



SPEC CPU®2017 Integer Speed Result

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New H3C Technologies Co., Ltd.

H3C UniServer R3950 G7
AMD EPYC 9645

SPECspeed®2017_int_base = 16.0

SPECspeed®2017_int_peak = 16.3

CPU2017 License: 9066

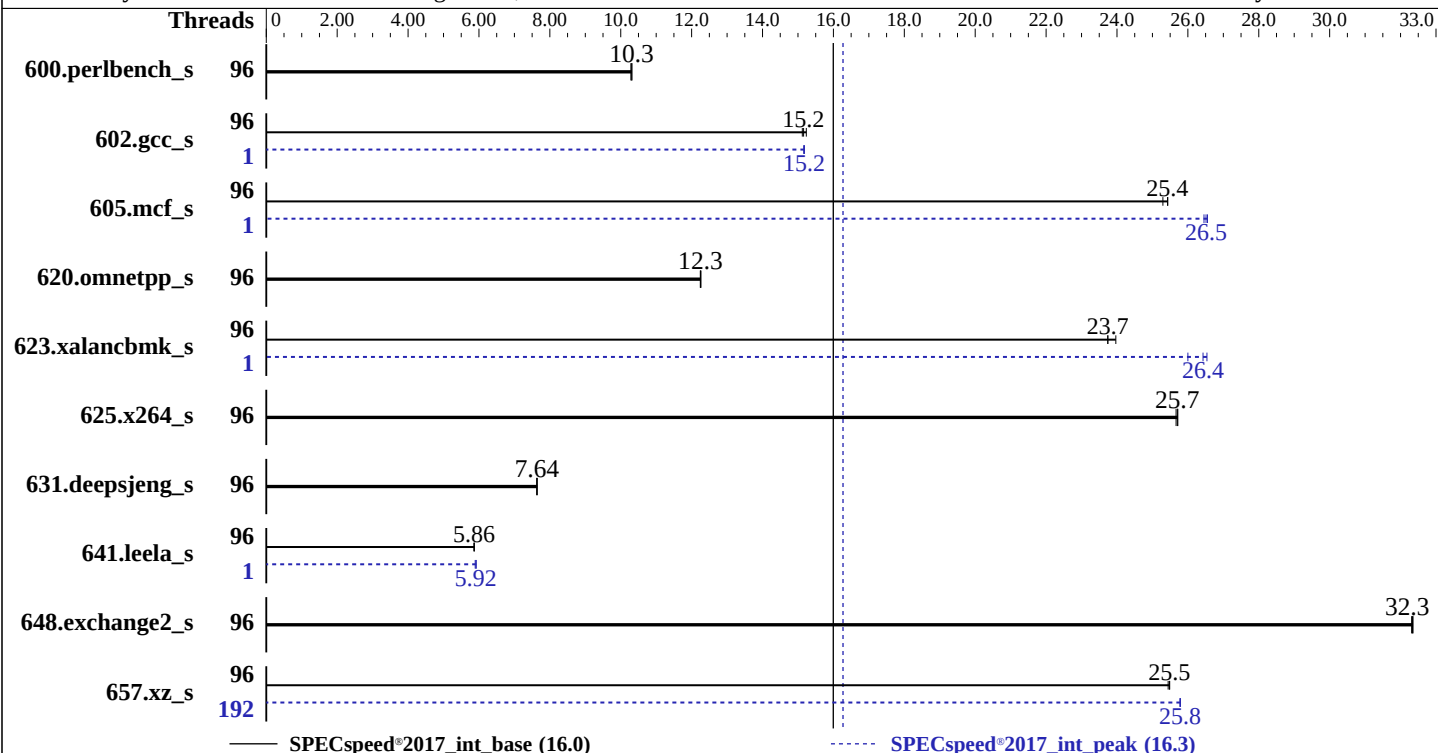
Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Aug-2025

Hardware Availability: Oct-2024

Software Availability: Dec-2024



Hardware

CPU Name: AMD EPYC 9645
Max MHz: 3700
Nominal: 2300
Enabled: 96 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 / 12 cores
Other: None
Memory: 768 GB (12 x 64 GB 2Rx4 PC5-6400B-R)

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

Software

OS: Ubuntu 24.04.1 LTS
kernel version 6.8.0-41-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 7.30.09 released Apr-2025
File System: ext4
System State: Run level 5 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
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						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	96	172	10.3	173	10.3	<u>172</u>	<u>10.3</u>	96	172	10.3	173	10.3	<u>172</u>	<u>10.3</u>
602.gcc_s	96	<u>263</u>	<u>15.2</u>	261	15.2	263	15.1	1	<u>262</u>	<u>15.2</u>	262	15.2	263	15.2
605.mcf_s	96	<u>186</u>	<u>25.4</u>	186	25.4	187	25.3	1	<u>178</u>	<u>26.5</u>	178	26.5	178	26.6
620.omnetpp_s	96	<u>133</u>	<u>12.3</u>	133	12.3	133	12.2	96	<u>133</u>	<u>12.3</u>	133	12.3	133	12.2
623.xalanchmk_s	96	59.7	23.7	59.1	24.0	<u>59.7</u>	<u>23.7</u>	1	<u>53.6</u>	<u>26.4</u>	54.5	26.0	53.4	26.5
625.x264_s	96	<u>68.6</u>	<u>25.7</u>	68.6	25.7	68.7	25.7	96	<u>68.6</u>	<u>25.7</u>	68.6	25.7	68.7	25.7
631.deepsjeng_s	96	188	7.63	<u>188</u>	<u>7.64</u>	188	7.64	96	188	7.63	<u>188</u>	<u>7.64</u>	188	7.64
641.leela_s	96	291	5.87	291	5.86	<u>291</u>	<u>5.86</u>	1	288	5.92	<u>288</u>	<u>5.92</u>	289	5.89
648.exchange2_s	96	<u>90.9</u>	<u>32.3</u>	91.0	32.3	90.9	32.4	96	<u>90.9</u>	<u>32.3</u>	91.0	32.3	90.9	32.4
657.xz_s	96	<u>243</u>	<u>25.5</u>	243	25.4	243	25.5	192	<u>240</u>	<u>25.8</u>	240	25.8	240	25.8

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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:

GOMP_CPU_AFFINITY = "0-191"

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 = "192"

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 641.leela_s peak run:

GOMP_CPU_AFFINITY = "0"

Environment variables set by runcpu during the 657.xz_s peak run:

GOMP_CPU_AFFINITY = "0-191"

General Notes

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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1) is mitigated in the system as tested and documented.

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2) is mitigated in the system as tested and documented.

Platform Notes

BIOS settings:

SMT Control set to Enabled

SVM Mode set to Disabled

Power Profile Selection set to High Performance Mode

Determinism Slider set to Power

cTDP set to 400

PPT set to 400

NUMA nodes per socket set to NPS 4

ACPI SRAT L3 cache as NUMA domain set to Enabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on h3cserver Sun Aug 3 17:23:49 2025

SUT (System Under Test) info as seen by some common utilities.

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```
1. uname -a
Linux h3cserver 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
17:23:49 up 1 day, 21:10, 1 user, load average: 0.08, 0.02, 0.01
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1      -               Fri20    5.00s  0.99s  0.11s /bin/bash ./amd_speed_aocc500_znver5_A1.sh
```

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

```
4. ulimit -a
time(seconds)      unlimited
file(blocks)       unlimited
data(kbytes)       unlimited
stack(kbytes)      unlimited
coredump(blocks)   0
memory(kbytes)     unlimited
locked memory(kbytes) 2097152
process            3093742
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
```

```
5. sysinfo process ancestry
```

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Platform Notes (Continued)

```
/sbin/init
/bin/login -p --
-bash
python3 ./run_amd_speed_aocc500_znver5_A1.py
/bin/bash ./amd_speed_aocc500_znver5_A1.sh
runcpu --config amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 intspeerd
runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeerd intspeerd --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.003/templogs/preenv.intspeerd.003.0.log --lognum 003.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

```
-----
6. /proc/cpuinfo
model name      : AMD EPYC 9645 96-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 17
stepping        : 0
microcode       : 0xb101047
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 96
siblings        : 192
1 physical ids (chips)
192 processors (hardware threads)
physical id 0:  core ids 0-11,16-27,32-43,48-59,64-75,80-91,96-107,112-123
physical id 0:  apicids 0-23,32-55,64-87,96-119,128-151,160-183,192-215,224-247
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):	192
On-line CPU(s) list:	0-191
Vendor ID:	AuthenticAMD
BIOS Vendor ID:	Advanced Micro Devices, Inc.
Model name:	AMD EPYC 9645 96-Core Processor
BIOS Model name:	AMD EPYC 9645 96-Core Processor
BIOS CPU family:	107
CPU family:	26
Model:	17
Thread(s) per core:	2
Core(s) per socket:	96
Socket(s):	1
Stepping:	0
Frequency boost:	enabled
CPU(s) scaling MHz:	100%
CPU max MHz:	3710.0000
CPU min MHz:	1200.0000
BogoMIPS:	4593.51
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

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Platform Notes (Continued)

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_lld debug_swap

L1d cache: 4.5 MiB (96 instances)
L1i cache: 3 MiB (96 instances)
L2 cache: 96 MiB (96 instances)
L3 cache: 256 MiB (8 instances)

NUMA node(s): 8
NUMA node0 CPU(s): 0-11,96-107
NUMA node1 CPU(s): 12-23,108-119
NUMA node2 CPU(s): 24-35,120-131
NUMA node3 CPU(s): 36-47,132-143
NUMA node4 CPU(s): 48-59,144-155
NUMA node5 CPU(s): 60-71,156-167
NUMA node6 CPU(s): 72-83,168-179
NUMA node7 CPU(s): 84-95,180-191

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	4.5M	12	Data	1	64	1	64
L1i	32K	3M	8	Instruction	1	64	1	64
L2	1M	96M	16	Unified	2	1024	1	64
L3	32M	256M	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: 0-11,96-107
node 0 size: 96298 MB
node 0 free: 95559 MB

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Platform Notes (Continued)

```
node 1 cpus: 12-23,108-119
node 1 size: 96759 MB
node 1 free: 96439 MB
node 2 cpus: 24-35,120-131
node 2 size: 96759 MB
node 2 free: 96447 MB
node 3 cpus: 36-47,132-143
node 3 size: 96716 MB
node 3 free: 96432 MB
node 4 cpus: 48-59,144-155
node 4 size: 96759 MB
node 4 free: 96438 MB
node 5 cpus: 60-71,156-167
node 5 size: 96759 MB
node 5 free: 96239 MB
node 6 cpus: 72-83,168-179
node 6 size: 96759 MB
node 6 free: 96426 MB
node 7 cpus: 84-95,180-191
node 7 size: 96692 MB
node 7 free: 96406 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:      792070692 kB
```

```
10. who -r
    run-level 5 Aug 1 20:13
```

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

```
12. Failed units, from systemctl list-units --state=failed
    UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
    * fwupd-refresh.service loaded failed failed Refresh fwupd metadata and update motd
    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
            cron dmesg e2scrub_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback
```

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Platform Notes (Continued)

enabled-runtime
disabled
generated
indirect
masked

keyboard-setup lvm2-monitor multipathd networkd-dispatcher open-iscsi open-vm-tools
pollinate rsyslog secureboot-db setvtrgb snapd sysstat systemd-networkd
systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald
ua-reboot-cmds ubuntu-advantage udisks2 ufw unattended-upgrades vgauth wpa_supplicant
netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
console-getty debug-shell ipmiev d iscsid nftables rsync serial-getty@ ssh
systemd-boot-check-no-failures systemd-confext systemd-network-generator
systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code
systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy
systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysex
systemd-time-wait-sync upower wpa_supplicant-nl80211@ wpa_supplicant-wired@
wpa_supplicant@
openipmi
systemd-sysupdate systemd-sysupdate-reboot uuuid
cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

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 173:
current policy: frequency should be within 1.20 GHz and 3.71 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

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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
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 877G 23G 818G 3% /

21. /sys/devices/virtual/dmi/id
Vendor: New H3c Technologies Co., Ltd.
Product: H3C UniServer R3950 G7
Product Family: Rack
Serial: 210235A56XH255000006

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:
12x Samsung M321R8GA0EB2-CCPPC 64 GB 2 rank 6400

23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 7.30.09
BIOS Date: 04/18/2025
BIOS Revision: 5.35
Firmware Revision: 2.2

Compiler Version Notes

=====

C	600.perlbench_s(base, peak)	602.gcc_s(base, peak)	605.mcf_s(base, peak)	625.x264_s(base, peak)
	657.xz_s(base, peak)			

=====

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

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New H3C Technologies Co., Ltd.

H3C UniServer R3950 G7
AMD EPYC 9645

SPECspeed®2017_int_base = 16.0

SPECspeed®2017_int_peak = 16.3

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Aug-2025

Hardware Availability: Oct-2024

Software Availability: Dec-2024

Compiler Version Notes (Continued)

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

```
=====  
C++      | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)  
          | 641.leela_s(base, peak)  
=====
```

```
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)  
Target: x86_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
=====
```

```
=====  
Fortran  | 648.exchange2_s(base, peak)  
=====
```

```
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
```



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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=2000000
-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
```



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CPU2017 License: 9066

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Tested by: New H3C Technologies Co., Ltd.

Test Date: Aug-2025

Hardware Availability: Oct-2024

Software Availability: Dec-2024

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: basepeak = yes

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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: basepeak = yes

641.leela_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

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



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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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Tested with SPEC CPU®2017 v1.1.9 on 2025-08-03 13:23:49-0400.

Report generated on 2025-08-26 17:50:11 by CPU2017 PDF formatter v6716.

Originally published on 2025-08-26.