



# SPEC CPU®2026 Floating Point Rate Result

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## Lenovo Global Technology

ThinkSystem SR665 V3  
(2.55 GHz, AMD EPYC 9684X)

SPECrate®2026\_fp\_base = 707

SPECrate®2026\_fp\_peak = 707

CPU2026 License: 9017

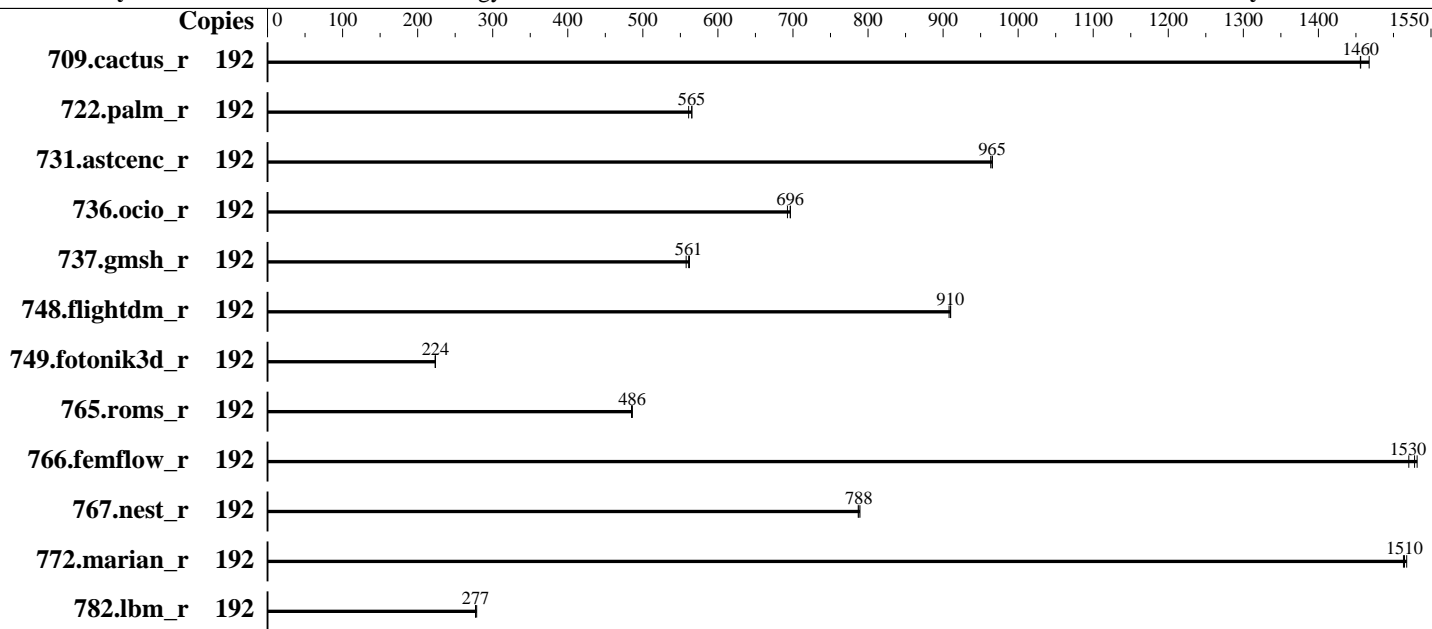
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Feb-2026

Hardware Availability: Dec-2023

Software Availability: Jan-2026



### Hardware

CPU Name: AMD EPYC 9684X  
 Max MHz: 3700  
 Nominal: 2550  
 Enabled: 192 cores, 2 chips  
 Orderable: 1,2 chips  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 1152 MB I+D on chip per chip,  
 96 MB shared / 8cores  
 Other: None  
 Memory: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-R)  
 Storage: 1 x 960GB M.2 NVMe SSD  
 Cooling: Air  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP7  
 Kernel 6.4.0-150700.51-default  
 Compiler: C/C++/Fortran: Version 5.1.0 of AOCC  
 Compiler Category: Vendor  
 Firmware: Lenovo BIOS Version KAE141G 5.81 released Jan-2026  
 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
709.cactus_r	192	112	1470	<u>113</u>	<u>1460</u>	113	1460	192	112	1470	<u>113</u>	<u>1460</u>	113	1460
722.palm_r	192	<u>448</u>	<u>565</u>	452	561	448	565	192	<u>448</u>	<u>565</u>	452	561	448	565
731.ascenc_r	192	167	966	<u>167</u>	<u>965</u>	167	963	192	167	966	<u>167</u>	<u>965</u>	167	963
736.ocio_r	192	<u>241</u>	<u>696</u>	243	693	241	696	192	<u>241</u>	<u>696</u>	243	693	241	696
737.gmsh_r	192	157	562	158	558	<u>157</u>	<u>561</u>	192	157	562	158	558	<u>157</u>	<u>561</u>
748.flightdm_r	192	151	910	<u>151</u>	<u>910</u>	151	908	192	151	910	<u>151</u>	<u>910</u>	151	908
749.fotonik3d_r	192	992	224	<u>992</u>	<u>224</u>	994	223	192	992	224	<u>992</u>	<u>224</u>	994	223
765.roms_r	192	<u>623</u>	<u>486</u>	622	486	624	485	192	<u>623</u>	<u>486</u>	622	486	624	485
766.femflow_r	192	<u>184</u>	<u>1530</u>	185	1520	184	1530	192	<u>184</u>	<u>1530</u>	185	1520	184	1530
767.nest_r	192	<u>193</u>	<u>788</u>	193	787	193	789	192	<u>193</u>	<u>788</u>	193	787	193	789
772.marian_r	192	200	1520	<u>200</u>	<u>1510</u>	200	1510	192	200	1520	<u>200</u>	<u>1510</u>	200	1510
782.lbm_r	192	<u>397</u>	<u>277</u>	397	277	395	279	192	<u>397</u>	<u>277</u>	397	277	395	279

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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.

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### Operating System Notes (Continued)

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/cpu2026-0.902.0-amd_aocc510_znver5_A1/amd_rate_aocc510_znver5_A_1
  ib/lib:/home/cpu2026-0.902.0-amd_aocc510_znver5_A1/amd_rate_aocc510_znve
  r5_A_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:

Choose Operating Mode set to Maximum Performance and then set it to Custom Mode

NUMA Nodes per Socket set to NPS4

L2 Stream HW Prefetcher set to Disabled

SMT Mode set to Disabled

sysinfo program /home/cpu2026-0.902.0-amd\_aocc510\_znver5\_A1/bin/sysinfo

Rev: 069f95da7e7f5d81b2ce48a82150e54f

running on localhost Wed Feb 4 17:18:27 2026

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

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

1. uname -srvm
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu

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### Platform Notes (Continued)

- 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 -srvm
Linux 6.4.0-150700.51-default #1 SMP PREEMPT_DYNAMIC Wed Apr 30 21:35:43 UTC 2025 (6930611) x86_64
-----
```

```
2. w
17:18:27 up 4 min, 1 user, load average: 0.50, 0.52, 0.26
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
-----
```

```
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) 3094535
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) 3094535
-----
```

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### Platform Notes (Continued)

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

```

-----
5. sysinfo process ancestry
/usr/lib/systemd/systemd --switched-root --system --deserialize=42
sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
sshd: root [priv]
sshd: root@notty
/bin/bash ./02.remote_local_SPECCpu_1.02.sh
/bin/bash ./Run023-compliant-amd-ratefp_base.sh
python3 ./run_amd_rate_aocc510_znver5_A1.py
/bin/bash ./amd_rate_aocc510_znver5_A1.sh
runcpu --config amd_rate_aocc510_znver5_A1.cfg --tune base --reportable --iterations 3 fprate
runcpu --configfile amd_rate_aocc510_znver5_A1.cfg --tune base --reportable --iterations 3 --nopower
--runmode rate --tune base --size test:train:refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2026.032/templogs/preenv.fprate.032.0.log --lognum 032.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2026-0.902.0-amd_aocc510_znver5_A1

```

```

-----
6. /proc/cpuinfo
model name      : AMD EPYC 9684X 96-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 17
stepping       : 2
microcode      : 0xa101253
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srs0
TLB size      : 3584 4K pages
cpu cores      : 96
siblings       : 96
2 physical ids (chips)
192 processors (hardware threads)
physical id 0: core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183
physical id 1: core ids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183
physical id 0: apicids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183
physical id 1: apicids
256-263,272-279,288-295,304-311,320-327,336-343,352-359,368-375,384-391,400-407,416-423,432-439
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:
Architecture:                x86_64

```

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### Platform Notes (Continued)

```

CPU op-mode(s):          32-bit, 64-bit
Address sizes:          52 bits physical, 57 bits virtual
Byte Order:             Little Endian
CPU(s):                 192
On-line CPU(s) list:   0-191
Vendor ID:              AuthenticAMD
Model name:             AMD EPYC 9684X 96-Core Processor
CPU family:             25
Model:                  17
Thread(s) per core:    1
Core(s) per socket:    96
Socket(s):              2
Stepping:               2
BogoMIPS:               5091.96
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 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 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_omsave_vmload vgif x2avic v_spec_ctrl vnmi avx512vbmi umip pku
                        ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                        avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_lld
                        debug_swap
Virtualization:         AMD-V
L1d cache:              6 MiB (192 instances)
L1i cache:              6 MiB (192 instances)
L2 cache:               192 MiB (192 instances)
L3 cache:               2.3 GiB (24 instances)
NUMA node(s):          8
NUMA node0 CPU(s):     0-23
NUMA node1 CPU(s):     24-47
NUMA node2 CPU(s):     48-71
NUMA node3 CPU(s):     72-95
NUMA node4 CPU(s):     96-119
NUMA node5 CPU(s):     120-143
NUMA node6 CPU(s):     144-167
NUMA node7 CPU(s):     168-191

```

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### Platform Notes (Continued)

Vulnerability Gather data sampling: Not affected  
 Vulnerability Itlb multihit: Not affected  
 Vulnerability Lltf: 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; Safe RET  
 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 disabled; 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	32K	6M	8	Data	1	64	1	64
L1i	32K	6M	8	Instruction	1	64	1	64
L2	1M	192M	8	Unified	2	2048	1	64
L3	96M	2.3G	16	Unified	3	98304	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: 0-23
node 0 size: 96418 MB
node 0 free: 95975 MB
node 1 cpus: 24-47
node 1 size: 96761 MB
node 1 free: 96444 MB
node 2 cpus: 48-71
node 2 size: 96761 MB
node 2 free: 96427 MB
node 3 cpus: 72-95
node 3 size: 96761 MB
node 3 free: 96390 MB
node 4 cpus: 96-119
node 4 size: 96761 MB
node 4 free: 96387 MB
node 5 cpus: 120-143
node 5 size: 96761 MB
node 5 free: 96426 MB
node 6 cpus: 144-167
node 6 size: 96761 MB

```

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### Platform Notes (Continued)

```

node 6 free: 96420 MB
node 7 cpus: 168-191
node 7 size: 96674 MB
node 7 free: 96307 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:          792229016 kB

```

```

-----
10. who -r
    run-level 3 Feb 4 17:15

```

```

-----
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 getty@ irqbalance issue-generator
                        kbdsettings klog lvm2-monitor nscd nvme-fc-boot-connections nvme-autoconnect postfix
                        purge-kernels rollback rsyslog smartd sshd systemd-pstore tuned wicked wickedd-auto4
                        wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
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
                        firewalld 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 systemd-boot-check-no-failures
                        systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
                        systemd-timesyncd
generated              ntp_sync
indirect               systemd-userdbd wickedd

```

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### Platform Notes (Continued)

13. Linux kernel boot-time arguments, from /proc/cmdline  
 BOOT\_IMAGE=/boot/vmlinuz-6.4.0-150700.51-default  
 root=UUID=548b98ec-c242-4959-8c74-ed91816d4845  
 splash=silent  
 mitigations=auto  
 quiet  
 security=apparmor

14. cpupower frequency-info  
 analyzing CPU 114:  
 Unable to determine current policy  
 boost state support:  
 Supported: yes  
 Active: yes

15. tuned-adm active  
 Current active profile: balanced

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

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### Platform Notes (Continued)

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/cpu2026-0.902.0-amd_aocc510_znver5_A1
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0nlp3 xfs 893G 117G 777G 14% /

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor: Lenovo
Product: ThinkSystem SR665 V3 MB,Genoa,Kauai,DDR5,Kauai,2U
Product Family: ThinkSystem
Serial: 1234567890

```

```

-----
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:
 6x Samsung M321R4GA3BB0-CQKDG 32 GB 2 rank 4800
 8x Samsung M321R4GA3BB0-CQKEG 32 GB 2 rank 4800
 2x Samsung M321R4GA3BB0-CQKMG 32 GB 2 rank 4800
 8x Samsung M321R4GA3BB0-CQKVG 32 GB 2 rank 4800

```

```

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: Lenovo

```

(Continued on next page)



# SPEC CPU®2026 Floating Point Rate Result

Copyright 2026 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(2.55 GHz, AMD EPYC 9684X)

SPECrate®2026\_fp\_base = 707

SPECrate®2026\_fp\_peak = 707

**CPU2026 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Feb-2026  
**Hardware Availability:** Dec-2023  
**Software Availability:** Jan-2026

### Platform Notes (Continued)

BIOS Version: KAE141G-5.81  
BIOS Date: 01/21/2026  
BIOS Revision: 5.81  
Firmware Revision: 56.20

### Compiler Version Notes

=====  
C | 782.lbm\_r(base)  
-----

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++ | 731.astcenc\_r(base) 736.ocio\_r(base) 748.flightdm\_r(base)  
766.femflow\_r(base) 767.nest\_r(base) 772.marian\_r(base)

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 | 709.cactus\_r(base) 737.gmsh\_r(base)  
-----

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  
-----

=====  
Fortran | 722.palm\_r(base) 749.fotonik3d\_r(base) 765.roms\_r(base)  
-----

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++

Fortran benchmarks:

flang

Benchmarks using both C and C++:

clang++ clang

## Base Portability Flags

709.cactus\_r: -DSPEC\_LP64

722.palm\_r: -DSPEC\_LP64

731.ascenc\_r: -DSPEC\_LP64

736.ocio\_r: -fno-finite-math-only -DSPEC\_LP64

737.gmsh\_r: -fno-fast-math -DSPEC\_LP64

748.flightdm\_r: -fno-reciprocal-math -DSPEC\_LP64

749.fotonik3d\_r: -DSPEC\_LP64

765.roms\_r: -DSPEC\_LP64

766.femflow\_r: -DSPEC\_LP64

767.nest\_r: -fno-finite-math-only -DSPEC\_LP64

772.marian\_r: -DSPEC\_LP64

782.lbm\_r: -DSPEC\_LP64

## 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

-ffast-math -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

C++ benchmarks:

-m64 -std=c++17 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

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

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Test Date: Feb-2026

Hardware Availability: Dec-2023

Software Availability: Jan-2026

## Base Optimization Flags (Continued)

C++ benchmarks (continued):

```
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-ffast-math -O3 -march=znver5 -fveclib=AMDLIBM -flto
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc
-lflang
```

Fortran benchmarks:

```
-m64 -mstandard -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 -ffast-math -O3
-march=znver5 -fveclib=AMDLIBM -flto -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc
-lflang
```

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
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-extra-inliner
-ffast-math -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 -lamdlibm -lamdalloc -lflang
```

## Peak Optimization Flags

C benchmarks:

782.lbm\_r: basepeak = yes

C++ benchmarks:

731.astcenc\_r: basepeak = yes

736.ocio\_r: basepeak = yes

748.flightdm\_r: basepeak = yes

766.femflow\_r: basepeak = yes

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Test Date: Feb-2026

Hardware Availability: Dec-2023

Software Availability: Jan-2026

## Peak Optimization Flags (Continued)

767.nest\_r: basepeak = yes

772.marian\_r: basepeak = yes

Fortran benchmarks:

722.palm\_r: basepeak = yes

749.fotonik3d\_r: basepeak = yes

765.roms\_r: basepeak = yes

Benchmarks using both C and C++:

709.cactus\_r: basepeak = yes

737.gmsh\_r: basepeak = yes

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

<http://www.spec.org/cpu2026/results/flags/Lenovo-Platform-SPECcpu-Flags-V1.2-Turin-M.html>  
<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.html>

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

<http://www.spec.org/cpu2026/results/flags/Lenovo-Platform-SPECcpu-Flags-V1.2-Turin-M.xml>  
<http://www.spec.org/cpu2026/results/flags/aocc-flags.2026-05-04.xml>

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