



SPEC CPU®2017 Integer Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

ASRock Rack Inc.

1U4LW-B650/2L2T
AMD EPYC 4245P

SPECrate®2017_int_base = 96.6

SPECrate®2017_int_peak = 99.0

CPU2017 License: 5416

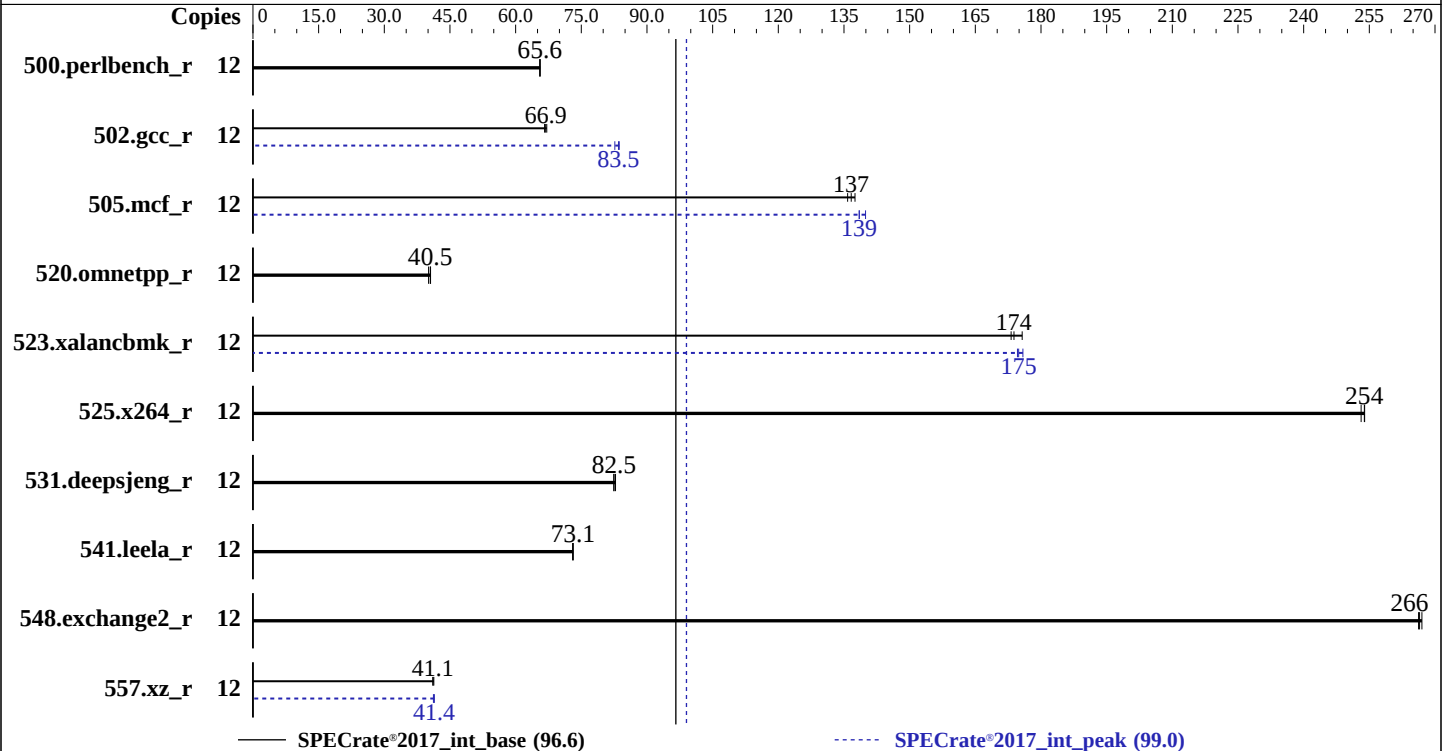
Test Sponsor: ASRock Rack Inc.

Tested by: ASRock Rack Inc.

Test Date: Apr-2025

Hardware Availability: Feb-2025

Software Availability: Feb-2025



Hardware

CPU Name: AMD EPYC 4245P
Max MHz: 5400
Nominal: 3900
Enabled: 6 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 32 MB I+D on chip per chip
Other: None
Memory: 64 GB (2 x 32 GB 2Rx8 PC5-5600B-R)
Storage: 1 x 465 GB NVMe M.2
Other: CPU Cooling: Air

Software

OS: Ubuntu 24.04.2 LTS
kernel version 6.8.0-55-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: No
Firmware: Version 21.06 released Mar-2025
File System: ext4
System State: Run level 5 (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	12	<u>291</u>	<u>65.6</u>	291	65.6	292	65.5	12	<u>291</u>	<u>65.6</u>	291	65.6	292	65.5
502.gcc_r	12	<u>254</u>	<u>66.9</u>	255	66.6	253	67.1	12	206	82.7	203	83.7	<u>204</u>	<u>83.5</u>
505.mcf_r	12	<u>142</u>	<u>137</u>	141	138	143	136	12	140	138	<u>140</u>	<u>139</u>	139	140
520.omnetpp_r	12	<u>389</u>	<u>40.5</u>	392	40.1	388	40.6	12	<u>389</u>	<u>40.5</u>	392	40.1	388	40.6
523.xalancbmk_r	12	<u>72.9</u>	<u>174</u>	72.1	176	73.2	173	12	<u>72.5</u>	<u>175</u>	72.1	176	72.6	175
525.x264_r	12	82.7	254	83.0	253	<u>82.8</u>	<u>254</u>	12	82.7	254	83.0	253	<u>82.8</u>	<u>254</u>
531.deepsjeng_r	12	<u>167</u>	<u>82.5</u>	166	82.8	167	82.4	12	<u>167</u>	<u>82.5</u>	166	82.8	167	82.4
541.leela_r	12	272	73.1	272	73.0	<u>272</u>	<u>73.1</u>	12	272	73.1	272	73.0	<u>272</u>	<u>73.1</u>
548.exchange2_r	12	118	266	<u>118</u>	<u>266</u>	118	267	12	118	266	<u>118</u>	<u>266</u>	118	267
557.xz_r	12	315	41.1	<u>315</u>	<u>41.1</u>	314	41.3	12	<u>313</u>	<u>41.4</u>	313	41.4	314	41.2

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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/amd/speccpu/amd_rate_aocc500_znver5_A_lib/lib:/home/amd/speccpu/amd_rate_aocc500_znver5_A_lib/lib32:"

MALLOC_CONF = "retain:true"

Environment variables set by runcpu during the 523.xalancbmk_r peak run:

MALLOC_CONF = "thp:always"

General Notes

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

Platform Notes

BIOS setting:

SoC/Uncore OC Mode : Enabled

Sysinfo program /home/amd/speccpu/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on ryzen-grado-2 Wed Mar 26 13:10:09 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 255 (255.4-1ubuntu8.5)
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
22. dmidecode
23. BIOS

-
1. uname -a
Linux ryzen-grado-2 6.8.0-55-generic #57-Ubuntu SMP PREEMPT_DYNAMIC Wed Feb 12 23:42:21 UTC 2025 x86_64
x86_64 x86_64 GNU/Linux

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Platform Notes (Continued)

```
-----
2. w
  13:10:09 up 4 days, 16:10,  3 users,  load average: 0.15, 0.06, 0.02
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
amd       tty1      -               Fri21    43:16m 0.05s  0.02s  -bash
amd              10.23.197.68    13:05    18:42m 0.00s  ?      sshd: amd [priv]
```

```
-----
3. Username
  From environment variable $USER:  root
  From the command 'logname':      amd
```

```
-----
4. ulimit -a
time(seconds)      unlimited
file(blocks)       unlimited
data(kbytes)       unlimited
stack(kbytes)      unlimited
coredump(blocks)   0
memory(kbytes)     unlimited
locked memory(kbytes) 2097152
process            247275
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
```

```
-----
5. sysinfo process ancestry
/sbin/init
tmux
-bash
sudo ./run_amd_rate_aocc500_znver5_A1.py
sudo ./run_amd_rate_aocc500_znver5_A1.py
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/CPU2017.001/templots/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/amd/speccpu
```

```
-----
6. /proc/cpuinfo
model name      : AMD EPYC 4245P 6-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 26
model          : 68
stepping       : 0
microcode      : 0xb404023
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size       : 192 4K pages
cpu cores      : 6
siblings       : 12
1 physical ids (chips)
12 processors (hardware threads)
physical id 0: core ids 0-5
physical id 0: apicids 0-11
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
```

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Platform Notes (Continued)

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:	48 bits physical, 48 bits virtual
Byte Order:	Little Endian
CPU(s):	12
On-line CPU(s) list:	0-11
Vendor ID:	AuthenticAMD
BIOS Vendor ID:	Advanced Micro Devices, Inc.
Model name:	AMD EPYC 4245P 6-Core Processor
BIOS Model name:	AMD EPYC 4245P 6-Core Processor
BIOS CPU family:	107
CPU family:	26
Model:	68
Thread(s) per core:	2
Core(s) per socket:	6
Socket(s):	1
Stepping:	0
CPU(s) scaling MHz:	70%
CPU max MHz:	5484.0000
CPU min MHz:	600.0000
BogoMIPS:	7785.80
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 sse4_1 sse4_2 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 bpeext 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 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 rdpid bus_lock_detect movdiri movdir64b overflow_recov succor smca fsrm avx512_vp2intersect flush_l1d
Virtualization:	AMD-V
L1d cache:	288 KiB (6 instances)
L1i cache:	192 KiB (6 instances)
L2 cache:	6 MiB (6 instances)
L3 cache:	32 MiB (1 instance)
NUMA node(s):	1
NUMA node0 CPU(s):	0-11
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

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Vulnerability Reg file data sampling: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec rstack overflow: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
always-on; RSB filling; PBRSE-eIBRS Not affected; BHI Not affected
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	288K	12	Data	1	64	1	64
L1i	32K	192K	8	Instruction	1	64	1	64
L2	1M	6M	16	Unified	2	1024	1	64
L3	32M	32M	16	Unified	3	32768	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 1 nodes (0)
node 0 cpus: 0-11
node 0 size: 61893 MB
node 0 free: 61134 MB
node distances:
node 0
0: 10

9. /proc/meminfo

MemTotal: 63378744 kB

10. who -r

run-level 5 Mar 21 21:00

11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.5)

Default Target Status
graphical running

12. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	apparmor apport blk-availability cloud-config cloud-final cloud-init cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback keyboard-setup lvm2-monitor multipathd networkd-dispatcher open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb snapd systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald tuned ua-reboot-cmds ubuntu-advantage ufw unattended-upgrades vgauth
enabled-runtime	netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled	console-getty debug-shell ipmievd iscsid nftables rsync serial-getty@ ssh sysstat systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysextr systemd-time-wait-sync upower
generated	openipmi
indirect	systemd-sysupdate systemd-sysupdate-reboot uidd
masked	cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

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Platform Notes (Continued)

13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=vmlinuz-6.8.0-55-generic
root=/dev/mapper/ubuntu--vg-ubuntu--lv
ro

14. cpupower frequency-info
analyzing CPU 11:
current policy: frequency should be within 600 MHz and 5.48 GHz.
The governor "performance" may decide which speed to use
within this range.
boost state support:
Supported: yes
Active: yes

15. tuned-adm active
Current active profile: throughput-performance

16. sysctl
kernel.numa_balancing 0
kernel.randomize_va_space 0
vm.compaction_proactiveness 20
vm.dirty_background_bytes 0
vm.dirty_background_ratio 10
vm.dirty_bytes 0
vm.dirty_expire_centisecs 3000
vm.dirty_ratio 8
vm.dirty_writeback_centisecs 500
vm.dirtytime_expire_seconds 43200
vm.extfrag_threshold 500
vm.min_unmapped_ratio 1
vm.nr_hugepages 0
vm.nr_hugepages_mempolicy 0
vm.nr_overcommit_hugepages 0
vm.swappiness 1
vm.watermark_boost_factor 15000
vm.watermark_scale_factor 10
vm.zone_reclaim_mode 1

17. /sys/kernel/mm/transparent_hugepage
defrag [always] defer defer+madvise madvise never
enabled [always] madvise never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs 60000
defrag 1
max_ptes_none 511
max_ptes_shared 256
max_ptes_swap 64
pages_to_scan 4096
scan_sleep_millisecs 10000

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Platform Notes (Continued)

19. OS release

From /etc/*-release /etc/*-version
os-release Ubuntu 24.04.2 LTS

20. Disk information

SPEC is set to: /home/amd/speccpu

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/ubuntu--vg-ubuntu--lv	ext4	357G	265G	77G	78%	/

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

Vendor: ASrockRack
Product: 1U4LW-B650/2L2T

22. dmidecode

Additional information from dmidecode 3.5 follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the "DMTF SMBIOS" standard.

Memory:

2x Micron Technology MTC20C2085S1EC56BD1 NC 32 GB 2 rank 5600

23. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 21.06
BIOS Date: 03/17/2025
BIOS Revision: 5.35

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)

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Target: i386-unknown-linux-gnu

Thread model: posix

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```
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++    | 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

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Base Portability Flags (Continued)

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

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



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ASRock Rack Inc.

1U4LW-B650/2L2T
AMD EPYC 4245P

SPECrate®2017_int_base = 96.6

SPECrate®2017_int_peak = 99.0

CPU2017 License: 5416

Test Sponsor: ASRock Rack Inc.

Tested by: ASRock Rack Inc.

Test Date: Apr-2025

Hardware Availability: Feb-2025

Software Availability: Feb-2025

Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

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

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Peak Optimization Flags (Continued)

```
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
-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
-freemap-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: -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
-fvirtual-function-elimination -fvisibility=hidden
-mllvm -do-block-reorder=advanced -lamdlibm -lflang
-lamdalloc-ext -ldl
```

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Peak Optimization Flags (Continued)

531.deepsjeng_r: basepeak = yes

541.leela_r: basepeak = yes

Fortran benchmarks:

548.exchange2_r: basepeak = yes

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/ASRockRack-platform_AMD_setting_v1.0.html

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

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

http://www.spec.org/cpu2017/flags/ASRockRack-platform_AMD_setting_v1.0.xml

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

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Tested with SPEC CPU®2017 v1.1.9 on 2025-03-26 09:10:09-0400.

Report generated on 2025-05-14 11:21:36 by CPU2017 PDF formatter v6716.

Originally published on 2025-05-14.