



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

## Kaytus Systems Pte. Ltd. KR1280V3 (AMD EPYC 9755)

SPECrate®2017\_fp\_base = 2360  
SPECrate®2017\_fp\_peak = 2580

CPU2017 License: 6865

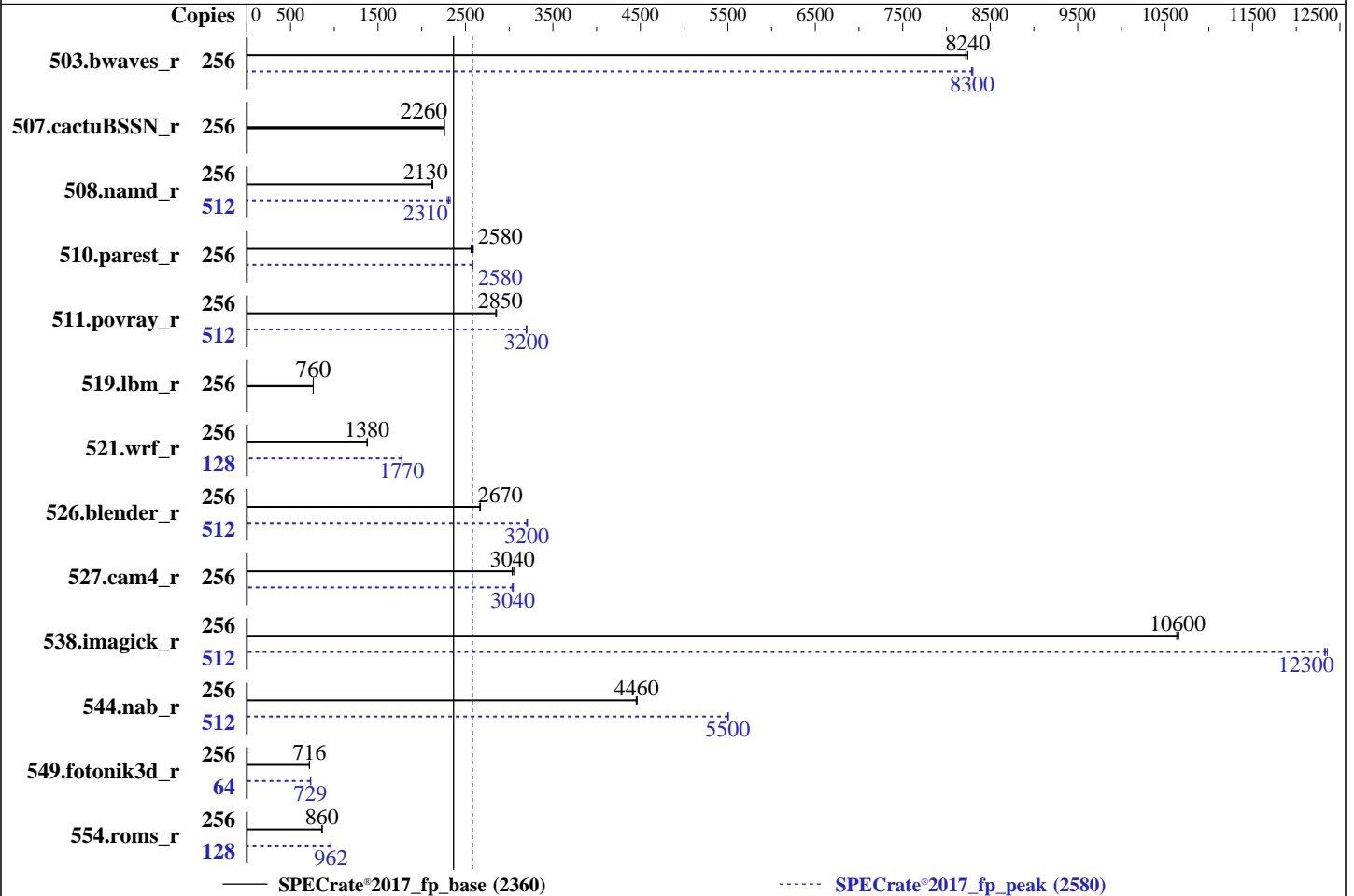
Test Sponsor: Kaytus Systems Pte. Ltd.

Tested by: Kaytus Systems Pte. Ltd.

Test Date: Jan-2025

Hardware Availability: Oct-2024

Software Availability: Oct-2024



### Hardware

CPU Name: AMD EPYC 9755  
 Max MHz: 4100  
 Nominal: 2700  
 Enabled: 256 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 512 MB I+D on chip per chip, 32 MB shared / 8 cores  
 Other: None  
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R, running at 6000)  
 Storage: 1 x 960 GB NVME SSD  
 Other: CPU Cooling: Air

### Software

OS: SUSE Linux Enterprise Server 15 SP6 6.4.0-150600.21-default  
 Compiler: C/C++/Fortran: Version 5.0.0 of AOCC  
 Parallel: No  
 Firmware: Version 01.07.00 released Nov-2024  
 File System: xfs  
 System State: Run level 3 (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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	256	<b>311</b>	<b>8240</b>	312	8220	311	8240	256	<b>309</b>	<b>8300</b>	309	8300	310	8290
507.cactuBSSN_r	256	144	2260	<b>144</b>	<b>2260</b>	143	2260	256	144	2260	<b>144</b>	<b>2260</b>	143	2260
508.namd_r	256	114	2130	<b>114</b>	<b>2130</b>	115	2120	512	209	2330	212	2290	<b>211</b>	<b>2310</b>
510.parest_r	256	259	2590	261	2560	<b>259</b>	<b>2580</b>	256	260	2580	259	2590	<b>259</b>	<b>2580</b>
511.povray_r	256	210	2850	<b>210</b>	<b>2850</b>	209	2860	512	<b>374</b>	<b>3200</b>	373	3200	374	3200
519.lbm_r	256	<b>355</b>	<b>760</b>	355	759	355	760	256	<b>355</b>	<b>760</b>	355	759	355	760
521.wrf_r	256	416	1380	417	1380	<b>417</b>	<b>1380</b>	128	162	1770	162	1770	<b>162</b>	<b>1770</b>
526.blender_r	256	146	2670	<b>146</b>	<b>2670</b>	146	2670	512	244	3200	<b>243</b>	<b>3200</b>	243	3210
527.cam4_r	256	147	3050	148	3030	<b>147</b>	<b>3040</b>	256	<b>147</b>	<b>3040</b>	147	3050	147	3040
538.imagick_r	256	59.7	10700	<b>59.8</b>	<b>10600</b>	59.9	10600	512	103	12300	<b>103</b>	<b>12300</b>	103	12400
544.nab_r	256	96.5	4460	<b>96.7</b>	<b>4460</b>	96.8	4450	512	<b>157</b>	<b>5500</b>	157	5500	156	5510
549.fotonik3d_r	256	1393	716	1394	716	<b>1393</b>	<b>716</b>	64	342	729	<b>342</b>	<b>729</b>	342	729
554.roms_r	256	<b>473</b>	<b>860</b>	473	860	473	859	128	212	960	211	963	<b>211</b>	<b>962</b>

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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:

```
LD_LIBRARY_PATH =
"/home/CPU2017/amd_rate_aocc500_znver5_A_lib/lib:/home/CPU2017/amd_rate_aocc500_znver5_A_lib/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 configuration:  
SVM Mode = disable  
DRAM Scrub time = disable  
NUMA nodes per socket = NPS4  
Determinism Slider = Power  
cTDP = 500  
Package Power Limit = 500

Sysinfo program /home/CPU2017/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost Fri Jan 10 04:12:39 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 254 (254.10+suse.84.ge8d77af424)
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
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id

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## Platform Notes (Continued)

22. dmidecode  
23. BIOS

-----  
1. uname -a  
Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT\_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)  
x86\_64 x86\_64 x86\_64 GNU/Linux

-----  
2. w  
04:12:39 up 8:41, 1 user, load average: 263.84, 444.29, 477.85  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 19:32 5:11m 1.23s 0.28s /bin/bash ./amd\_rate\_aocc500\_znver5\_A1.sh

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

-----  
4. ulimit -a  
core file size (blocks, -c) unlimited  
data seg size (kbytes, -d) unlimited  
scheduling priority (-e) 0  
file size (blocks, -f) unlimited  
pending signals (-i) 6187550  
max locked memory (kbytes, -l) 2097152  
max memory size (kbytes, -m) unlimited  
open files (-n) 65535  
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) 6187550  
virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

-----  
5. sysinfo process ancestry  
/usr/lib/systemd/systemd --switched-root --system --deserialize=31  
login -- root  
-bash  
python3 ./run\_amd\_rate\_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  
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/CPU2017.003/templogs/preenv.fprate.003.0.log --lognum 003.0 --from\_runcpu 2  
specperl \$SPEC/bin/sysinfo  
\$SPEC = /home/CPU2017

-----  
6. /proc/cpuinfo  
model name : AMD EPYC 9755 128-Core Processor  
vendor\_id : AuthenticAMD  
cpu family : 26  
model : 2  
stepping : 1  
microcode : 0xb00211a

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## Platform Notes (Continued)

```
bugs          : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size     : 192 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 2.39.3:

```
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):                512
On-line CPU(s) list:   0-511
Vendor ID:             AuthenticAMD
BIOS Vendor ID:        Advanced Micro Devices, Inc.
Model name:            AMD EPYC 9755 128-Core Processor
BIOS Model name:       AMD EPYC 9755 128-Core Processor
BIOS CPU family:       107
CPU family:            26
Model:                 2
Thread(s) per core:    2
Core(s) per socket:    128
Socket(s):             2
Stepping:              1
Frequency boost:       enabled
CPU(s) scaling MHz:    66%
CPU max MHz:           4121.1909
CPU min MHz:           1500.0000
BogoMIPS:              5391.92
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 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_vpoptndq la57 rdpid bus_lock_detect
movdiri movdir64b overflow_recov succor smca fsrm avx512_vp2intersect
flush_lld debug_swap
Virtualization:        AMD-V
```

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### Platform Notes (Continued)

```

L1d cache:                12 MiB (256 instances)
L1i cache:                8 MiB (256 instances)
L2 cache:                 256 MiB (256 instances)
L3 cache:                 1 GiB (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 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	12M	12	Data	1	64	1	64
L1i	32K	8M	8	Instruction	1	64	1	64
L2	1M	256M	16	Unified	2	1024	1	64
L3	32M	1G	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: 0-31,256-287
node 0 size: 192927 MB
node 0 free: 191228 MB
node 1 cpus: 32-63,288-319
node 1 size: 193519 MB
node 1 free: 191814 MB
node 2 cpus: 64-95,320-351
node 2 size: 193480 MB
node 2 free: 191752 MB
node 3 cpus: 96-127,352-383
node 3 size: 193519 MB
node 3 free: 191855 MB
node 4 cpus: 128-159,384-415
node 4 size: 193519 MB
node 4 free: 191807 MB
node 5 cpus: 160-191,416-447
node 5 size: 193519 MB
node 5 free: 191834 MB
node 6 cpus: 192-223,448-479
node 6 size: 193519 MB

```

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### Platform Notes (Continued)

```

node 6 free: 191814 MB
node 7 cpus: 224-255,480-511
node 7 size: 192908 MB
node 7 free: 191207 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:      1584038348 kB
-----

```

```

-----
10. who -r
run-level 3 Jan 9 19:31
-----

```

```

-----
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
Default Target Status
multi-user      running
-----

```

```

-----
12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled apparmor auditd cron firewalld getty@ irqbalance issue-generator kbdsettings kdump
kdump-early kdump-notify nvme-fc-boot-connections nvmmf-autoconnect postfix purge-kernels
rollback sshd systemd-pstore wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6
wickedd-nanny
enabled-runtime systemd-remount-fs
disabled boot-sysctl ca-certificates chrony-wait chronyd console-getty debug-shell ebttables
exchange-bmc-os-info fsidd grub2-once haveged hwloc-dump-hwdata ipmievd issue-add-ssh-keys
kexec-load nfs nfs-blkmap rpcbind rpmconfigcheck serial-getty@
systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-sysext
systemd-time-wait-sync systemd-timesyncd tuned
generated jexec
indirect systemd-userdbd wickedd
-----

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
root=UUID=57526b2a-7733-4c34-8e82-bd01bcfc67e9
splash=silent
mitigations=auto
quiet
security=apparmor
crashkernel=383M,high
crashkernel=72M,low
-----

```

```

-----
14. cpupower frequency-info
analyzing CPU 3:
current policy: frequency should be within 1.50 GHz and 2.70 GHz.
The governor "performance" may decide which speed to use
-----

```

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### Platform Notes (Continued)

within this range.

boost state support:

Supported: yes

Active: yes

-----  
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
pages_to_scan	4096
scan_sleep_millisecs	10000

-----  
19. OS release

From /etc/\*-release /etc/\*-version  
os-release SUSE Linux Enterprise Server 15 SP6

-----  
20. Disk information

SPEC is set to: /home/CPU2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/nvme0n1p3	xfs	854G	36G	818G	5%	/home

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## Platform Notes (Continued)

-----  
21. /sys/devices/virtual/dmi/id  
Vendor: KAYTUS  
Product: KR2180-E3-A0-R0-00  
Product Family: Not specified  
Serial: 012345689  
-----

22. dmidecode  
Additional information from dmidecode 3.4 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:  
24x Samsung M321R8GA0PB2-CCPEC 64 GB 2 rank 6400, configured at 6000  
-----

23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: American Megatrends International, LLC.  
BIOS Version: 01.07.00  
BIOS Date: 11/15/2024  
-----

## 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  
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)  
-----

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

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**Kaytus Systems Pte. Ltd.**  
**KR1280V3 (AMD EPYC 9755)**

**SPECrate®2017\_fp\_base = 2360**  
**SPECrate®2017\_fp\_peak = 2580**

**CPU2017 License:** 6865  
**Test Sponsor:** Kaytus Systems Pte. Ltd.  
**Tested by:** Kaytus Systems Pte. Ltd.

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

## Compiler Version Notes (Continued)

```

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

```

## 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

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

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Kaytus Systems Pte. Ltd.

SPECrate®2017\_fp\_base = 2360

KR1280V3 (AMD EPYC 9755)

SPECrate®2017\_fp\_peak = 2580

CPU2017 License: 6865

Test Date: Jan-2025

Test Sponsor: Kaytus Systems Pte. Ltd.

Hardware Availability: Oct-2024

Tested by: Kaytus Systems Pte. Ltd.

Software Availability: Oct-2024

## Base Compiler Invocation (Continued)

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 -flto  
 -fstruct-layout=7 -mllvm -unroll-threshold=50  
 -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

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# SPEC CPU®2017 Floating Point Rate Result

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Kaytus Systems Pte. Ltd.

SPECrate®2017\_fp\_base = 2360

KR1280V3 (AMD EPYC 9755)

SPECrate®2017\_fp\_peak = 2580

CPU2017 License: 6865

Test Sponsor: Kaytus Systems Pte. Ltd.

Tested by: Kaytus Systems Pte. Ltd.

Test Date: Jan-2025

Hardware Availability: Oct-2024

Software Availability: Oct-2024

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-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
-mllvm -loop-unswitch-threshold=200000 -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=200000 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fepilog-vectorization-of-inductions
-lamdlibm -lamdalloc -lflang -ldl
```



# SPEC CPU®2017 Floating Point Rate Result

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**Kaytus Systems Pte. Ltd.**

SPECrate®2017\_fp\_base = 2360

**KR1280V3 (AMD EPYC 9755)**

SPECrate®2017\_fp\_peak = 2580

**CPU2017 License:** 6865

**Test Sponsor:** Kaytus Systems Pte. Ltd.

**Tested by:** Kaytus Systems Pte. Ltd.

**Test Date:** Jan-2025

**Hardware Availability:** Oct-2024

**Software Availability:** Oct-2024

## 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

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



# SPEC CPU®2017 Floating Point Rate Result

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Kaytus Systems Pte. Ltd.

SPECrate®2017\_fp\_base = 2360

KR1280V3 (AMD EPYC 9755)

SPECrate®2017\_fp\_peak = 2580

CPU2017 License: 6865

Test Sponsor: Kaytus Systems Pte. Ltd.

Tested by: Kaytus Systems Pte. Ltd.

Test Date: Jan-2025

Hardware Availability: Oct-2024

Software Availability: Oct-2024

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: basepeak = yes

```
538.imagick_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
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

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

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: -m64 -std=c++14 -flto -Wl,-mllvm -Wl,-suppress-fmas
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math
-mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

Fortran benchmarks:

```
503.bwaves_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 -zopt -lamdlibm
```

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# SPEC CPU®2017 Floating Point Rate Result

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Kaytus Systems Pte. Ltd.

SPECrate®2017\_fp\_base = 2360

KR1280V3 (AMD EPYC 9755)

SPECrate®2017\_fp\_peak = 2580

CPU2017 License: 6865

Test Date: Jan-2025

Test Sponsor: Kaytus Systems Pte. Ltd.

Hardware Availability: Oct-2024

Tested by: Kaytus Systems Pte. Ltd.

Software Availability: Oct-2024

## Peak Optimization Flags (Continued)

503.bwaves\_r (continued):

-lamdalloc -ldl -lflang

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: Same as 503.bwaves\_r

Benchmarks using both Fortran and C:

521.wrf\_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  
-fremap-arrays -fstrip-mining  
-mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3 -zopt -Mrecursive  
-funroll-loops -mllvm -lsr-in-nested-loop  
-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc  
-ldl -lflang

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  
-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

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# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Kaytus Systems Pte. Ltd.

SPECrate®2017\_fp\_base = 2360

KR1280V3 (AMD EPYC 9755)

SPECrate®2017\_fp\_peak = 2580

CPU2017 License: 6865

Test Date: Jan-2025

Test Sponsor: Kaytus Systems Pte. Ltd.

Hardware Availability: Oct-2024

Tested by: Kaytus Systems Pte. Ltd.

Software Availability: Oct-2024

## Peak Optimization Flags (Continued)

511.povray\_r (continued):

```
-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
-freemap-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

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.00.html>

<http://www.spec.org/cpu2017/flags/Kaytus-Platform-Settings-amd-V1.0.html>





# SPEC CPU®2017 Floating Point Rate Result

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**Kaytus Systems Pte. Ltd.**  
**KR1280V3 (AMD EPYC 9755)**

**SPECrate®2017\_fp\_base = 2360**

**SPECrate®2017\_fp\_peak = 2580**

**CPU2017 License:** 6865

**Test Sponsor:** Kaytus Systems Pte. Ltd.

**Tested by:** Kaytus Systems Pte. Ltd.

**Test Date:** Jan-2025

**Hardware Availability:** Oct-2024

**Software Availability:** Oct-2024

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

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.00.xml>

<http://www.spec.org/cpu2017/flags/Kaytus-Platform-Settings-amd-v1.0.xml>

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