SPEC CPU®2017 Integer Speed Result

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New H3C Technologies Co., Ltd.

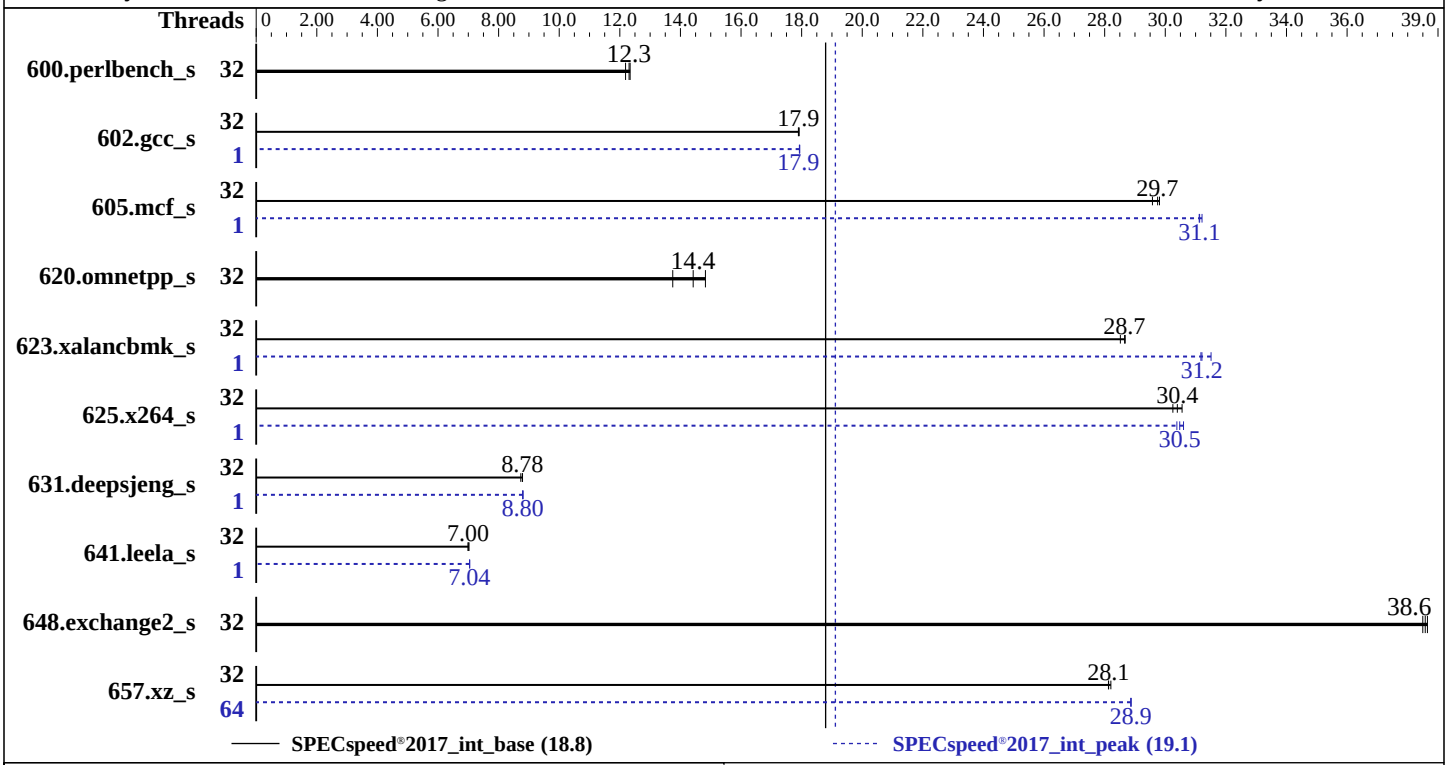
H3C UniServer R3950 G7
AMD EPYC 9355

SPECspeed®2017_int_base = 18.8

SPECspeed®2017_int_peak = 19.1

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

Test Date: Jan-2025
Hardware Availability: Oct-2024
Software Availability: Oct-2024



Hardware

CPU Name:	AMD EPYC 9355
Max MHz:	4400
Nominal:	3550
Enabled:	32 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 / 4 cores
Other:	None
Memory:	384 GB (12 x 32 GB 2Rx8 PC5-6400B-R, running at 6000)
Storage:	1 x 960GB SATA SSD
Other:	CPU Cooling: Air

Software

OS:	Ubuntu 24.04.1 LTS kernel version 6.8.0-45-generic
Compiler:	C/C++/Fortran: Version 5.0.0 of AOCC
Parallel:	Yes
Firmware:	Version 7.30.04 released Dec-2024
File System:	ext4
System State:	Run level 5 (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.

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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	**144**	**12.3**	144	12.3	146	12.2	32	**144**	**12.3**	144	12.3	146	12.2
602.gcc_s	32	**222**	**17.9**	223	17.9	222	17.9	1	222	17.9	**222**	**17.9**	222	17.9
605.mcf_s	32	**159**	**29.7**	160	29.6	158	29.8	1	152	31.1	151	31.2	**152**	**31.1**
620.omnetpp_s	32	**113**	**14.4**	119	13.7	110	14.8	32	**113**	**14.4**	119	13.7	110	14.8
623.xalancbmk_s	32	49.4	28.7	49.7	28.5	**49.4**	**28.7**	1	45.5	31.2	**45.4**	**31.2**	45.0	31.5
625.x264_s	32	57.7	30.6	**58.0**	**30.4**	58.3	30.3	1	57.6	30.6	**57.9**	**30.5**	58.1	30.4
631.deepsjeng_s	32	**163**	**8.78**	163	8.79	164	8.73	1	163	8.79	**163**	**8.80**	163	8.80
641.leela_s	32	244	6.99	243	7.02	**244**	**7.00**	1	242	7.04	242	7.05	**242**	**7.04**
648.exchange2_s	32	**76.2**	**38.6**	76.4	38.5	76.1	38.7	32	**76.2**	**38.6**	76.4	38.5	76.1	38.7
657.xz_s	32	220	28.1	**220**	**28.1**	219	28.2	64	214	28.9	**214**	**28.9**	214	28.9

SPECspeed®2017_int_base = **18.8**

SPECspeed®2017_int_peak = **19.1**

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.
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
GOMP_CPU_AFFINITY = "0-63"
LD_LIBRARY_PATH =
     "/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib:/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib32:/
     usr/local/amd/aocc-compiler-5.0.0/lib:/usr/local/amd/aocc-compiler-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 = "64"

Environment variables set by runcpu during the 602.gcc_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 657.xz_s peak run:
GOMP_CPU_AFFINITY = "0-63"
```

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 300
PPT set to 300
NUMA nodes per socket set to NPS 4

 Sysinfo program /home/cpu2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
```

(Continued on next page)

Platform Notes (Continued)

```
running on h3c Tue Jan  7 00:11:18 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 6.8.0-45-generic #45-Ubuntu SMP PREEMPT_DYNAMIC Fri Aug 30 12:02:04 UTC 2024 x86_64 x86_64 x86_64
  GNU/Linux

------------------------------------------------------------
2. w
   00:11:18 up 17:43,  3 users,  load average: 0.16, 0.08, 0.03
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                Mon06   17:38m  0.06s   ?    -bash
  root             172.17.53.33     Mon06   17:43m  0.00s 32.67s sshd: root@pts/0
  root             172.17.53.33     Mon06   17:43m  0.00s  0.16s sshd: root@notty

------------------------------------------------------------
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              1545658
  nofiles              1024
  vmemory(kbytes)      unlimited
```

(Continued on next page)

Platform Notes (Continued)

```
   locks                unlimited
   rtprio               0

------------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init
 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
 sshd: root@pts/0
 -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/CPU2017.001/templogs/preenv.intspeed.001.0.log --lognum 001.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017

------------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9355 32-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 26
    model           : 2
    stepping        : 1
    microcode       : 0xb00211a
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
    TLB size        : 192 4K pages
    cpu cores       : 32
    siblings        : 64
    1 physical ids (chips)
    64 processors (hardware threads)
    physical id 0: core ids 0-3,8-11,16-19,24-27,32-35,40-43,48-51,56-59
    physical id 0: apicids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
  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):                               64
  On-line CPU(s) list:                  0-63
  Vendor ID:                            AuthenticAMD
  BIOS Vendor ID:                       Advanced Micro Devices, Inc.
  Model name:                           AMD EPYC 9355 32-Core Processor
  BIOS Model name:                      AMD EPYC 9355 32-Core Processor                 Unknown CPU @ 3.5GHz
  BIOS CPU family:                      107
  CPU family:                           26
  Model:                                2
  Thread(s) per core:                   2
  Core(s) per socket:                   32
  Socket(s):                            1
  Stepping:                             1
  Frequency boost:                      enabled
  CPU(s) scaling MHz:                   45%
```

(Continued on next page)

Platform Notes (Continued)

```
   CPU max MHz:                          4413.2319
   CPU min MHz:                          1500.0000
   BogoMIPS:                             7089.64
   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:                            1.5 MiB (32 instances)
   L1i cache:                            1 MiB (32 instances)
   L2 cache:                             32 MiB (32 instances)
   L3 cache:                             256 MiB (8 instances)
   NUMA node(s):                         8
   NUMA node0 CPU(s):                    0-3,32-35
   NUMA node1 CPU(s):                    4-7,36-39
   NUMA node2 CPU(s):                    8-11,40-43
   NUMA node3 CPU(s):                    12-15,44-47
   NUMA node4 CPU(s):                    16-19,48-51
   NUMA node5 CPU(s):                    20-23,52-55
   NUMA node6 CPU(s):                    24-27,56-59
   NUMA node7 CPU(s):                    28-31,60-63
   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; 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     1.5M   12 Data            1    64        1             64
      L1i       32K       1M    8 Instruction     1    64        1             64
      L2         1M      32M   16 Unified         2  1024        1             64
      L3        32M     256M   16 Unified         3 32768        1             64

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

(Continued on next page)

Platform Notes (Continued)

```
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 8 nodes (0-7)
  node 0 cpus: 0-3,32-35
  node 0 size: 47921 MB
  node 0 free: 47430 MB
  node 1 cpus: 4-7,36-39
  node 1 size: 48381 MB
  node 1 free: 48243 MB
  node 2 cpus: 8-11,40-43
  node 2 size: 48381 MB
  node 2 free: 48200 MB
  node 3 cpus: 12-15,44-47
  node 3 size: 48381 MB
  node 3 free: 48216 MB
  node 4 cpus: 16-19,48-51
  node 4 size: 48381 MB
  node 4 free: 48108 MB
  node 5 cpus: 20-23,52-55
  node 5 size: 48381 MB
  node 5 free: 48124 MB
  node 6 cpus: 24-27,56-59
  node 6 size: 48337 MB
  node 6 free: 48174 MB
  node 7 cpus: 28-31,60-63
  node 7 size: 48326 MB
  node 7 free: 48118 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  11  12  12  12  12  12  12
    1:  11  10  12  12  12  12  12  12
    2:  12  12  10  11  12  12  12  12
    3:  12  12  11  10  12  12  12  12
    4:  12  12  12  12  10  11  12  12
    5:  12  12  12  12  11  10  12  12
    6:  12  12  12  12  12  12  10  11
    7:  12  12  12  12  12  12  11  10

------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       395767560 kB

------------------------------------------------------------
10. who -r
  run-level 5 Jan 6 06:27

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

------------------------------------------------------------
12. Services, from systemctl list-unit-files
  STATE            UNIT FILES
  enabled          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 lm-sensors lvm2-monitor multipathd networkd-dispatcher open-iscsi pollinate
                   secureboot-db setvtrgb systemd-networkd systemd-networkd-wait-online systemd-pstore
                   systemd-resolved systemd-timesyncd thermald
  enabled-runtime  netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
```

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Platform Notes (Continued)

```
  disabled         console-getty debug-shell iscsid 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
  indirect         systemd-sysupdate systemd-sysupdate-reboot
  masked           cryptdisks cryptdisks-early hwclock multipath-tools-boot sudo x11-common

------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/vmlinuz-6.8.0-45-generic
  root=/dev/mapper/ubuntu--vg-ubuntu--lv
  ro
  iommu=pt

------------------------------------------------------------
14. cpupower frequency-info
  analyzing CPU 52:
    current policy: frequency should be within 1.50 GHz and 3.55 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:  19800MHz

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

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Platform Notes (Continued)

```
  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

------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017
  Filesystem                     Type  Size  Used Avail Use% Mounted on
  /dev/mapper/ubuntu--vg-ubuntu--lv ext4   98G   21G   73G  22% /

------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
    Vendor:         H3C
    Product:        R3950 G6
    Product Family: Rack
    Serial:         202311A3SFH20C000109

------------------------------------------------------------
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:
    4x Samsung M321R4GA3EB2-CCPEC 32 GB 2 rank 6400, configured at 6000
    3x Samsung M321R4GA3EB2-CCPKC 32 GB 2 rank 6400, configured at 6000
    1x Samsung M321R4GA3EB2-CCPPC 32 GB 2 rank 6400, configured at 6000
    4x Samsung M321R4GA3EB2-CCPWC 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:      7.30.04
   BIOS Date:         12/10/2024
   BIOS Revision:     5.35
   Firmware Revision: 1.12
```

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

(Continued on next page)

Compiler Version Notes (Continued)

```
==============================================================================================================
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)
--------------------------------------------------------------------------------------------------------------
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
```

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

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

600.perlbench_s: basepeak = yes

602.gcc_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

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 602.gcc_s

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Peak Optimization Flags (Continued)

657.xz_s: `Same as 602.gcc_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`
`-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:

648.exchange2_s: `basepeak = yes`

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-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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