SPEC CPU®2017 Integer Rate Result

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New H3C Technologies Co., Ltd.

SPECrate®2017_int_base = 1890

H3C UniServer R4950 G6 (AMD EPYC 9754)
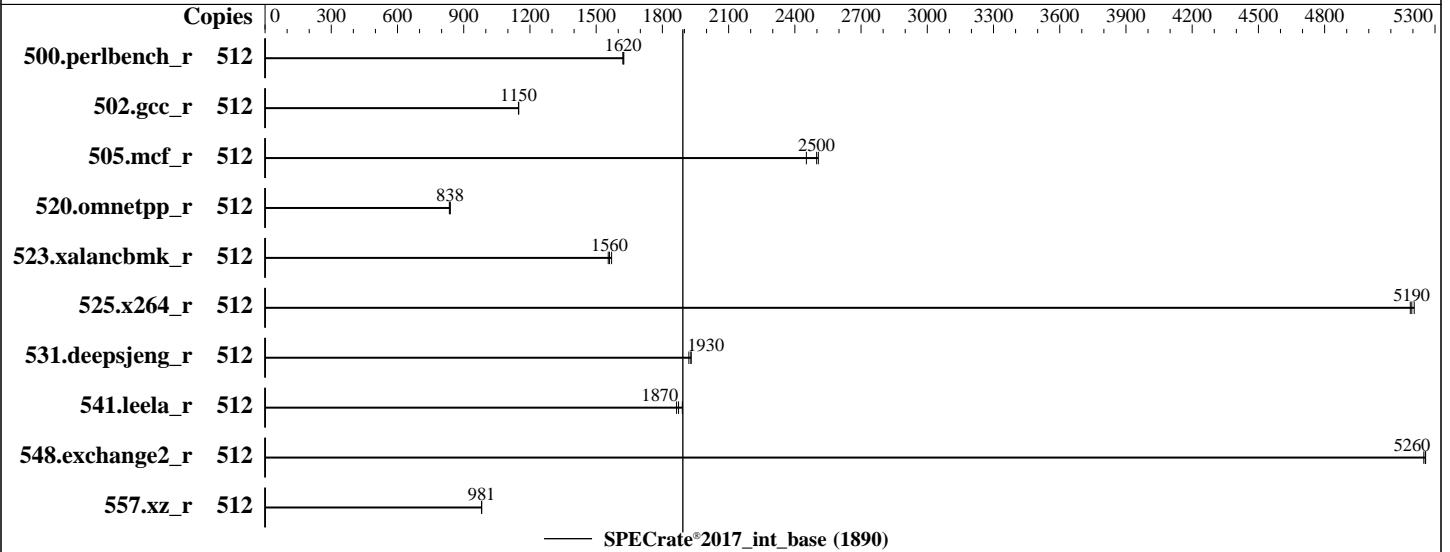
SPECrate®2017_int_peak = Not Run

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2024

Hardware Availability: Aug-2023

Software Availability: Nov-2023

Benchmark	Copies	Result
500.perlbench_r	512	1620
502.gcc_r	512	1150
505.mcf_r	512	2500
520.omnetpp_r	512	838
523.xalancbmk_r	512	1560
525.x264_r	512	5190
531.deepsjeng_r	512	1930
541.leela_r	512	1870
548.exchange2_r	512	5260
557.xz_r	512	981

SPECrate®2017_int_base (1890)

Hardware

CPU Name: AMD EPYC 9754

Max MHz: 3100

Nominal: 2250

Enabled: 256 cores, 2 chips, 2 threads/core

Orderable: 1,2 chips

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: 1536 GB (23 x 64 GB 2Rx4 PC5-4800B-R + 1 x 64 GB 2Rx4 PC5-5600B-R, running at 4800)

Storage: 1 x 256GB NVME

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 6.30.20 released Aug-2023

File System: xfs

System State: Run level 5 (multi-user)

Base Pointers: 64-bit

Peak Pointers: Not Applicable

Other: None

Power Management: BIOS and OS set to prefer performance at the cost

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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	512	502	1630	503	1620	**502**	**1620**							
502.gcc_r	512	**631**	**1150**	631	1150	632	1150							
505.mcf_r	512	337	2450	330	2510	**331**	**2500**							
520.omnetpp_r	512	801	839	805	835	**801**	**838**							
523.xalancbmk_r	512	348	1550	**346**	**1560**	344	1570							
525.x264_r	512	172	5210	**173**	**5190**	173	5190							
531.deepsjeng_r	512	**304**	**1930**	304	1930	306	1920							
541.leela_r	512	449	1890	**453**	**1870**	455	1860							
548.exchange2_r	512	255	5260	256	5250	**255**	**5260**							
557.xz_r	512	**564**	**981**	563	981	564	980							
SPECrate®2017_int_base =	**1890**													
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) 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.
```

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

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Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH =
    "/home/spec2017/amd_rate_aocc400_znver4_A_lib/lib:/home/spec2017/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"
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 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: Disabled

 Sysinfo program /home/spec2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost.localdomain Tue Jun 18 20:25:16 2024

 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.el9)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
 14. cpupower frequency-info
 15. tuned-adm active
 16. sysctl
 17. /sys/kernel/mm/transparent_hugepage
 18. /sys/kernel/mm/transparent_hugepage/khugepaged
```

(Continued on next page)

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Platform Notes (Continued)

```
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. 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
   20:25:17 up  2:57,  2 users,  load average: 18.64, 261.11, 402.55
  USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
  root     pts/0     17:28   29.00s  1.47s  0.17s /bin/bash ./amd_rate_aocc400_znver4_A1.sh
  root     pts/1     17:29    2:55m  0.01s  0.01s -bash


     -----------------------------------------------------------
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) 6188259
  max locked memory           (kbytes, -l) 2097152
  max memory size             (kbytes, -m) unlimited
  open files                       (-n) 1024
  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) 6188259
  virtual memory              (kbytes, -v) unlimited
  file locks                       (-x) unlimited


     -----------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd rhgb --switched-root --system --deserialize 31
 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
 sshd: root [priv]
 sshd: root@pts/0
 -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/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/spec2017


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

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Platform Notes (Continued)

```
6. /proc/cpuinfo
     model name        : AMD EPYC 9754 128-Core Processor
     vendor_id         : AuthenticAMD
     cpu family        : 25
     model             : 160
     stepping          : 2
     microcode         : 0xaa00212
     bugs              : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
     TLB size          : 3584 4K pages
     cpu cores         : 128
     siblings          : 256
     2 physical ids (chips)
     512 processors (hardware threads)
     physical id 0: core ids 0-127
     physical id 1: core ids 0-127
     physical id 0: apicids 0-255
     physical id 1: apicids 256-511
   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):                    512
  On-line CPU(s) list:       0-511
  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):                 2
  Stepping:                  2
  Frequency boost:           enabled
  CPU max MHz:               3100.3411
  CPU min MHz:               1500.0000
  BogoMIPS:                  4489.34
  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
```

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Platform Notes (Continued)

```
                         avx512_bitalg avx512_vpopcntdq la57 rdpid overflow_recov succor smca
                         fsrm flush_l1d
  Virtualization:        AMD-V
  L1d cache:             8 MiB (256 instances)
  L1i cache:             8 MiB (256 instances)
  L2 cache:              256 MiB (256 instances)
  L3 cache:              512 MiB (32 instances)
  NUMA node(s):          8
  NUMA node0 CPU(s):     0-31,256-287
  NUMA node1 CPU(s):     32-63,288-319
  NUMA node2 CPU(s):     64-95,320-351
  NUMA node3 CPU(s):     96-127,352-383
  NUMA node4 CPU(s):     128-159,384-415
  NUMA node5 CPU(s):     160-191,416-447
  NUMA node6 CPU(s):     192-223,448-479
  NUMA node7 CPU(s):     224-255,480-511
  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:    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
  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       8M   8 Data             1    64        1             64
     L1i       32K       8M   8 Instruction      1    64        1             64
     L2         1M     256M   8 Unified          2  2048        1             64
     L3        16M     512M  16 Unified          3 16384        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: 0-31,256-287
   node 0 size: 192620 MB
   node 0 free: 190843 MB
   node 1 cpus: 32-63,288-319
   node 1 size: 193520 MB
   node 1 free: 191764 MB
   node 2 cpus: 64-95,320-351
   node 2 size: 193520 MB
   node 2 free: 191503 MB
   node 3 cpus: 96-127,352-383
   node 3 size: 193520 MB
   node 3 free: 191687 MB
   node 4 cpus: 128-159,384-415
   node 4 size: 193520 MB
   node 4 free: 190930 MB
   node 5 cpus: 160-191,416-447
   node 5 size: 193520 MB
   node 5 free: 191771 MB
   node 6 cpus: 192-223,448-479
```

(Continued on next page)

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Platform Notes (Continued)

```
   node 6 size: 193466 MB
   node 6 free: 191709 MB
   node 7 cpus: 224-255,480-511
   node 7 size: 193440 MB
   node 7 free: 191615 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:       1584259384 kB


  ----------------------------------------------------------
  10. who -r
    run-level 5 Jun 18 17:27


  ----------------------------------------------------------
  11. Systemd service manager version: systemd 252 (252-18.el9)
    Default Target  Status
    graphical       running


  ----------------------------------------------------------
  12. 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 libstoragemgmt
                     low-memory-monitor lvm2-monitor mcelog mdmonitor microcode multipathd nis-domainname
                     nvmefc-boot-connections ostree-remount power-profiles-daemon qemu-guest-agent rhsmcertd
                     rpcbind 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 firewalld hwloc-dump-hwdata iprdump
                     iprinit iprupdate iscsid iscsiuio kpatch kvm_stat ledmon man-db-restart-cache-update
                     netavark-dhcp-proxy nftables nvmf-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 rpc-rquotad 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


  ----------------------------------------------------------
  13. 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
```

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Platform Notes (Continued)

```
  rd.lvm.lv=rhel/swap
  rhgb
  quiet
  iommu=pt
  mitigations=off


  ----------------------------------------------------------
14. 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


  ----------------------------------------------------------
15. tuned-adm active
  It seems that tuned daemon is not running, preset profile is not activated.
  Preset profile: throughput-performance


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

(Continued on next page)

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Platform Notes (Continued)

```
    pages_to_scan           4096
    scan_sleep_millisecs    10000


    ------------------------------------------------------------
    19. 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)


    ------------------------------------------------------------
    20. Disk information
    SPEC is set to: /home/spec2017
      Filesystem            Type  Size  Used Avail Use% Mounted on
      /dev/mapper/rhel-home xfs   163G   14G  150G   9% /home


    ------------------------------------------------------------
    21. /sys/devices/virtual/dmi/id
        Vendor:        H3C
        Product:       RS33M2C9S
        Product Family: Rack


    ------------------------------------------------------------
    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:
        23x Micron Technology MTC40F2046S1RC48BA1 64 GB 2 rank 4800
        1x Micron Technology MTC40F2046S1RC56BD1 64 GB 2 rank 5600, configured at 4800


    ------------------------------------------------------------
    23. BIOS
    (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:     American Megatrends International, LLC.
      BIOS Version:    6.30.20
      BIOS Date:       08/09/2023
      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
```

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SPEC CPU®2017 Integer Rate Result

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New H3C Technologies Co., Ltd.

H3C UniServer R4950 G6 (AMD EPYC 9754)

SPECrate®2017_int_base =   1890

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: Jun-2024
Hardware Availability: Aug-2023
Software Availability: Nov-2023

Compiler Version Notes (Continued)

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

======================================================================================
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`

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`

(Continued on next page)

New H3C Technologies Co., Ltd.

SPECrate®2017_int_base = 1890

H3C UniServer R4950 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: Jun-2024
Hardware Availability: Aug-2023
Software Availability: Nov-2023

Base Optimization Flags (Continued)

C benchmarks (continued):
```
-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
```

Fortran benchmarks:
```
-m64 -flto -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-V1.4-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-V1.4-Genoa.xml
http://www.spec.org/cpu2017/flags/aocc400-flags.xml

SPEC CPU®2017 Integer Rate Result

New H3C Technologies Co., Ltd.

H3C UniServer R4950 G6 (AMD EPYC 9754)

SPECrate®2017_int_base =   1890

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9066		**Test Date:**	Jun-2024
Test Sponsor:	New H3C Technologies Co., Ltd.	**Hardware Availability:**	Aug-2023
Tested by:	New H3C Technologies Co., Ltd.	**Software Availability:**	Nov-2023

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

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