



# SPEC CPU®2026 Integer Rate Result

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Maginfra Co., Ltd.

QR8218-D3 (AMD EPYC 9275F)

SPECrate®2026\_int\_base = 322

SPECrate®2026\_int\_peak = 323

CPU2026 License: 9087

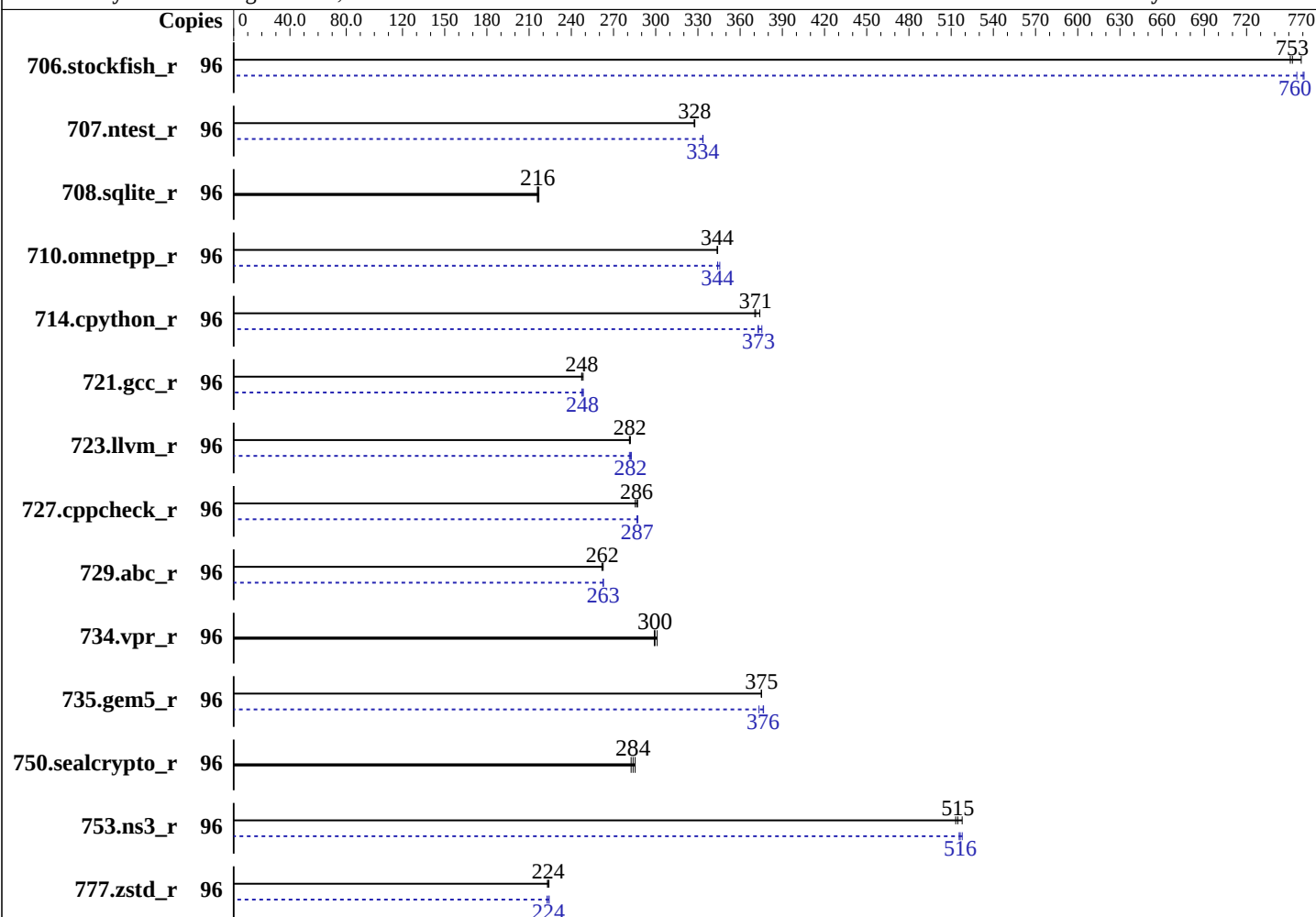
Test Sponsor: Maginfra Co., Ltd.

Tested by: Maginfra Co., Ltd.

Test Date: Jul-2026

Hardware Availability: Dec-2025

Software Availability: Jan-2026



## Hardware

CPU Name: AMD EPYC 9275F  
Max MHz: 4800  
Nominal: 4100  
Enabled: 48 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 / 3 cores  
Other: None  
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R)  
Storage: 1 x 4 TB NVME SSD  
Cooling: Air  
Other: None

## Software

OS: SUSE Linux Enterprise Server 15 SP7 6.4.0-150700.51-default  
Compiler: C/C++/Fortran: Version 5.1.0 of AOCC  
Compiler Category: Vendor  
Firmware: Version 01.14.00 released Dec-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.



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## Results Table

| Benchmark        | Base   |            |            |            |            |            |            | Peak   |            |            |            |            |            |            |
|------------------|--------|------------|------------|------------|------------|------------|------------|--------|------------|------------|------------|------------|------------|------------|
|                  | Copies | Seconds    | Ratio      | Seconds    | Ratio      | Seconds    | Ratio      | Copies | Seconds    | Ratio      | Seconds    | Ratio      | Seconds    | Ratio      |
| 706.stockfish_r  | 96     | 161        | 751        | <b>161</b> | <b>753</b> | 159        | 759        | 96     | 160        | 756        | 159        | 761        | <b>159</b> | <b>760</b> |
| 707.ntest_r      | 96     | <b>173</b> | <b>328</b> | 173        | 328        | 174        | 327        | 96     | 170        | 333        | <b>170</b> | <b>334</b> | 170        | 334        |
| 708.sqlite_r     | 96     | <b>234</b> | <b>216</b> | 235        | 216        | 234        | 217        | 96     | <b>234</b> | <b>216</b> | 235        | 216        | 234        | 217        |
| 710.omnetpp_r    | 96     | <b>136</b> | <b>344</b> | 136        | 344        | 136        | 344        | 96     | <b>136</b> | <b>344</b> | 136        | 344        | 135        | 346        |
| 714.cpython_r    | 96     | 124        | 370        | 123        | 374        | <b>124</b> | <b>371</b> | 96     | <b>123</b> | <b>373</b> | 123        | 373        | 122        | 375        |
| 721.gcc_r        | 96     | <b>266</b> | <b>248</b> | 266        | 247        | 265        | 248        | 96     | 265        | 249        | 266        | 248        | <b>266</b> | <b>248</b> |
| 723.llvm_r       | 96     | <b>173</b> | <b>282</b> | 173        | 281        | 173        | 282        | 96     | 172        | 283        | <b>173</b> | <b>282</b> | 173        | 281        |
| 727.cppcheck_r   | 96     | 121        | 285        | 120        | 287        | <b>120</b> | <b>286</b> | 96     | 120        | 287        | <b>120</b> | <b>287</b> | 120        | 287        |
| 729.abc_r        | 96     | <b>168</b> | <b>262</b> | 168        | 263        | 168        | 262        | 96     | <b>168</b> | <b>263</b> | 168        | 263        | 168        | 263        |
| 734.vpr_r        | 96     | 148        | 299        | 147        | 301        | <b>148</b> | <b>300</b> | 96     | 148        | 299        | 147        | 301        | <b>148</b> | <b>300</b> |
| 735.gem5_r       | 96     | <b>125</b> | <b>375</b> | 125        | 375        | 125        | 375        | 96     | 125        | 373        | <b>124</b> | <b>376</b> | 124        | 377        |
| 750.sealcrypto_r | 96     | 180        | 285        | <b>181</b> | <b>284</b> | 182        | 283        | 96     | 180        | 285        | <b>181</b> | <b>284</b> | 182        | 283        |
| 753.ns3_r        | 96     | 115        | 513        | <b>114</b> | <b>515</b> | 114        | 518        | 96     | 114        | 516        | <b>114</b> | <b>516</b> | 114        | 518        |
| 777.zstd_r       | 96     | <b>277</b> | <b>224</b> | 277        | 223        | 276        | 224        | 96     | 278        | 223        | 276        | 224        | <b>276</b> | <b>224</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.

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## Operating System Notes (Continued)

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.

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH =  
"/home/CPU2026/amd\_rate\_aocc510\_znver5\_B\_lib/lib:/home/CPU2026/amd\_rate\_  
aocc510\_znver5\_B\_lib/lib32:"  
MALLOCONF = "retain:true"

## General Notes

Binaries were compiled on a system with 2x AMD EPYC Venice256 CPU + 2TiB Memory using Ubuntu 24.04

## Platform Notes

BIOS configuration:  
NUMA nodes per socket = NPS4  
Determinism Slider = Power  
cTDP Control = Manual  
cTDP = 500  
Package Power Limit Control = Manual  
Package Power Limit = 500

Sysinfo program /home/CPU2026/bin/sysinfo  
Rev: 779ab21020787073335a329f3a45e2cd  
running on localhost Fri Jul 31 21:27:31 2026

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

-----  
Table of contents  
-----

1. uname -srvvm
2. w
3. Username

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## Platform Notes (Continued)

```
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 (254.24+suse.148.g83b9060b6e)
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 -srvmm
Linux 6.4.0-150700.51-default #1 SMP PREEMPT_DYNAMIC Wed Apr 30 21:35:43 UTC 2025 (6930611) x86_64
```

```
-----
2. w
 21:27:31 up  1:07,  2 users,  load average: 0.00, 0.00, 0.00
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
root      tty1      -                20:20   11.00s  1.31s  0.09s python3 ./run_amd_rate_aocc510_znver5_B1.py
root      tty2      -                20:24   1:02m   0.00s  0.00s more
```

```
-----
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) 6190541
max locked memory       (kbytes, -l) 2048
max memory size         (kbytes, -m) unlimited
open files              (-n) 1024
```

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## Platform Notes (Continued)

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) 6190541  
virtual memory (kbytes, -v) unlimited  
file locks (-x) unlimited

### 5. sysinfo process ancestry

```
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
login -- root
-bash
python3 ./run_amd_rate_aocc510_znver5_B1.py
runcpu --config amd_rate_aocc510_znver5_B1.cfg --tune all --reportable --iterations 3 intrate
runcpu --configfile amd_rate_aocc510_znver5_B1.cfg --tune all --reportable --iterations 3 --nopower
--runmode rate --tune base:peak --size test:train:refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2026.034/templogs/preenv.intrate.034.0.log --lognum 034.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/CPU2026
```

### 6. /proc/cpuinfo

```
model name      : AMD EPYC 9275F 24-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 2
stepping        : 1
microcode       : 0xb00215a
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srs
TLB size        : 192 4K pages
cpu cores       : 24
siblings        : 48
2 physical ids (chips)
96 processors (hardware threads)
physical id 0: core ids 0-2,8-10,16-18,24-26,32-34,40-42,48-50,56-58
physical id 1: core ids 0-2,8-10,16-18,24-26,32-34,40-42,48-50,56-58
physical id 0: apicids 0-5,16-21,32-37,48-53,64-69,80-85,96-101,112-117
physical id 1: apicids 128-133,144-149,160-165,176-181,192-197,208-213,224-229,240-245
```

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 2.40.4:

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## Platform Notes (Continued)

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): 96  
On-line CPU(s) list: 0-95  
Vendor ID: AuthenticAMD  
Model name: AMD EPYC 9275F 24-Core Processor  
CPU family: 26  
Model: 2  
Thread(s) per core: 2  
Core(s) per socket: 24  
Socket(s): 2  
Stepping: 1  
Frequency boost: enabled  
CPU(s) scaling MHz: 103%  
CPU max MHz: 4100.0000  
CPU min MHz: 1500.0000  
BogoMIPS: 8187.19  
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 amd\_ibpb\_ret 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 hv\_inuse\_wr\_allowed srso\_user\_kernel\_no amd\_lbr\_pmc\_freeze  
Virtualization: AMD-V  
L1d cache: 2.3 MiB (48 instances)  
L1i cache: 1.5 MiB (48 instances)  
L2 cache: 48 MiB (48 instances)  
L3 cache: 512 MiB (16 instances)  
NUMA node(s): 8  
NUMA node0 CPU(s): 0-5, 48-53

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## Platform Notes (Continued)

NUMA node1 CPU(s): 6-11,54-59  
NUMA node2 CPU(s): 12-17,60-65  
NUMA node3 CPU(s): 18-23,66-71  
NUMA node4 CPU(s): 24-29,72-77  
NUMA node5 CPU(s): 30-35,78-83  
NUMA node6 CPU(s): 36-41,84-89  
NUMA node7 CPU(s): 42-47,90-95  
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: Mitigation; IBPB on VMEXIT only  
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; 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      | 2.3M     | 12   | Data        | 1     | 64    | 1        | 64             |
| L1i  | 32K      | 1.5M     | 8    | Instruction | 1     | 64    | 1        | 64             |
| L2   | 1M       | 48M      | 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: 0-5,48-53  
node 0 size: 193055 MB  
node 0 free: 192723 MB  
node 1 cpus: 6-11,54-59  
node 1 size: 193494 MB  
node 1 free: 193204 MB  
node 2 cpus: 12-17,60-65  
node 2 size: 193532 MB  
node 2 free: 193133 MB  
node 3 cpus: 18-23,66-71  
node 3 size: 193532 MB  
node 3 free: 193248 MB  
node 4 cpus: 24-29,72-77

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## Platform Notes (Continued)

```
node 4 size: 193532 MB
node 4 free: 193229 MB
node 5 cpus: 30-35,78-83
node 5 size: 193532 MB
node 5 free: 193231 MB
node 6 cpus: 36-41,84-89
node 6 size: 193532 MB
node 6 free: 193235 MB
node 7 cpus: 42-47,90-95
node 7 size: 193449 MB
node 7 free: 193178 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:      1584806368 kB
```

```
-----
10. who -r
    run-level 3 Jul 31 20:20
```

```
-----
11. Systemd service manager version: systemd 254 (254.24+suse.148.g83b9060b6e)
    Default Target    Status
    multi-user        running
```

```
-----
12. Services, from systemctl list-unit-files
    STATE          UNIT FILES
enabled           YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron display-manager getty@ irqbalance
                  issue-generator kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections
                  nvmmf-autoconnect postfix purge-kernels rollback rsyslog smartd systemd-pstore
enabled-runtime   systemd-remount-fs
disabled          autofs autoyast-initscripts blk-availability boot-sysctl ca-certificates chrony-wait
                  chronyd console-getty cups cups-browsed debug-shell ebttables exchange-bmc-os-info
                  firewallld fsidd gpm grub2-once haveged hwloc-dump-hwdata ipmi ipmievd issue-add-ssh-keys
                  kexec-load lunmask man-db-create multipathd nfs nfs-blkmap rpcbind rpmconfigcheck rsyncd
                  serial-getty@ smartd-generate_opts snmpd snmptrapd sshd systemd-boot-check-no-failures
```

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## Platform Notes (Continued)

indirect      systemd-confext   systemd-network-generator   systemd-sysexit   systemd-time-wait-sync  
                 systemd-timesyncd   tuned   udisks2   vncserver@   wicked   wickedd-auto4   wickedd-dhcp4  
                 wickedd-dhcp6   wickedd-nanny  
                 systemd-userdbd   wickedd

### 13. Linux kernel boot-time arguments, from /proc/cmdline

```
BOOT_IMAGE=/boot/vmlinuz-6.4.0-150700.51-default
root=UUID=b599d87c-474e-4c72-b781-36d0bcdcf18d
splash=silent
mitigations=auto
quiet
security=apparmor
```

### 14. cpupower frequency-info

```
analyzing CPU 20:
  current policy: frequency should be within 1.50 GHz and 4.10 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
```

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## Platform Notes (Continued)

```
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 SP7
```

```
-----
20. Disk information
SPEC is set to: /home/CPU2026
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme0n1p2 xfs   929G   70G   860G   8% /
```

```
-----
21. /sys/devices/virtual/dmi/id
Vendor:          Maginfraco.
Product:         QR8218-D3
Product Family:  Not specified
Serial:          00000000
```

```
-----
22. dmidecode
Additional information from dmidecode 3.6 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:
12x Samsung M321R8GA0PB2-CCPEC 64 GB 2 rank 6400
```

(Continued on next page)



# SPEC CPU®2026 Integer Rate Result

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QR8218-D3 (AMD EPYC 9275F)

SPECrate®2026\_int\_peak = 323

CPU2026 License: 9087

Test Sponsor: Maginfra Co., Ltd.

Tested by: Maginfra Co., Ltd.

Test Date: Jul-2026

Hardware Availability: Dec-2025

Software Availability: Jan-2026

## Platform Notes (Continued)

11x Samsung M321R8GA0PB2-CCPPC 64 GB 2 rank 6400

1x Samsung M321R8GA0PB2-CCPWC 64 GB 2 rank 6400

### 23. BIOS

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

BIOS Vendor: American Megatrends International, LLC.

BIOS Version: 01.14.00

BIOS Date: 12/25/2025

## Compiler Version Notes

```
=====  
C      | 708.sqlite_r(base, peak) 714.cpython_r(base, peak) 777.zstd_r(base,  
      | peak)  
=====
```

AMD clang version 17.0.6 (CLANG: AOCC\_5.1.0-Build#1994 2025\_12\_23)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin  
=====

```
=====  
C++    | 706.stockfish_r(base, peak) 707.ntest_r(base, peak)  
      | 727.cppcheck_r(base, peak) 753.ns3_r(base, peak)  
=====
```

AMD clang version 17.0.6 (CLANG: AOCC\_5.1.0-Build#1994 2025\_12\_23)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin  
=====

```
=====  
C++, C | 710.omnetpp_r(base, peak) 721.gcc_r(base, peak) 723.llvm_r(base,  
      | peak) 729.abc_r(base, peak) 734.vpr_r(base, peak) 735.gem5_r(base,  
      | peak) 750.sealcrypto_r(base, peak)  
=====
```

AMD clang version 17.0.6 (CLANG: AOCC\_5.1.0-Build#1994 2025\_12\_23)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.1.0/bin  
=====



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## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Benchmarks using both C and C++:

clang++ clang

## Base Optimization Flags

C benchmarks:

```
-m64 -std=c18 -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 -O3 -march=znver5 -fveclib=AMDLIBM
-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
```

C++ benchmarks:

```
-m64 -std=c++17 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver5
-fveclib=AMDLIBM -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 -lamdlibm -lflang
-lamdalloc
```

Benchmarks using both C and C++:

```
-m64 -std=c++17 -std=c18 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver5
-fveclib=AMDLIBM -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 -fvirtual-function-elimination
-fvisibility=hidden -lamdlibm -lflang -lamdalloc
```



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Test Date: Jul-2026

Hardware Availability: Dec-2025

Software Availability: Jan-2026

## Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Benchmarks using both C and C++:

clang++ clang

## Peak Optimization Flags

C benchmarks:

708.sqlite\_r: basepeak = yes

714.cpython\_r: -m64 -std=c18

-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

-O3 -march=znver5 -fveclib=AMDLIBM -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

777.zstd\_r: Same as 714.cpython\_r

C++ benchmarks:

706.stockfish\_r: -m64 -std=c++17

-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast

-march=znver5 -fveclib=AMDLIBM -flto

-mllvm -unroll-threshold=100

-mllvm -reduce-array-computations=3 -zopt -fno-PIE

-no-pie -fvirtual-function-elimination

-fvisibility=hidden -lamdlibm -lflang -lamdalloc

707.ntest\_r: Same as 706.stockfish\_r

727.cppcheck\_r: -m64 -std=c++17

-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3

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## Peak Optimization Flags (Continued)

727.cppcheck\_r (continued):

```
-march=znver5 -fveclib=AMDLIBM -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 -lamdlibm -lamdalloc -lflang
```

753.ns3\_r: Same as 727.cppcheck\_r

Benchmarks using both C and C++:

```
710.omnetpp_r: -m64 -std=c++17 -std=c18
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3
-march=znver5 -fveclib=AMDLIBM -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
-fvirtual-function-elimination -fvisibility=hidden
-lamdlibm -lamdalloc -lflang
```

```
721.gcc_r: -m64 -std=c++17 -std=c18
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIBM -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 -fno-PIE -no-pie
-fvirtual-function-elimination -fvisibility=hidden
-lamdlibm -lflang -lamdalloc
```

723.llvm\_r: Same as 721.gcc\_r

729.abc\_r: Same as 721.gcc\_r

734.vpr\_r: basepeak = yes

735.gem5\_r: Same as 710.omnetpp\_r

750.sealcrypto\_r: basepeak = yes



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

<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.00.html>

<http://www.spec.org/cpu2026/results/flags/Maginfra-Platform-Settings-amd-V1.1.html>

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

<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.00.xml>

<http://www.spec.org/cpu2026/results/flags/Maginfra-Platform-Settings-amd-V1.1.xml>

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