



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

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

SPECrate®2017\_int\_base = 2780

SPECrate®2017\_int\_peak = 2840

CPU2017 License: 6865

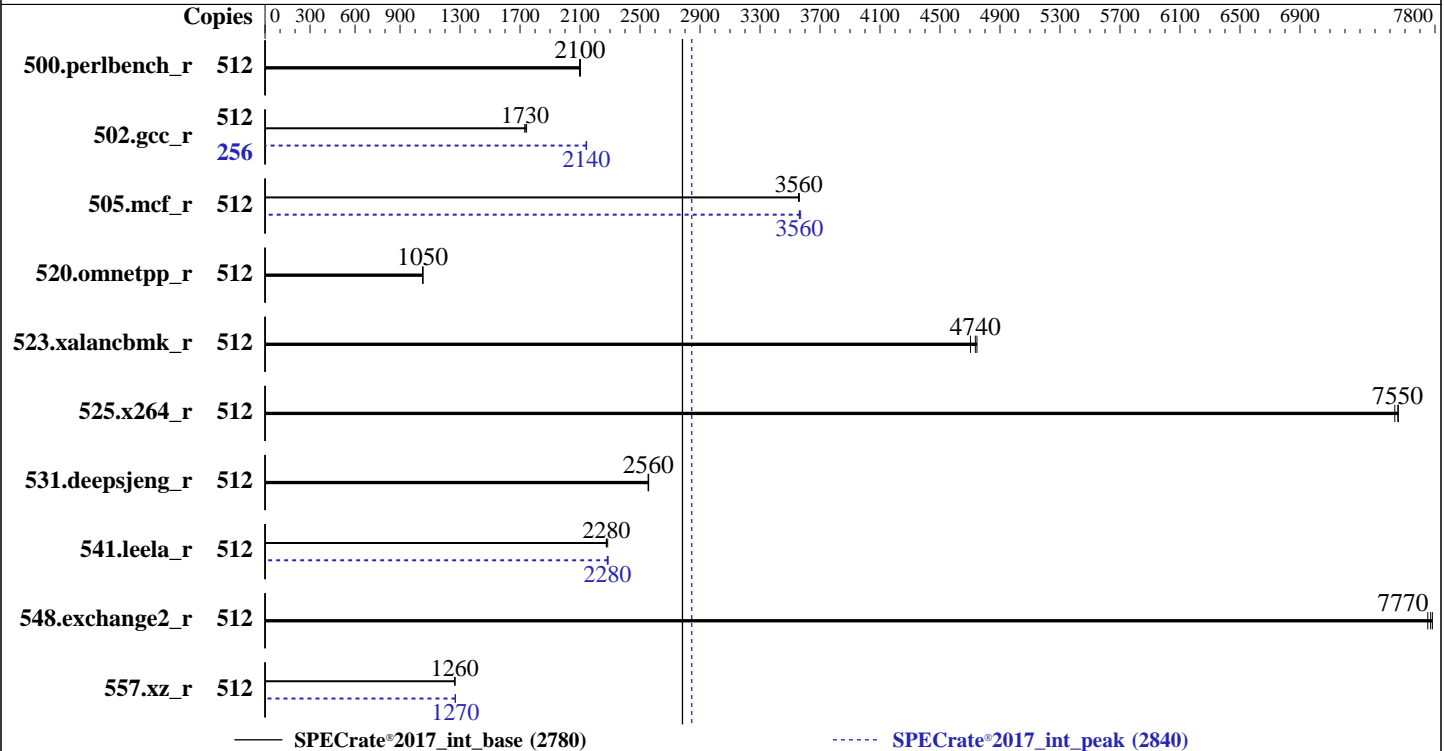
Test Sponsor: Kaytus Systems Pte. Ltd.

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: 32/64-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
500.perlbench_r	512	389	2100	<b>388</b>	<b>2100</b>	388	2100	512	389	2100	<b>388</b>	<b>2100</b>	388	2100
502.gcc_r	512	418	1730	416	1740	<b>418</b>	<b>1730</b>	256	169	2140	<b>169</b>	<b>2140</b>	169	2140
505.mcf_r	512	<b>232</b>	<b>3560</b>	233	3560	232	3560	512	232	3570	232	3560	<b>232</b>	<b>3560</b>
520.omnetpp_r	512	639	1050	<b>639</b>	<b>1050</b>	638	1050	512	639	1050	<b>639</b>	<b>1050</b>	638	1050
523.xalancbmk_r	512	114	4750	<b>114</b>	<b>4740</b>	115	4700	512	114	4750	<b>114</b>	<b>4740</b>	115	4700
525.x264_r	512	119	7530	119	7560	<b>119</b>	<b>7550</b>	512	119	7530	119	7560	<b>119</b>	<b>7550</b>
531.deepsjeng_r	512	229	2560	<b>230</b>	<b>2560</b>	230	2550	512	229	2560	<b>230</b>	<b>2560</b>	230	2550
541.leela_r	512	<b>372</b>	<b>2280</b>	373	2280	371	2280	512	372	2280	371	2290	<b>371</b>	<b>2280</b>
548.exchange2_r	512	<b>173</b>	<b>7770</b>	173	7750	172	7780	512	<b>173</b>	<b>7770</b>	173	7750	172	7780
557.xz_r	512	<b>437</b>	<b>1260</b>	437	1270	437	1260	512	436	1270	<b>436</b>	<b>1270</b>	435	1270

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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 Thu Jan 9 23:01:04 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  
23:01:04 up 3:29, 1 user, load average: 0.14, 0.03, 0.01  
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT  
root tty1 - 19:32 24.00s 1.08s 0.14s /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 intrate  
runcpu --configfile amd\_rate\_aocc500\_znver5\_A1.cfg --tune all --reportable --iterations 3 --nopower  
--runmode rate --tune base:peak --size test:train:refrate intrate --nopreenv --note-preenv --logfile  
\$SPEC/tmp/CPU2017.002/temlogs/preenv.intrate.002.0.log --lognum 002.0 --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 wbinvd 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/swaps 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: 191404 MB
node 1 cpus: 32-63,288-319
node 1 size: 193519 MB
node 1 free: 191942 MB
node 2 cpus: 64-95,320-351
node 2 size: 193480 MB
node 2 free: 191884 MB
node 3 cpus: 96-127,352-383
node 3 size: 193519 MB
node 3 free: 192035 MB
node 4 cpus: 128-159,384-415
node 4 size: 193519 MB
node 4 free: 191968 MB
node 5 cpus: 160-191,416-447
node 5 size: 193519 MB
node 5 free: 191968 MB
node 6 cpus: 192-223,448-479
node 6 size: 193519 MB

```

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## Platform Notes (Continued)

```

node 6 free: 191988 MB
node 7 cpus: 224-255,480-511
node 7 size: 192908 MB
node 7 free: 191417 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 nvme-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 451:
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 | 502.gcc\_r(peak)  
-----

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: i386-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
-----

=====  
C | 500.perlbench\_r(base, peak) 502.gcc\_r(base) 505.mcf\_r(base, peak) 525.x264\_r(base, peak)  
557.xz\_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 | 502.gcc\_r(peak)  
-----

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
Target: i386-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin  
-----

=====  
C | 500.perlbench\_r(base, peak) 502.gcc\_r(base) 505.mcf\_r(base, peak) 525.x264\_r(base, peak)  
557.xz\_r(base, peak)

AMD clang version 17.0.6 (CLANG: AOCC\_5.0.0-Build#1316 2024\_09\_09)  
-----

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# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Kaytus Systems Pte. Ltd.

SPECrate®2017\_int\_base = 2780

KR1280V3 (AMD EPYC 9755)

SPECrate®2017\_int\_peak = 2840

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

## Compiler Version Notes (Continued)

Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

=====  
C++ | 520.omnetpp\_r(base, peak) 523.xalancbmk\_r(base, peak) 531.deepsjeng\_r(base, peak)  
| 541.leela\_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 | 548.exchange2\_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

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

## Base Portability Flags

500.perlbench\_r: -DSPEC\_LINUX\_X64 -DSPEC\_LP64  
502.gcc\_r: -DSPEC\_LP64  
505.mcf\_r: -DSPEC\_LP64  
520.omnetpp\_r: -DSPEC\_LP64  
523.xalancbmk\_r: -DSPEC\_LINUX -DSPEC\_LP64  
525.x264\_r: -DSPEC\_LP64  
531.deepsjeng\_r: -DSPEC\_LP64  
541.leela\_r: -DSPEC\_LP64  
548.exchange2\_r: -DSPEC\_LP64  
557.xz\_r: -DSPEC\_LP64



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Test Date: Jan-2025

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Software Availability: Oct-2024

## 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
-Wl,-mllvm -Wl,-extra-inliner -z muldefs -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 -lflang
-lamdalloc-ext -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,-do-block-reorder=advanced -z muldefs -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -flto -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -fno-PIE -no-pie
-fvirtual-function-elimination -fvisibility=hidden
-mllvm -do-block-reorder=advanced -lamdlibm -lflang -lamdalloc-ext
-ldl
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -z muldefs -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -flto
-fepilog-vectorization-of-inductions -mllvm -optimize-strided-mem-cost
-floop-transform -mllvm -unroll-aggressive -mllvm -unroll-threshold=500
-lamdlibm -lflang -lamdalloc -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
```



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SPECrate®2017\_int\_peak = 2840

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 Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

## Peak Portability Flags

```

500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

```

## Peak Optimization Flags

C benchmarks:

```

500.perlbench_r: basepeak = yes

502.gcc_r: -m32 -flto -Wl,-mllvm -Wl,-ldist-scalar-expand
-fenable-aggressive-gather -Wl,-mllvm -Wl,-extra-inliner
-z muldefs -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 -fgnu89-inline
-lamdalloc

505.mcf_r: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-extra-inliner -Ofast -march=znver5
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -freemap-arrays -fstrip-mining

```

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CPU2017 License: 6865

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Tested by: Kaytus Systems Pte. Ltd.

Software Availability: Oct-2024

## Peak Optimization Flags (Continued)

505.mcf\_r (continued):

```
-mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3 -zopt -lamdlibm  
-lflang -lamdalloc-ext -ldl
```

525.x264\_r: basepeak = yes

```
557.xz_r: -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 -Wl,-mllvm -Wl,-extra-inliner  
-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  
-lflang -lamdalloc-ext -ldl
```

C++ benchmarks:

520.omnetpp\_r: basepeak = yes

523.xalancbmk\_r: basepeak = yes

531.deepsjeng\_r: basepeak = yes

```
541.leela_r: -m64 -std=c++14  
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-do-block-reorder=advanced -Ofast  
-march=znver5 -fveclib=AMDLIBM -ffast-math -flto  
-mllvm -unroll-threshold=100  
-mllvm -reduce-array-computations=3 -zopt -fno-PIE  
-no-pie -fvirtual-function-elimination -fvisibility=hidden  
-mllvm -do-block-reorder=advanced -lamdlibm -lflang  
-lamdalloc-ext -ldl
```

Fortran benchmarks:

548.exchange2\_r: basepeak = yes



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Software Availability: Oct-2024

## Peak Other Flags

C benchmarks (except as noted below):

-Wno-unused-command-line-argument

502.gcc\_r: -L/usr/lib32 -Wno-unused-command-line-argument

-L/home/work/cpu2017/v119/aocc5/1316/amd\_rate\_aocc500\_znver5\_A\_lib/lib32

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

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

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

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