SPEC CPU®2017 Floating Point Rate Result

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Benchmark	Copies	Base	Peak
503.bwaves_r	256	7710	
507.cactuBSSN_r	256	2090	2100
508.namd_r	256	1370	
510.parest_r	256 / 128	1030	1690
511.povray_r	256	1920	
519.lbm_r	256 / 128	752	759
521.wrf_r	256 / 128	1130	1440
526.blender_r	256	1940	
527.cam4_r	256	1970	
538.imagick_r	256	7310	
544.nab_r	256	3170	3240
549.fotonik3d_r	256 / 128	695	721
554.roms_r	256 / 128	651	815

SPECrate®2017_fp_base (1750)
SPECrate®2017_fp_peak (1900)

Hardware

CPU Name: AMD EPYC 9555
 Max MHz: 4400
 Nominal: 3200
Enabled: 128 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: 256 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 1.92 TB 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 01.08.0 released Feb-2025
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.

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

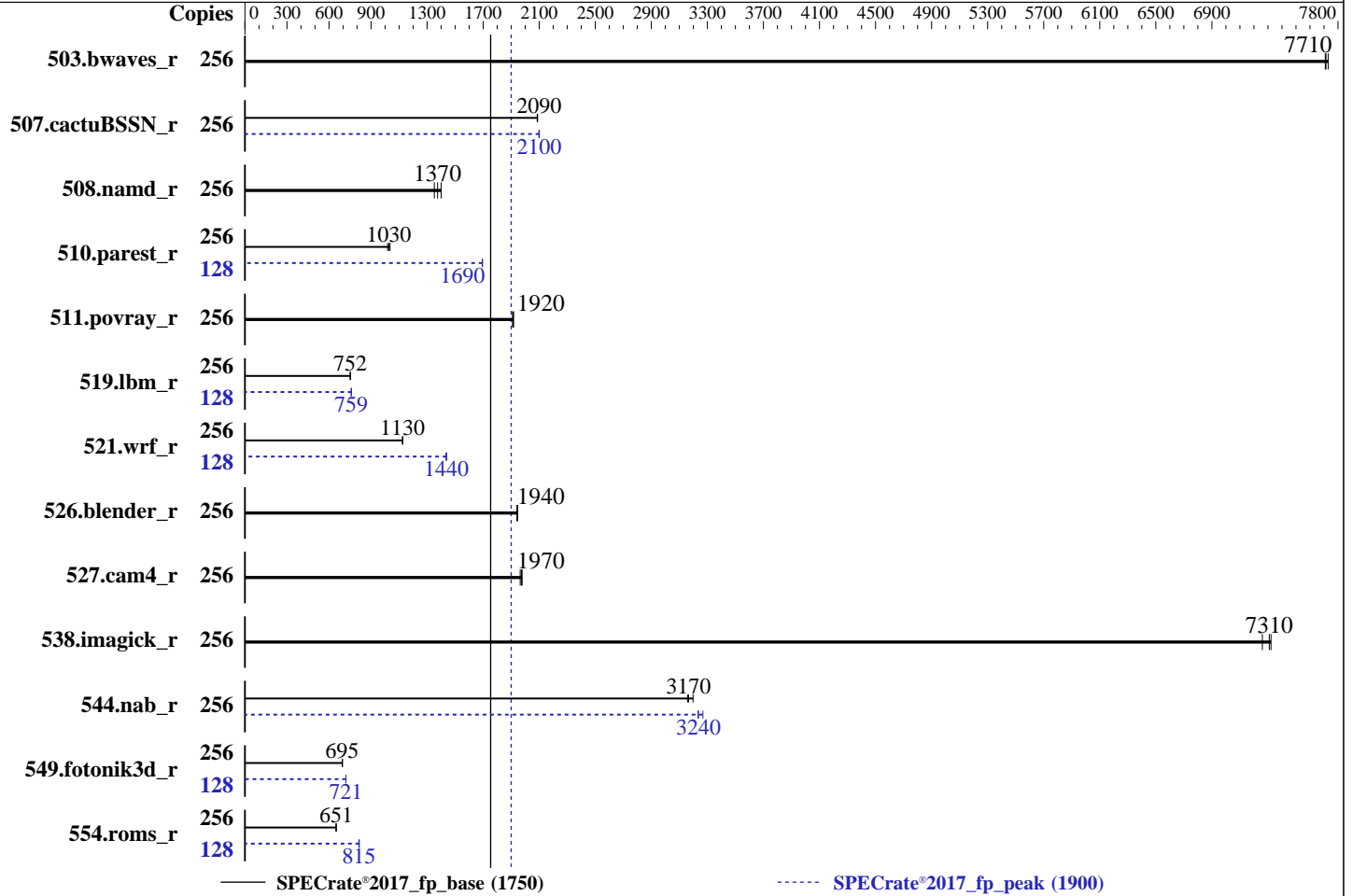SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	256	**333**	**7710**	333	7710	332	7730	256	**333**	**7710**	333	7710	332	7730
507.cactuBSSN_r	256	155	2090	155	2090	**155**	**2090**	256	154	2100	154	2100	**154**	**2100**
508.namd_r	256	180	1350	**177**	**1370**	174	1400	256	180	1350	**177**	**1370**	174	1400
510.parest_r	256	658	1020	647	1040	**652**	**1030**	128	**198**	**1690**	198	1690	198	1700
511.povray_r	256	313	1910	**312**	**1920**	312	1920	256	313	1910	**312**	**1920**	312	1920
519.lbm_r	256	359	752	359	752	**359**	**752**	128	**178**	**759**	177	761	178	759
521.wrf_r	256	509	1130	510	1120	**509**	**1130**	128	199	1440	200	1440	**199**	**1440**
526.blender_r	256	200	1950	201	1940	**200**	**1940**	256	200	1950	201	1940	**200**	**1940**
527.cam4_r	256	226	1980	228	1960	**227**	**1970**	256	226	1980	228	1960	**227**	**1970**
538.imagick_r	256	87.7	7260	87.0	7320	**87.1**	**7310**	256	87.7	7260	87.0	7320	**87.1**	**7310**
544.nab_r	256	136	3160	135	3200	**136**	**3170**	256	133	3230	132	3270	**133**	**3240**
549.fotonik3d_r	256	1434	696	1437	694	**1435**	**695**	128	692	721	**692**	**721**	692	721
554.roms_r	256	**625**	**651**	625	650	625	651	128	250	813	249	816	**250**	**815**

SPECrate®2017_fp_base = **1750**

SPECrate®2017_fp_peak = **1900**

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)

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

$SPECrate^{®}2017\_fp\_base = 1750$

$SPECrate^{®}2017\_fp\_peak = 1900$

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

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:"
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 = 400
 Package Power Limit = 400

 Sysinfo program /home/CPU2017/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Wed Jun 26 04:51:08 2024

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

 -----------------------------------------------------------
 Table of contents
 -----------------------------------------------------------
  1. uname -a
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
 12. Services, from systemctl list-unit-files
 13. Linux kernel boot-time arguments, from /proc/cmdline
```

(Continued on next page)

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

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

$SPECrate®2017\_fp\_base = 1750$

$SPECrate®2017\_fp\_peak = 1900$

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
   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
   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
      04:51:08 up  4:16,  1 user,  load average: 148.46, 228.45, 244.16
      USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
      root     tty1     -                00:35    4:15m  1.06s  0.22s /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) 6188391
     max locked memory       (kbytes, -l) 2097152
     max memory size         (kbytes, -m) unlimited
     open files                      (-n) 1024
     pipe size            (512 bytes, -p) 8
     POSIX message queues     (bytes, -q) 819200
     real-time priority              (-r) 0
     stack size              (kbytes, -s) unlimited
     cpu time               (seconds, -t) unlimited
     max user processes              (-u) 6188391
     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/CPU2017.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
    specperl $SPEC/bin/sysinfo
    $SPEC = /home/CPU2017
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

$SPECrate^{®}2017\_fp\_base = 1750$

$SPECrate^{®}2017\_fp\_peak = 1900$

CPU2017 License: 6865　　　　　　　　　　　　　　　　　　　　**Test Date:**　　　　　Jun-2025
Test Sponsor:　Kaytus Systems Pte. Ltd.　　　　　　　　**Hardware Availability:** Feb-2025
Tested by:　　　Kaytus Systems Pte. Ltd.　　　　　　　　**Software Availability:**　Oct-2024

Platform Notes (Continued)

```
   ----------------------------------------------------------
   6. /proc/cpuinfo
      model name       : AMD EPYC 9555 64-Core Processor
      vendor_id        : AuthenticAMD
      cpu family       : 26
      model            : 2
      stepping         : 1
      microcode        : 0xb00211e
      bugs             : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
      TLB size         : 192 4K pages
      cpu cores        : 64
      siblings         : 128
      2 physical ids (chips)
      256 processors (hardware threads)
      physical id 0: core ids 0-63
      physical id 1: core ids 0-63
      physical id 0: apicids 0-127
      physical id 1: apicids 128-255
   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):                 256
     On-line CPU(s) list:    0-255
     Vendor ID:              AuthenticAMD
     BIOS Vendor ID:         Advanced Micro Devices, Inc.
     Model name:             AMD EPYC 9555 64-Core Processor
     BIOS Model name:        AMD EPYC 9555 64-Core Processor            Unknown CPU @ 3.2GHz
     BIOS CPU family:        107
     CPU family:             26
     Model:                  2
     Thread(s) per core:     2
     Core(s) per socket:     64
     Socket(s):              2
     Stepping:               1
     Frequency boost:        enabled
     CPU(s) scaling MHz:     73%
     CPU max MHz:            4409.3750
     CPU min MHz:            1500.0000
     BogoMIPS:               6390.53
     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
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750
SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
                     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
   Virtualization:                  AMD-V
   L1d cache:                       6 MiB (128 instances)
   L1i cache:                       4 MiB (128 instances)
   L2 cache:                        128 MiB (128 instances)
   L3 cache:                        512 MiB (16 instances)
   NUMA node(s):                    8
   NUMA node0 CPU(s):               0-15,128-143
   NUMA node1 CPU(s):               16-31,144-159
   NUMA node2 CPU(s):               32-47,160-175
   NUMA node3 CPU(s):               48-63,176-191
   NUMA node4 CPU(s):               64-79,192-207
   NUMA node5 CPU(s):               80-95,208-223
   NUMA node6 CPU(s):               96-111,224-239
   NUMA node7 CPU(s):               112-127,240-255
   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       6M   12 Data            1    64       1              64
     L1i      32K       4M    8 Instruction     1    64       1              64
     L2        1M     128M   16 Unified         2  1024       1              64
     L3       32M     512M   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: 0-15,128-143
   node 0 size: 192977 MB
   node 0 free: 191857 MB
   node 1 cpus: 16-31,144-159
   node 1 size: 193527 MB
   node 1 free: 192513 MB
   node 2 cpus: 32-47,160-175
   node 2 size: 193527 MB
   node 2 free: 192525 MB
   node 3 cpus: 48-63,176-191
   node 3 size: 193488 MB
   node 3 free: 192453 MB
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

$SPECrate^{®}2017\_fp\_base = 1750$

$SPECrate^{®}2017\_fp\_peak = 1900$

CPU2017 License: 6865

Test Sponsor: Kaytus Systems Pte. Ltd.

Tested by: Kaytus Systems Pte. Ltd.

Test Date: Jun-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

Platform Notes (Continued)

```
    node 4 cpus: 64-79,192-207
    node 4 size: 193527 MB
    node 4 free: 192494 MB
    node 5 cpus: 80-95,208-223
    node 5 size: 193527 MB
    node 5 free: 192522 MB
    node 6 cpus: 96-111,224-239
    node 6 size: 193527 MB
    node 6 free: 192527 MB
    node 7 cpus: 112-127,240-255
    node 7 size: 193019 MB
    node 7 free: 191590 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:       1584254340 kB


    ------------------------------------------------------------
    10. who -r
       run-level 3 Jun 26 00:35


    ------------------------------------------------------------
    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 nvmefc-boot-connections nvmf-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 ebtables
                        exchange-bmc-os-info fsidd grub2-once haveged hwloc-dump-hwdata ipmievd issue-add-ssh-keys
                        kexec-load lunmask 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=97ebf558-7124-402b-b21a-aea761c5c8d0
       mitigations=off
       splash=silent
       resume=/dev/disk/by-uuid/d3b5c251-8c9f-43f0-9e42-f93d8f2e68b2
       mitigations=auto
```

(Continued on next page)

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Kaytus Systems Pte. Ltd.

KR2280V3 (AMD EPYC 9555)

$SPECrate^{®}2017\_fp\_base = 1750$

$SPECrate^{®}2017\_fp\_peak = 1900$

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
    quiet
    security=apparmor
    crashkernel=370M,high
    crashkernel=72M,low


    ----------------------------------------------------------
 14. cpupower frequency-info
    analyzing CPU 35:
      current policy: frequency should be within 1.50 GHz and 3.20 GHz.
                      The governor "performance" may decide which speed to use
                      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

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

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

$SPECrate^{®}2017\_fp\_base = 1750$

$SPECrate^{®}2017\_fp\_peak = 1900$

CPU2017 License: 6865

Test Sponsor: Kaytus Systems Pte. Ltd.

Tested by: Kaytus Systems Pte. Ltd.

Test Date: Jun-2025

Hardware Availability: Feb-2025

Software Availability: Oct-2024

Platform Notes (Continued)

```
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   1.3T   65G  1.2T   6% /home


------------------------------------------------------------
21. /sys/devices/virtual/dmi/id
    Vendor:        KAYTUS
    Product:       KR2280-E3-A0-R0-00
    Product Family: Not specified
    Serial:        01234567


------------------------------------------------------------
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:      01.08.00
  BIOS Date:         02/08/2025

The actual date the benchmarks were run is Jun-2025
```

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)
--------------------------------------------------------------------------------------------------
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

CPU2017 License: 6865   **Test Date:** Jun-2025
Test Sponsor: Kaytus Systems Pte. Ltd.   **Hardware Availability:** Feb-2025
Tested by: Kaytus Systems Pte. Ltd.   **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
------------------------------------------------------------------------------


==============================================================================
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
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
```
clang
```

C++ benchmarks:
```
clang++
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Base Compiler Invocation (Continued)

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 -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
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Base Optimization Flags (Continued)

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
-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
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
```
-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
```

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
```

(Continued on next page)

Kaytus Systems Pte. Ltd.

KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

CPU2017 License: 6865　　　　　　　　　　　　　　　　　　　**Test Date:** Jun-2025
Test Sponsor: Kaytus Systems Pte. Ltd.　　　　　　　　**Hardware Availability:** Feb-2025
Tested by: Kaytus Systems Pte. Ltd.　　　　　　　　**Software Availability:** Oct-2024

Peak Compiler Invocation (Continued)

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

```
538.imagick_r: basepeak = yes
```

```
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: basepeak = yes
```

```
510.parest_r: -m64 -std=c++14 -flto -Wl,-mllvm -Wl,-suppress-fmas
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast
```

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Peak Optimization Flags (Continued)

510.parest_r (continued):
```
-march=znver5 -fveclib=AMDLIBM -ffast-math
-mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc -ldl
```

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: `-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
-lamdalloc -ldl -lflang
```

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: basepeak = yes

Benchmarks using both C and C++:

511.povray_r: basepeak = yes

526.blender_r: basepeak = yes

(Continued on next page)

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

Peak Optimization Flags (Continued)

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 -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 -mllvm -loop-unswitch-threshold=200000
-faggressive-loop-transform -fvector-transform -fscalar-transform
-Mrecursive -fepilog-vectorization-of-inductions -lamdlibm -lamdalloc
-ldl -lflang
```

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

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

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Kaytus Systems Pte. Ltd.
KR2280V3 (AMD EPYC 9555)

SPECrate®2017_fp_base = 1750

SPECrate®2017_fp_peak = 1900

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

Test Date: Jun-2025
Hardware Availability: Feb-2025
Software Availability: Oct-2024

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

Tested with SPEC CPU®2017 v1.1.9 on 2024-06-25 17:51:08-0400.
Report generated on 2025-07-16 11:07:58 by CPU2017 PDF formatter v6716.
Originally published on 2025-07-15.