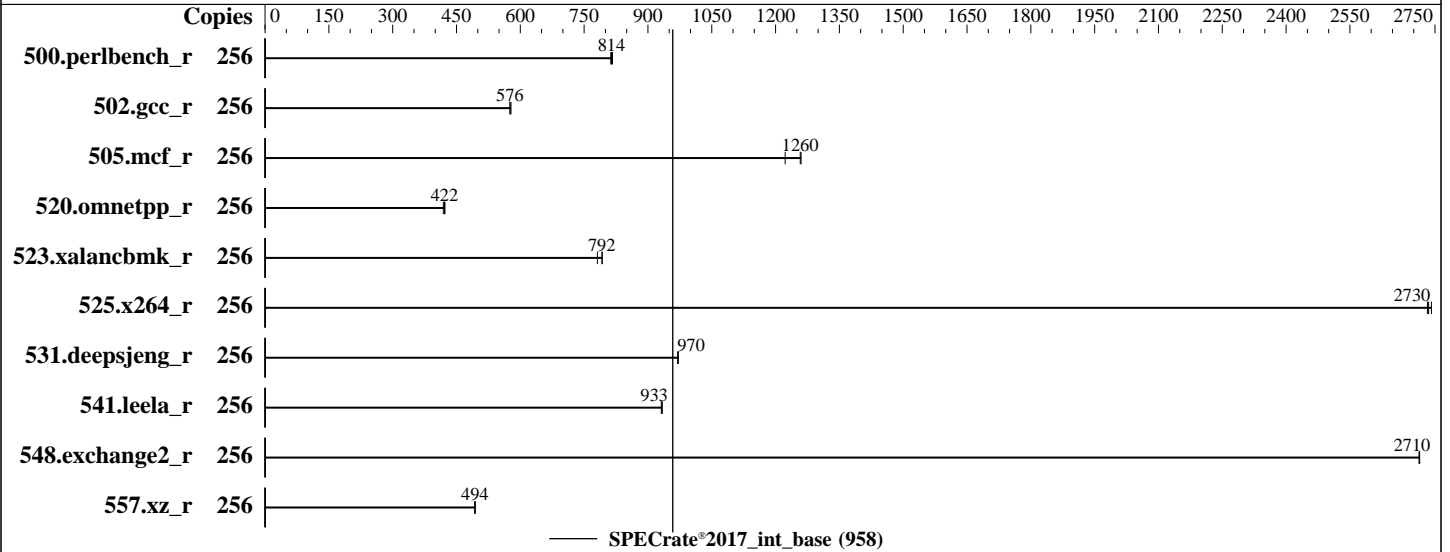
Test Date: May-2024

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Mar-2024

Tested by: New H3C Technologies Co., Ltd.

Software Availability: Nov-2023



Hardware

CPU Name: AMD EPYC 9754
 Max MHz: 3100
 Nominal: 2250
 Enabled: 128 cores, 1 chip, 2 threads/core
 Orderable: 1 chip
 Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 256 MB I+D on chip per chip, 16 MB shared / 8 cores
 Other: None
 Memory: 768 GB (12 x 64 GB 2Rx4 PC5-4800B-R)
 Storage: 1 x 960GB SSD
 Other: CPU Cooling: Air

Software

OS: Red Hat Enterprise Linux release 9.3 (Plow) kernel version 5.14.0-362.8.1.el9_3.x86_64
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
 Parallel: No
 Firmware: Version 6.30.28P91 released Mar-2024
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: None
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	256	501	813	499	817	501	814							
502.gcc_r	256	627	578	629	576	630	576							
505.mcf_r	256	338	1220	328	1260	329	1260							
520.omnetpp_r	256	794	423	802	419	796	422							
523.xalancbmk_r	256	341	792	346	781	341	793							
525.x264_r	256	164	2730	164	2740	164	2730							
531.deepsjeng_r	256	302	970	302	970	302	971							
541.leela_r	256	454	933	454	933	455	931							
548.exchange2_r	256	247	2710	247	2710	247	2710							
557.xz_r	256	560	494	561	493	560	494							

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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) only on request for base runs,
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled' run as root.
To enable THP for all allocations for peak runs,
'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/cpull19/amd_rate_aocc400_znver4_A_lib/lib:/home/cpull19/amd_rate_aocc400_znver4_A_lib/lib32:/usr/
local/amd/aocc-compiler-4.2.0/lib:/usr/local/amd/aocc-compiler-4.2.0/lib32"
MALLOCONF = "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 settings:

```
cTDP Control: Manual
cTDP: 400
PPT Control: Manual
PPT: 400
Determinism Slider set to Power
NUMA nodes per socket: NPS4
IOMMU: Auto
SVM Mode:Disable
```

```
Sysinfo program /home/cpull19/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on localhost.localdomain Mon Aug 21 21:19:15 2023
```

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 252 (252-18.e19)
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
15. cpupower frequency-info
16. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage

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Platform Notes (Continued)

```

19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. BIOS

```

```

-----
1. uname -a
Linux localhost.localdomain 5.14.0-362.8.1.el9_3.x86_64 #1 SMP PREEMPT_DYNAMIC Tue Oct 3 11:12:36 EDT 2023
x86_64 x86_64 x86_64 GNU/Linux

```

```

-----
2. w
 21:19:15 up 1:19, 1 user, load average: 14.57, 142.92, 207.44
USER      TTY      LOGIN@  IDLE   JCPU   PCPU WHAT
root     tty1      20:02   19.00s  4.68s  0.11s /bin/bash ./amd_rate_aocc400_znver4_A1.sh

```

```

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

```

```

-----
4. ulimit -a
real-time non-blocking time (microseconds, -R) unlimited
core file size              (blocks, -c) 0
data seg size                (kbytes, -d) unlimited
scheduling priority         (-e) 0
file size                    (blocks, -f) unlimited
pending signals              (-i) 3092161
max locked memory            (kbytes, -l) 2097152
max memory size              (kbytes, -m) unlimited
open files                   (-n) 32768
pipe size                    (512 bytes, -p) 8
POSIX message queues         (bytes, -q) 819200
real-time priority           (-r) 0
stack size                   (kbytes, -s) unlimited
cpu time                     (seconds, -t) unlimited
max user processes           (-u) unlimited
virtual memory                (kbytes, -v) unlimited
file locks                   (-x) unlimited

```

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize 31
login -- root
-bash
python3 ./run_amd_rate_aocc400_znver4_A1.py
/bin/bash ./amd_rate_aocc400_znver4_A1.sh
runcpu --config amd_rate_aocc400_znver4_A1.cfg --tune base --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc400_znver4_A1.cfg --tune base --reportable --iterations 3 --nopower
--runmode rate --tune base --size test:train:refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.006/templogs/preenv.intrate.006.0.log --lognum 006.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpull9

```

```

-----
6. /proc/cpuinfo

```

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Platform Notes (Continued)

```

model name      : AMD EPYC 9754 128-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 160
stepping       : 2
microcode      : 0xaa00213
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size       : 3584 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 2.37.4:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         52 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                256
On-line CPU(s) list:  0-255
Vendor ID:             AuthenticAMD
BIOS Vendor ID:       Advanced Micro Devices, Inc.
Model name:            AMD EPYC 9754 128-Core Processor
BIOS Model name:      AMD EPYC 9754 128-Core Processor
CPU family:            25
Model:                 160
Thread(s) per core:   2
Core(s) per socket:   128
Socket(s):             1
Stepping:              2
Frequency boost:      enabled
CPU max MHz:          3100.3411
CPU min MHz:          1500.0000
BogoMIPS:              4493.91
Flags:                 fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                      clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp
                      lm constant_tsc rep_good amd_lbr_v2 nopl nonstop_tsc cpuid extd_apicid
                      aperfmperf rapl pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2
                      x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm
                      extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch osvw ibs skinit
                      wdt tce topoext perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb
                      cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba perfmon_v2 ibrs ibpb
                      stibp ibrs_enhanced vmmcall fsgsbase 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 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 overflow_recov succor smca
                      fsrm flush_l1d
Virtualization:        AMD-V

```

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Platform Notes (Continued)

```

L1d cache:          4 MiB (128 instances)
L1i cache:          4 MiB (128 instances)
L2 cache:          128 MiB (128 instances)
L3 cache:          256 MiB (16 instances)
NUMA node(s):      16
NUMA node0 CPU(s): 0-7,128-135
NUMA node1 CPU(s): 8-15,136-143
NUMA node2 CPU(s): 16-23,144-151
NUMA node3 CPU(s): 24-31,152-159
NUMA node4 CPU(s): 32-39,160-167
NUMA node5 CPU(s): 40-47,168-175
NUMA node6 CPU(s): 48-55,176-183
NUMA node7 CPU(s): 56-63,184-191
NUMA node8 CPU(s): 64-71,192-199
NUMA node9 CPU(s): 72-79,200-207
NUMA node10 CPU(s): 80-87,208-215
NUMA node11 CPU(s): 88-95,216-223
NUMA node12 CPU(s): 96-103,224-231
NUMA node13 CPU(s): 104-111,232-239
NUMA node14 CPU(s): 112-119,240-247
NUMA node15 CPU(s): 120-127,248-255
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 Retbleed:          Not affected
Vulnerability Spec store bypass:  Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1:         Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:         Mitigation; Enhanced / Automatic IBRS, IBPB conditional, STIBP
always-on, RSB filling, PBRSE-eIBRS 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	32K	4M	8	Data	1	64	1	64
L1i	32K	4M	8	Instruction	1	64	1	64
L2	1M	128M	8	Unified	2	2048	1	64
L3	16M	256M	16	Unified	3	16384	1	64

8. numactl --hardware

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

```

available: 16 nodes (0-15)
node 0 cpus: 0-7,128-135
node 0 size: 47514 MB
node 0 free: 46889 MB
node 1 cpus: 8-15,136-143
node 1 size: 48379 MB
node 1 free: 47802 MB
node 2 cpus: 16-23,144-151
node 2 size: 48379 MB
node 2 free: 47782 MB
node 3 cpus: 24-31,152-159
node 3 size: 48379 MB
node 3 free: 47743 MB
node 4 cpus: 32-39,160-167
node 4 size: 48379 MB

```

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Platform Notes (Continued)

```

node 4 free: 47744 MB
node 5 cpus: 40-47,168-175
node 5 size: 48379 MB
node 5 free: 47737 MB
node 6 cpus: 48-55,176-183
node 6 size: 48379 MB
node 6 free: 47789 MB
node 7 cpus: 56-63,184-191
node 7 size: 48379 MB
node 7 free: 47784 MB
node 8 cpus: 64-71,192-199
node 8 size: 48379 MB
node 8 free: 47785 MB
node 9 cpus: 72-79,200-207
node 9 size: 48379 MB
node 9 free: 47788 MB
node 10 cpus: 80-87,208-215
node 10 size: 48379 MB
node 10 free: 47787 MB
node 11 cpus: 88-95,216-223
node 11 size: 48379 MB
node 11 free: 47770 MB
node 12 cpus: 96-103,224-231
node 12 size: 48379 MB
node 12 free: 47772 MB
node 13 cpus: 104-111,232-239
node 13 size: 48379 MB
node 13 free: 47789 MB
node 14 cpus: 112-119,240-247
node 14 size: 48379 MB
node 14 free: 47802 MB
node 15 cpus: 120-127,248-255
node 15 size: 48267 MB
node 15 free: 47683 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
0:  10 11 11 11 12 12 12 12 12 12 12 12 12 12 12 12
1:  11 10 11 11 12 12 12 12 12 12 12 12 12 12 12 12
2:  11 11 10 11 12 12 12 12 12 12 12 12 12 12 12 12
3:  11 11 11 10 12 12 12 12 12 12 12 12 12 12 12 12
4:  12 12 12 12 10 11 11 11 12 12 12 12 12 12 12 12
5:  12 12 12 12 11 10 11 11 12 12 12 12 12 12 12 12
6:  12 12 12 12 11 11 10 11 12 12 12 12 12 12 12 12
7:  12 12 12 12 11 11 11 10 12 12 12 12 12 12 12 12
8:  12 12 12 12 12 12 12 12 10 11 11 11 12 12 12 12
9:  12 12 12 12 12 12 12 12 11 10 11 11 12 12 12 12
10: 12 12 12 12 12 12 12 12 11 11 10 11 12 12 12 12
11: 12 12 12 12 12 12 12 12 11 11 11 10 12 12 12 12
12: 12 12 12 12 12 12 12 12 12 12 12 10 11 11 11 11
13: 12 12 12 12 12 12 12 12 12 12 12 11 10 11 11 11
14: 12 12 12 12 12 12 12 12 12 12 12 11 11 10 11 11
15: 12 12 12 12 12 12 12 12 12 12 12 11 11 11 10 10

```

```

-----
9. /proc/meminfo
   MemTotal:      791655916 kB

```

```

-----
10. who -r
    run-level 3 Aug 21 20:00

```

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Platform Notes (Continued)

11. Systemd service manager version: systemd 252 (252-18.el9)

```
Default Target Status
multi-user        degraded
```

12. Failed units, from systemctl list-units --state=failed

```
UNIT          LOAD    ACTIVE SUB    DESCRIPTION
* mdmonitor.service loaded failed failed Software RAID monitoring and management
```

13. Services, from systemctl list-unit-files

```
STATE          UNIT FILES
enabled        ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online
accounts-daemon atd auditd avahi-daemon bluetooth chronyd crond cups dbus-broker gdm
getty@ insights-client-boot irqbalance iscsi iscsi-onboot kdump ksm ksmtuned
libstoragemgmt lm_sensors low-memory-monitor lvm2-monitor mcelog mdmonitor microcode
multipathd nis-domainname nvme-fc-boot-connections ostree-remount power-profiles-daemon
qemu-guest-agent rhsmcertd rsyslog rtkit-daemon selinux-autorelabel-mark smartd sshd sssd
switcheroo-control systemd-boot-update systemd-network-generator tuned udisks2 upower
vgauthd vmtoolsd
enabled-runtime systemd-remount-fs
disabled       arp-ethers blk-availability brltty canberra-system-bootup canberra-system-shutdown
canberra-system-shutdown-reboot chrony-wait cni-dhcp console-getty cpupower cups-browsed
dbus-daemon debug-shell dnf-system-upgrade dnsmasq fancontrol firewallld hwloc-dump-hwdata
iprdump iprprint iprupdate iscsid iscsiui kpatch kvm_stat ledmon
man-db-restart-cache-update netavark-dhcp-proxy nftables nvme-autoconnect
ostree-readonly-sysroot-migration podman podman-auto-update podman-clean-transient
podman-kube@ podman-restart powertop psacct ras-mc-ctl rasdaemon rdisc rhcd rhsm
rhsm-facts rpmdb-rebuild selinux-check-proper-disable serial-getty@ speech-dispatcherd
sshd-keygen@ systemd-boot-check-no-failures systemd-pstore systemd-sysext wpa_supplicant
indirect       spice-vdagentd sssd-autofs sssd-kcm sssd-nss sssd-pac sssd-pam sssd-ssh sssd-sudo
systemd-sysupdate systemd-sysupdate-reboot
```

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

```
BOOT_IMAGE=(hd0,gpt2)/vmlinuz-5.14.0-362.8.1.el9_3.x86_64
root=/dev/mapper/rhel-root
ro
crashkernel=1G-4G:192M,4G-64G:256M,64G-:512M
resume=/dev/mapper/rhel-swap
rd.lvm.lv=rhel/root
rd.lvm.lv=rhel/swap
default_hugepagesz=1G
cgroup_disable=memory,cpu,cpuacct,blkio,hugetlb,pids,cpuset,perf_event,freezer,devices,net_cls,net_prio
```

15. cpupower frequency-info

```
analyzing CPU 0:
current policy: frequency should be within 1.50 GHz and 2.25 GHz.
The governor "performance" may decide which speed to use
within this range.
```

```
boost state support:
Supported: yes
Active: yes
Boost States: 0
Total States: 3
Pstate-P0: 2250MHz
```

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Platform Notes (Continued)

16. tuned-adm active
Current active profile: throughput-performance

```

17. sysctl
kernel.numa_balancing          0
kernel.randomize_va_space     0
vm.compaction_proactiveness    20
vm.dirty_background_bytes      0
vm.dirty_background_ratio      40
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

```

```

18. /sys/kernel/mm/transparent_hugepage
defrag          [always] defer+madvise madvise never
enabled         [always] madvise never
hpage_pmd_size 2097152
shmem_enabled   always within_size advise [never] deny force

```

```

19. /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   50000

```

```

20. OS release
From /etc/*-release /etc/*-version
os-release      Red Hat Enterprise Linux 9.3 (Plow)
redhat-release  Red Hat Enterprise Linux release 9.3 (Plow)
system-release  Red Hat Enterprise Linux release 9.3 (Plow)

```

```

21. Disk information
SPEC is set to: /home/cpul19
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/rhel-home xfs   819G  11G  808G   2% /home

```

```

22. /sys/devices/virtual/dmi/id
Vendor:      N/A
Product:     N/A

```

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SPEC CPU®2017 Integer Rate Result

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New H3C Technologies Co., Ltd.

SPECrate®2017_int_base = 958

H3C UniServer R3950 G6 (AMD EPYC 9754)

SPECrate®2017_int_peak = Not Run

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

Test Date: May-2024
Hardware Availability: Mar-2024
Software Availability: Nov-2023

Platform Notes (Continued)

Product Family: Rack
Serial: N/A

23. 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:
12x Micron Technology MTC40F2046S1RC48BA1 64 GB 2 rank 4800

24. BIOS

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

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 6.30.28P91
BIOS Date: 03/13/2024
BIOS Revision: 5.27

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 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

C++ | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(base)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

Fortran | 548.exchange2_r(base)

AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

Base Compiler Invocation

C benchmarks:
clang

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Test Date: May-2024

Hardware Availability: Mar-2024

Software Availability: Nov-2023

Base Compiler Invocation (Continued)

C++ benchmarks:

clang++

Fortran benchmarks:

flang

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 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather
-z muldefs -O3 -march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lflang
-lamdalloc
```

C++ benchmarks:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -z muldefs -O3
-march=znver4 -fveclib=AMDLIBM -ffast-math
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt
-fvirtual-function-elimination -fvisibility=hidden -lamdlibm -lflang
-lamdalloc-ext
```

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Test Date: May-2024

Hardware Availability: Mar-2024

Software Availability: Nov-2023

Base Optimization Flags (Continued)

Fortran benchmarks:

```
-m64 -flt0 -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=znver4
-fveclib=AMDLIBM -ffast-math -fepilog-vectorization-of-inductions
-mllvm -optimize-strided-mem-cost -floop-transform
-mllvm -unroll-aggressive -mllvm -unroll-threshold=500 -lamdlibm
-lflang -lamdalloc
```

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/New_H3C-Platform-AMD-Settings-V1.0-Genoa.html

<http://www.spec.org/cpu2017/flags/aocc400-flags.html>

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

http://www.spec.org/cpu2017/flags/New_H3C-Platform-AMD-Settings-V1.0-Genoa.xml

<http://www.spec.org/cpu2017/flags/aocc400-flags.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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