



SPEC CPU®2017 Floating Point Rate Result

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New H3C Technologies Co., Ltd.

H3C UniServer R3950 G7
AMD EPYC 9275F

SPECrate®2017_fp_base = 597

SPECrate®2017_fp_peak = 610

CPU2017 License: 9066

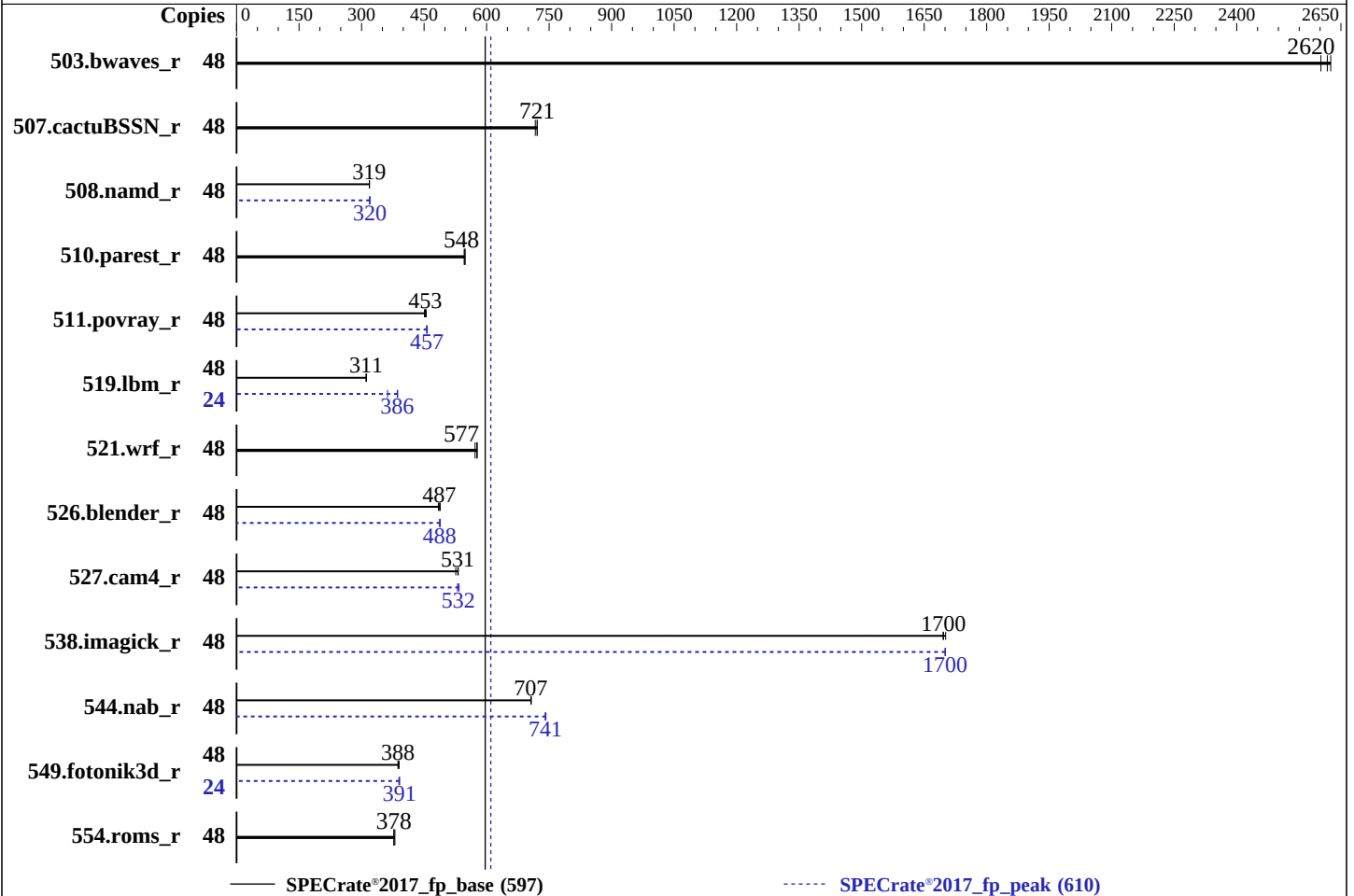
Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2025

Hardware Availability: Oct-2024

Software Availability: Oct-2024



Hardware

CPU Name: AMD EPYC 9275F
Max MHz: 4800
Nominal: 4100
Enabled: 24 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 / 3 cores
Other: None
Memory: 384 GB (12 x 32 GB 2Rx4 PC5-6400B-R)

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

Software

OS: Ubuntu 24.04.1 LTS
6.8.0-41-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: No
Firmware: Version 7.30.09 released Apr-2025
File System: ext4
System State: Run level 3 (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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	48	184	2620	185	2600	183	2630	48	184	2620	185	2600	183	2630
507.cactuBSSN_r	48	84.3	721	84.8	717	84.2	722	48	84.3	721	84.8	717	84.2	722
508.namd_r	48	143	319	143	319	143	319	48	143	319	142	320	143	320
510.parest_r	48	230	546	229	548	229	548	48	230	546	229	548	229	548
511.povray_r	48	249	451	247	453	246	455	48	245	457	246	456	245	458
519.lbm_r	48	162	312	163	311	162	311	24	69.8	362	65.4	387	65.6	386
521.wrf_r	48	186	577	186	578	188	572	48	186	577	186	578	188	572
526.blender_r	48	151	484	150	489	150	487	48	150	488	150	489	150	487
527.cam4_r	48	158	531	160	526	158	532	48	158	532	157	534	158	530
538.imagick_r	48	70.2	1700	70.4	1700	70.4	1700	48	70.2	1700	70.2	1700	70.2	1700
544.nab_r	48	114	706	114	707	114	707	48	109	741	109	741	109	742
549.fotonik3d_r	48	483	388	483	388	480	390	24	239	391	240	390	239	391
554.roms_r	48	201	380	202	378	202	378	48	201	380	202	378	202	378

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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,

(Continued on next page)



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Operating System Notes (Continued)

'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:

```
LD_LIBRARY_PATH =  
"/home/cpu2017/amd_rate_aocc500_znver5_A_lib/lib:/home/cpu2017/amd_rate_aocc500_znver5_A_lib/lib32:/usr/local/amd/aocc-compiler-5.0.0/lib:/usr/local/amd/aocc-compiler-5.0.0/lib32:/usr/lib:/usr/local/mpc-1.31/lib:/usr/local/gmp-630/lib:/usr/local/mpfr-421/lib:/usr/local/isl-027/lib:/usr/local/gcc-1420/lib64:/usr/local/lib:/usr/lib"  
MALLOC_CONF = "retain:true"
```

General Notes

Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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

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

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

Platform Notes

BIOS settings:
SMT Control set to Enabled
SVM Mode set to Disabled
Power Profile Selection set to High Performance Mode
Determinism Slider set to Power
cTDP set to 400
PPT set to 400
NUMA nodes per socket set to NPS 4
L3 cache as NUMA domain set to Enabled
Memory Target Speed set to DDR6400

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on h3c Wed Jun 4 18:02:31 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

(Continued on next page)



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Platform Notes (Continued)

```
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.4)
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. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
```

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

```
2. w
18:02:31 up 3:31, 4 users, load average: 32.65, 44.00, 46.14
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
root      172.17.53.33 14:35          24:50m   0.00s   2.88s sshd: root@pts/0
root      172.17.53.33 14:35          24:50m   0.00s   0.01s sshd: root@notty
root      tty1      -              15:43     2:18m   0.05s   ?      -bash
root      172.17.80.240 15:44          24:50m   0.00s   0.11s sshd: root@pts/1
```

```
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             1545709
nofiles             1024
vmemory(kbytes)     unlimited
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_rate_aocc500_znver5_A1.py
/bin/bash ./amd_rate_aocc500_znver5_A1.sh
runcpu --config amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 fprate
```

(Continued on next page)



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Platform Notes (Continued)

```
runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode rate --tune base:peak --size test:train:refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.008/temlogs/preenv.fprate.008.0.log --lognum 008.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

6. /proc/cpuinfo

```
model name      : AMD EPYC 9275F 24-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 2
stepping        : 1
microcode       : 0xb002147
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 24
siblings        : 48
1 physical ids (chips)
48 processors (hardware threads)
physical id 0:  core ids 0-2,8-10,16-18,24-26,32-34,40-42,48-50,56-58
physical id 0:  apicids 0-5,16-21,32-37,48-53,64-69,80-85,96-101,112-117
```

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):                 48
On-line CPU(s) list:    0-47
Vendor ID:              AuthenticAMD
BIOS Vendor ID:         Advanced Micro Devices, Inc.
Model name:             AMD EPYC 9275F 24-Core Processor
BIOS Model name:        AMD EPYC 9275F 24-Core Processor
BIOS CPU family:        107
CPU family:             26
Model:                  2
Thread(s) per core:     2
Core(s) per socket:     24
Socket(s):              1
Stepping:               1
Frequency boost:        enabled
CPU(s) scaling MHz:     100%
CPU max MHz:            4816.0000
CPU min MHz:            1200.0000
BogoMIPS:               8188.06
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
```

Unknown CPU @ 4.1GHz

(Continued on next page)



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Platform Notes (Continued)

smeop 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: 1.1 MiB (24 instances)
L1i cache: 768 KiB (24 instances)
L2 cache: 24 MiB (24 instances)
L3 cache: 256 MiB (8 instances)

NUMA node(s): 8
NUMA node0 CPU(s): 0-2,24-26
NUMA node1 CPU(s): 3-5,27-29
NUMA node2 CPU(s): 6-8,30-32
NUMA node3 CPU(s): 9-11,33-35
NUMA node4 CPU(s): 12-14,36-38
NUMA node5 CPU(s): 15-17,39-41
NUMA node6 CPU(s): 18-20,42-44
NUMA node7 CPU(s): 21-23,45-47

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; PBRBS-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	1.1M	12	Data	1	64	1	64
L1i	32K	768K	8	Instruction	1	64	1	64
L2	1M	24M	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: 0-2,24-26
node 0 size: 47923 MB
node 0 free: 47202 MB
node 1 cpus: 3-5,27-29
node 1 size: 48381 MB
node 1 free: 48049 MB
node 2 cpus: 6-8,30-32
node 2 size: 48381 MB
node 2 free: 48063 MB

(Continued on next page)



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Platform Notes (Continued)

```
node 3 cpus: 9-11,33-35
node 3 size: 48381 MB
node 3 free: 48073 MB
node 4 cpus: 12-14,36-38
node 4 size: 48381 MB
node 4 free: 48030 MB
node 5 cpus: 15-17,39-41
node 5 size: 48381 MB
node 5 free: 48055 MB
node 6 cpus: 18-20,42-44
node 6 size: 48381 MB
node 6 free: 48059 MB
node 7 cpus: 21-23,45-47
node 7 size: 48283 MB
node 7 free: 47936 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:      395773724 kB
```

```
10. who -r
run-level 3 Jun 4 14:33
```

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

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

```
13. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled ModemManager NetworkManager NetworkManager-dispatcher NetworkManager-wait-online apparmor
apport blk-availability cloud-config cloud-final cloud-init cloud-init-local console-setup
e2scrub_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback keyboard-setup
lvm2-monitor multipathd networkd-dispatcher open-iscsi pollinate secureboot-db setvtrgb
snapd systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved
systemd-timesyncd thermald unattended-upgrades wpa_supplicant
netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled console-getty debug-shell iscsid serial-getty@ ssh systemd-boot-check-no-failures
systemd-confext systemd-network-generator systemd-networkd-wait-online@
```

(Continued on next page)



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Platform Notes (Continued)

indirect
masked

systemd-pcrlock-file-system systemd-pcrlock-firmware-code systemd-pcrlock-firmware-config
systemd-pcrlock-machine-id systemd-pcrlock-make-policy
systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysext
systemd-time-wait-sync upower wpa_supplicant-nl80211@ wpa_supplicant-wired@
wpa_supplicant@
systemd-sysupdate systemd-sysupdate-reboot
cryptdisks cryptdisks-early hwclock multipath-tools-boot 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=guided

15. cpupower frequency-info

analyzing CPU 6:
current policy: frequency should be within 1.20 GHz and 4.82 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	0
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

(Continued on next page)



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Platform Notes (Continued)

max_ptes_shared 256
max_ptes_swap 64
pages_to_scan 4096
scan_sleep_millisecs 50000

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	3.5T	27G	3.3T	1%	/

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

Vendor: AMD Corporation
Product: Quartz
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:

8x Samsung M321R4GA3EB2-CCPPC 32 GB 2 rank 6400
1x Samsung M321R4GA3PB1-CCPPC 32 GB 2 rank 6400
3x Samsung M321R4GA3PB2-CCPPC 32 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 | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_r(base, peak)

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

Target: x86_64-unknown-linux-gnu

Thread model: posix

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

C++ | 508.namd_r(base, peak) 510.parest_r(base, peak)

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

Target: x86_64-unknown-linux-gnu

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SPEC CPU®2017 Floating Point Rate Result

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New H3C Technologies Co., Ltd.

H3C UniServer R3950 G7
AMD EPYC 9275F

SPECrate®2017_fp_base = 597

SPECrate®2017_fp_peak = 610

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2025

Hardware Availability: Oct-2024

Software Availability: Oct-2024

Compiler Version Notes (Continued)

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

=====
C++, C | 511.povray_r(base, peak) 526.blender_r(base, peak)
=====

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

=====
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
=====

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin
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
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 | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)
=====

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

=====
Fortran, C | 521.wrf_r(base, peak) 527.cam4_r(base, peak)
=====

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



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Hardware Availability: Oct-2024

Software Availability: Oct-2024

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using both C and C++:

clang++ clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

Base Portability Flags

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_r: -DSPEC_LP64
521.wrf_r: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
526.blender_r: -funsigned-char -DSPEC_LP64
527.cam4_r: -DSPEC_CASE_FLAG -DSPEC_LP64
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64

Base Optimization Flags

C benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather -O3
-march=znver5 -fveclib=AMDLIBM -ffast-math -fno-PIE -no-pie -flt0
-fstruct-layout=7 -mllvm -unroll-threshold=50

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Base Optimization Flags (Continued)

C benchmarks (continued):

-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc
-lflang -ldl

C++ benchmarks:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-O3 -march=znver5 -fveclib=AMDLibm -ffast-math -flto
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc
-lflang -ldl

Fortran benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching
-Wl,-mllvm -Wl,-enable-aggressive-gather=true
-Wl,-mllvm -Wl,-enable-masked-gather-sequence=false -O3 -march=znver5
-fveclib=AMDLibm -ffast-math -flto -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc
-lflang -ldl

Benchmarks using both Fortran and C:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching
-Wl,-mllvm -Wl,-enable-aggressive-gather=true
-Wl,-mllvm -Wl,-enable-masked-gather-sequence=false -O3 -march=znver5
-fveclib=AMDLibm -ffast-math -fno-PIE -no-pie -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fepilog-vectorization-of-inductions
-lamdlibm -lamdalloc -lflang -ldl

Benchmarks using both C and C++:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-O3 -march=znver5 -fveclib=AMDLibm -ffast-math -fno-PIE -no-pie
-flto -fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -mllvm -unroll-threshold=100

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Base Optimization Flags (Continued)

Benchmarks using both C and C++ (continued):

-mllvm -loop-unswitch-threshold=2000000 -lamdlibm -lamdalloc -lflang
-ldl

Benchmarks using Fortran, C, and C++:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-O3 -march=znver5 -fveclib=AMDLIBM -ffast-math -fno-PIE -no-pie
-flto -fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays -fstrip-mining
-mllvm -reduce-array-computations=3 -zopt -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=2000000 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fepilog-vectorization-of-inductions
-lamdlibm -lamdalloc -lflang -ldl

Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument

Benchmarks using both C and C++:

-Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-Wno-unused-command-line-argument

Peak Compiler Invocation

C benchmarks:

clang

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Peak Compiler Invocation (Continued)

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using both C and C++:

clang++ clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

```
519.lbm_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50
-freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

538.imagick_r: Same as 519.lbm_r

```
544.nab_r: -m64 -flto -Wl,-mllvm -Wl,-ldist-scalar-expand
-fenable-aggressive-gather -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -freemap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

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Software Availability: Oct-2024

Peak Optimization Flags (Continued)

C++ benchmarks:

```
508.namd_r: -m64 -std=c++14
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

510.parest_r: basepeak = yes

Fortran benchmarks:

503.bwaves_r: basepeak = yes

```
549.fotonik3d_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-Mrecursive -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -fvector-transform
-fscalar-transform -lamdlibm -lamdalloc -ldl -lflang
```

554.roms_r: basepeak = yes

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

```
527.cam4_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=7 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays
-mllvm -reduce-array-computations=3 -zopt -Mrecursive
-funroll-loops -mllvm -lsr-in-nested-loop
-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc
-ldl -lflang
```

Benchmarks using both C and C++:

```
511.povray_r: -m64 -std=c++14
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
```

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Peak Optimization Flags (Continued)

511.povray_r (continued):

```
-Wl, -mllvm -Wl, -x86-use-vzeroupper=false  
-Wl, -mllvm -Wl, -extra-inliner -Ofast -march=znver5  
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=7  
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000  
-fremap-arrays -mllvm -reduce-array-computations=3 -zopt  
-mllvm -unroll-threshold=100  
-mllvm -loop-unswitch-threshold=200000 -lamdlibm  
-lamdalloc -ldl
```

526.blender_r: -m64 -std=c++14

```
-Wl, -mllvm -Wl, -align-all-nofallthru-blocks=6  
-Wl, -mllvm -Wl, -reduce-array-computations=3  
-Wl, -mllvm -Wl, -x86-use-vzeroupper=false -Ofast  
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto  
-fstruct-layout=7 -mllvm -unroll-threshold=50  
-fremap-arrays -fstrip-mining  
-mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3 -zopt  
-mllvm -unroll-threshold=100 -lamdlibm -lamdalloc -ldl
```

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes

Peak Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument

Benchmarks using both C and C++:

-Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-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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