



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

CPU2017 License: 9017

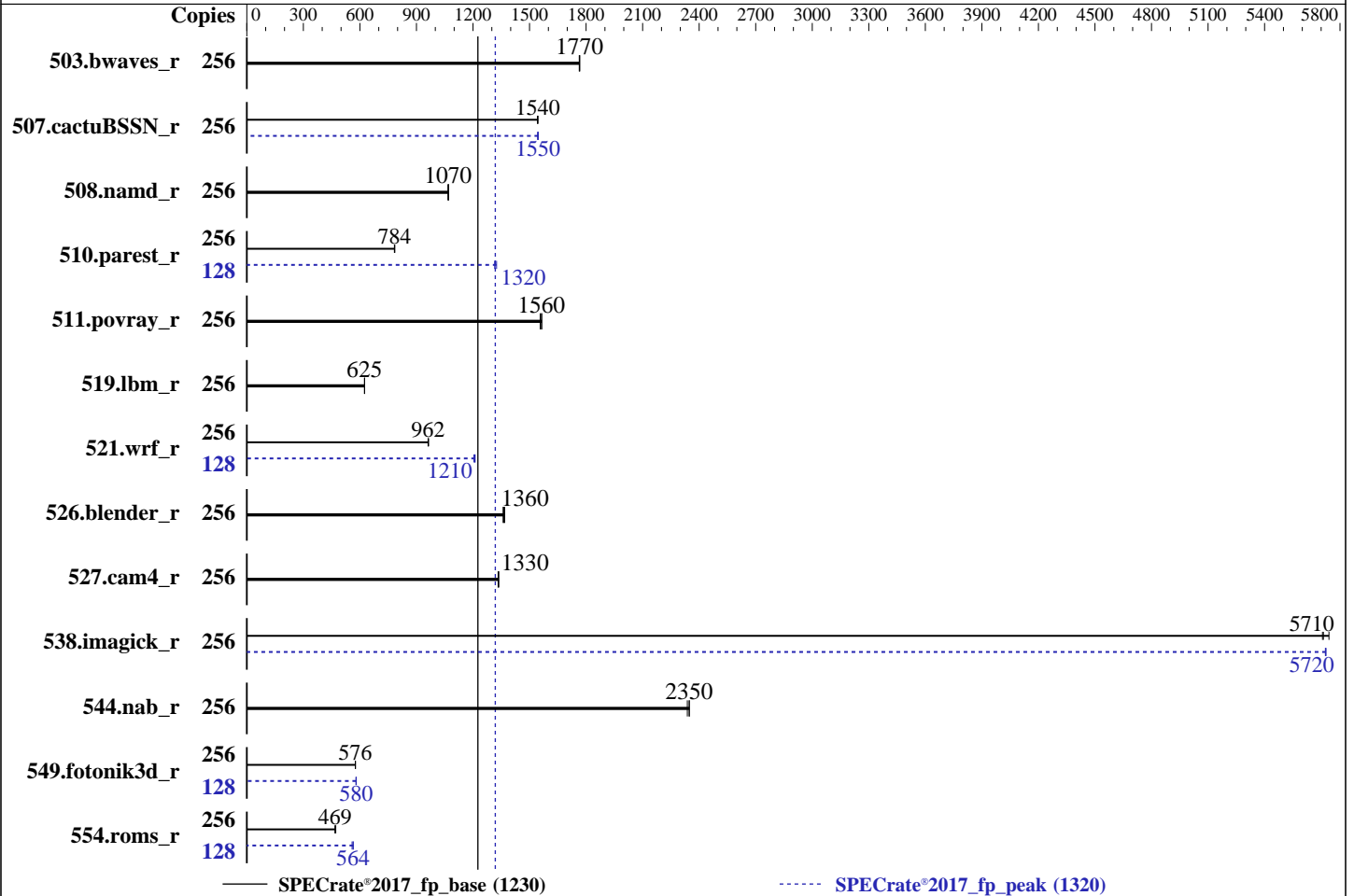
Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9554  
 Max MHz: 3750  
 Nominal: 3100  
 Enabled: 128 cores, 2 chips, 2 threads/core  
 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: 256 MB I+D on chip per chip,  
 32 MB shared / 8 cores  
 Other: None  
 Memory: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-R)  
 Storage: 1 x 480 GB SATA SSD  
 Other: None

### Software

OS: Ubuntu 22.04.1 LTS  
 Kernel 5.15.0-52-generic  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: No  
 Firmware: Lenovo BIOS Version KAE105F 1.20 released Dec-2022  
 File System: ext4  
 System State: Run level 5 (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



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	256	1454	1770	<b><u>1454</u></b>	<b><u>1770</u></b>	1456	1760	256	1454	1770	<b><u>1454</u></b>	<b><u>1770</u></b>	1456	1760
507.cactuBSSN_r	256	210	1540	<b><u>210</u></b>	<b><u>1540</u></b>	210	1540	256	<b><u>210</u></b>	<b><u>1550</u></b>	210	1540	210	1550
508.namd_r	256	<b><u>227</u></b>	<b><u>1070</u></b>	227	1070	228	1070	256	<b><u>227</u></b>	<b><u>1070</u></b>	227	1070	228	1070
510.parest_r	256	853	785	855	783	<b><u>854</u></b>	<b><u>784</u></b>	128	<b><u>254</u></b>	<b><u>1320</u></b>	255	1320	253	1330
511.povray_r	256	<b><u>382</u></b>	<b><u>1560</u></b>	384	1560	382	1560	256	<b><u>382</u></b>	<b><u>1560</u></b>	384	1560	382	1560
519.lbm_r	256	<b><u>432</u></b>	<b><u>625</u></b>	432	625	432	624	256	<b><u>432</u></b>	<b><u>625</u></b>	432	625	432	624
521.wrf_r	256	595	965	<b><u>596</u></b>	<b><u>962</u></b>	596	962	128	<b><u>237</u></b>	<b><u>1210</u></b>	238	1200	237	1210
526.blender_r	256	287	1360	<b><u>286</u></b>	<b><u>1360</u></b>	285	1370	256	287	1360	<b><u>286</u></b>	<b><u>1360</u></b>	285	1370
527.cam4_r	256	335	1340	336	1330	<b><u>335</u></b>	<b><u>1330</u></b>	256	335	1340	336	1330	<b><u>335</u></b>	<b><u>1330</u></b>
538.imagick_r	256	111	5740	112	5710	<b><u>111</u></b>	<b><u>5710</u></b>	256	111	5730	<b><u>111</u></b>	<b><u>5720</u></b>	111	5720
544.nab_r	256	<b><u>184</u></b>	<b><u>2350</u></b>	184	2340	184	2350	256	<b><u>184</u></b>	<b><u>2350</u></b>	184	2340	184	2350
549.fotonik3d_r	256	1733	576	1731	576	<b><u>1732</u></b>	<b><u>576</u></b>	128	861	580	<b><u>860</u></b>	<b><u>580</u></b>	860	580
554.roms_r	256	862	472	<b><u>868</u></b>	<b><u>469</u></b>	868	468	128	360	565	364	558	<b><u>361</u></b>	<b><u>564</u></b>

SPECrate®2017\_fp\_base = **1230**

SPECrate®2017\_fp\_peak = **1320**

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.

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECrate®2017\_fp\_base = 1230

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Date:** Dec-2022

**Test Sponsor:** Lenovo Global Technology

**Hardware Availability:** Feb-2023

**Tested by:** Lenovo Global Technology

**Software Availability:** Nov-2022

### Operating System Notes (Continued)

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/cpu2017-1.1.8-amd-aocc400-genoa-Blb/amd\_rate\_aocc400\_genoa\_B\_lib/  
lib:/home/cpu2017-1.1.8-amd-aocc400-genoa-Blb/amd\_rate\_aocc400\_genoa\_B\_l  
ib/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:  
Operating Mode set to Maximum Performance and then set it to Custom Mode  
NUMA Nodes per Socket set to NPS4

Sysinfo program /home/cpu2017-1.1.8-amd-aocc400-genoa-Blb/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on perf Tue Dec 27 09:29:07 2022

SUT (System Under Test) info as seen by some common utilities.  
For more information on this section, see  
<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECrate®2017\_fp\_base = 1230

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_peak = 1320

CPU2017 License: 9017

Test Date: Dec-2022

Test Sponsor: Lenovo Global Technology

Hardware Availability: Feb-2023

Tested by: Lenovo Global Technology

Software Availability: Nov-2022

### Platform Notes (Continued)

From /proc/cpuinfo

model name : AMD EPYC 9554 64-Core Processor

2 "physical id"s (chips)

256 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 64

siblings : 128

physical 0: cores 0 1 2 3 4 5 6 7 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25  
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53  
54 55 56 57 58 59 60 61 62 63

physical 1: cores 0 1 2 3 4 5 6 7 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25  
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53  
54 55 56 57 58 59 60 61 62 63

From lscpu from util-linux 2.37.2:

Architecture: x86\_64  
CPU op-mode(s): 32-bit, 64-bit  
Address sizes: 52 bits physical, 57 bits virtual  
Byte Order: Little Endian  
CPU(s): 256  
On-line CPU(s) list: 0-255  
Vendor ID: AuthenticAMD  
Model name: AMD EPYC 9554 64-Core Processor  
CPU family: 25  
Model: 17  
Thread(s) per core: 2  
Core(s) per socket: 64  
Socket(s): 2  
Stepping: 1  
Frequency boost: enabled  
CPU max MHz: 3764.0000  
CPU min MHz: 400.0000  
BogoMIPS: 6190.27

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 nopl nonstop\_tsc cpuid extd\_apicid  
aperfmpperf 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 invpcid\_single hw\_pstate ssbd mba ibrs  
ibpb stibp 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 avx512\_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd\_ppin cppc arat  
npt lbrv svm\_lock nrip\_save tsc\_scale vmcb\_clean flushbyasid decodeassists  
pausefilter pfthreshold avic v\_vmsave\_vmload vgif v\_spec\_ctrl avx512vbmi umip pku

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECrate®2017\_fp\_base = 1230

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_peak = 1320

CPU2017 License: 9017

Test Date: Dec-2022

Test Sponsor: Lenovo Global Technology

Hardware Availability: Feb-2023

Tested by: Lenovo Global Technology

Software Availability: Nov-2022

### Platform Notes (Continued)

```

ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg avx512_vpopcntdq
la57 rdpid overflow_recov succor smca fsrm flush_lld
Virtualization: AMD-V
L1d cache: 4 MiB (128 instances)
L1i cache: 4 MiB (128 instances)
L2 cache: 128 MiB (128 instances)
L3 cache: 512 MiB (16 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-15,128-143
NUMA node1 CPU(s): 16-31,144-159
NUMA node2 CPU(s): 32-47,160-175
NUMA node3 CPU(s): 48-63,176-191
NUMA node4 CPU(s): 64-79,192-207
NUMA node5 CPU(s): 80-95,208-223
NUMA node6 CPU(s): 96-111,224-239
NUMA node7 CPU(s): 112-127,240-255
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via
prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swaggs barriers and __user
pointer sanitization
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW,
STIBP always-on, RSB filling, PBRSE-eIBRS 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	4M	8	Data	1	64	1	64
L1i	32K	4M	8	Instruction	1	64	1	64
L2	1M	128M	8	Unified	2	2048	1	64
L3	32M	512M	16	Unified	3	32768	1	64

/proc/cpuinfo cache data

cache size : 1024 KB

From numactl --hardware

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

available: 8 nodes (0-7)

node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 128 129 130 131 132 133 134 135 136  
137 138 139 140 141 142 143

node 0 size: 96378 MB

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2022

Hardware Availability: Feb-2023

Software Availability: Nov-2022

### Platform Notes (Continued)

```

node 0 free: 95091 MB
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 144 145 146 147 148 149
150 151 152 153 154 155 156 157 158 159
node 1 size: 96752 MB
node 1 free: 96012 MB
node 2 cpus: 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 160 161 162 163 164 165
166 167 168 169 170 171 172 173 174 175
node 2 size: 96752 MB
node 2 free: 96035 MB
node 3 cpus: 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 176 177 178 179 180 181
182 183 184 185 186 187 188 189 190 191
node 3 size: 96752 MB
node 3 free: 96029 MB
node 4 cpus: 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 192 193 194 195 196 197
198 199 200 201 202 203 204 205 206 207
node 4 size: 96752 MB
node 4 free: 96122 MB
node 5 cpus: 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 208 209 210 211 212 213
214 215 216 217 218 219 220 221 222 223
node 5 size: 96717 MB
node 5 free: 96061 MB
node 6 cpus: 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 224 225 226
227 228 229 230 231 232 233 234 235 236 237 238 239
node 6 size: 96752 MB
node 6 free: 96129 MB
node 7 cpus: 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 240 241
242 243 244 245 246 247 248 249 250 251 252 253 254 255
node 7 size: 96689 MB
node 7 free: 96023 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

```

```

From /proc/meminfo
MemTotal: 792114512 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

```

```

/sys/devices/system/cpu/cpu*/cpufreq/scaling_governor has
performance

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

### Platform Notes (Continued)

```
/usr/bin/lsb_release -d
Ubuntu 22.04.1 LTS
```

```
From /etc/*release* /etc/*version*
debian_version: bookworm/sid
os-release:
PRETTY_NAME="Ubuntu 22.04.1 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.1 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
```

```
uname -a:
Linux perf 5.15.0-52-generic #58-Ubuntu SMP Thu Oct 13 08:03:55 UTC 2022 x86_64 x86_64
x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):	Not affected
CVE-2018-3620 (L1 Terminal Fault):	Not affected
Microarchitectural Data Sampling:	Not affected
CVE-2017-5754 (Meltdown):	Not affected
mmio_stale_data:	Not affected
retbleed:	Not affected
CVE-2018-3639 (Speculative Store Bypass):	Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1):	Mitigation: usercopy/swaps barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):	Mitigation: Retpolines, IBPB: conditional, IBRS_FW, STIBP: always-on, RSB filling, PBRSE-eIBRS: Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

```
run-level 5 Dec 27 09:27
```

```
SPEC is set to: /home/cpu2017-1.1.8-amd-aocc400-genoa-B1b
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/md125p2    ext4  437G   20G  395G   5% /
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

### Platform Notes (Continued)

From /sys/devices/virtual/dmi/id

Vendor: Lenovo  
Product: ThinkSystem SR665 V3 MB,Genoa,Kauai,DDR5,Kauai,2U  
Product Family: ThinkSystem  
Serial: 1234567890

Additional information from dmidecode 3.3 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:

5x SK Hynix HMC88AE115N 32 GB 2 rank 4800  
19x SK Hynix HMC88AE168N 32 GB 2 rank 4800

BIOS:

BIOS Vendor: Lenovo  
BIOS Version: KAE105F-1.20  
BIOS Date: 12/01/2022  
BIOS Revision: 1.20  
Firmware Revision: 1.20

(End of data from sysinfo program)

### Compiler Version Notes

=====  
C | 519.lbm\_r(base, peak) 538.imagick\_r(base, peak)  
| 544.nab\_r(base, peak)  
=====

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin  
=====

=====  
C++ | 508.namd\_r(base, peak) 510.parest\_r(base, peak)  
=====

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin  
=====

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECrate®2017\_fp\_base = 1230

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017  
**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022  
**Hardware Availability:** Feb-2023  
**Software Availability:** Nov-2022

### Compiler Version Notes (Continued)

=====  
C++, C | 511.povray\_r(base, peak) 526.blender\_r(base, peak)  
-----

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin  
-----

=====  
C++, C, Fortran | 507.cactuBSSN\_r(base, peak)  
-----

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin  
-----

=====  
Fortran | 503.bwaves\_r(base, peak) 549.fotonik3d\_r(base, peak)  
554.roms\_r(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin  
-----

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

SPECrate®2017\_fp\_base = 1230

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Date:** Dec-2022

**Test Sponsor:** Lenovo Global Technology

**Hardware Availability:** Feb-2023

**Tested by:** Lenovo Global Technology

**Software Availability:** Nov-2022

### Compiler Version Notes (Continued)

Fortran, C | 521.wrf\_r(base, peak) 527.cam4\_r(base, peak)

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

AMD clang version 14.0.6 (CLANG: AOCC\_4.0.0-Build#389 2022\_10\_07) (based on LLVM Mirror.Version.14.0.6)

Target: x86\_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin

### Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using both C and C++:

clang++ clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

### Base Portability Flags

503.bwaves\_r: -DSPEC\_LP64

507.cactuBSSN\_r: -DSPEC\_LP64

508.namd\_r: -DSPEC\_LP64

510.parest\_r: -DSPEC\_LP64

511.povray\_r: -DSPEC\_LP64

519.lbm\_r: -DSPEC\_LP64

521.wrf\_r: -DSPEC\_CASE\_FLAG -Mbyteswapio -DSPEC\_LP64

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

## Base Portability Flags (Continued)

```
526.blender_r: -funsigned-char -DSPEC_LP64
527.cam4_r: -DSPEC_CASE_FLAG -DSPEC_LP64
538.imagick_r: -DSPEC_LP64
544.nab_r: -DSPEC_LP64
549.fotonik3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64
```

## Base Optimization Flags

### C benchmarks:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather -O3
-march=znver4 -fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-zopt -lamdlibm -lamdalloc -lflang
```

### C++ benchmarks:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -mllvm -unroll-threshold=100
-finline-aggressive -mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc
-lflang
```

### Fortran benchmarks:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -Kieee -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc
-lflang
```

### Benchmarks using both Fortran and C:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-zopt -Kieee -Mrecursive -funroll-loops -mllvm -lsr-in-nested-loop
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc -lflang

Benchmarks using both C and C++:

-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4  
-fveclib=AMDLIBM -ffast-math -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 -finline-aggressive  
-mllvm -loop-unswitch-threshold=200000 -lamdlibm -lamdalloc -lflang

Benchmarks using Fortran, C, and C++:

-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3  
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4  
-fveclib=AMDLIBM -ffast-math -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 -finline-aggressive  
-mllvm -loop-unswitch-threshold=200000 -Kieee -Mrecursive  
-funroll-loops -mllvm -lsr-in-nested-loop  
-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc -lflang

## Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument

Benchmarks using both C and C++:

-Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-Wno-unused-command-line-argument



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

## Peak Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using both C and C++:

clang++ clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

519.lbm\_r: basepeak = yes

538.imagick\_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver4 -fveclib=AMDLIBM -ffast-math  
-fstruct-layout=7 -mllvm -unroll-threshold=50  
-fremap-arrays -fstrip-mining  
-mllvm -inline-threshold=1000  
-mllvm -reduce-array-computations=3 -zopt -lamdlibm  
-lamdalloc

544.nab\_r: basepeak = yes

C++ benchmarks:

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

## Peak Optimization Flags (Continued)

508.namd\_r: basepeak = yes

```
510.parest_r: -m64 -flto -Wl,-mllvm -Wl,-suppress-fmas
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math
-finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -zopt -lamdlibm
-lamdalloc
```

Fortran benchmarks:

503.bwaves\_r: basepeak = yes

```
549.fotonik3d_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -Kieee
-Mrecursive -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -fvector-transform
-fscalar-transform -lamdlibm -lamdalloc -lflang
```

```
554.roms_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -Mrecursive
-mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm
-lamdalloc -lflang
```

Benchmarks using both Fortran and C:

```
521.wrf_r: -m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -zopt -Mrecursive
-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc
-lflang
```

527.cam4\_r: basepeak = yes

Benchmarks using both C and C++:

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Lenovo Global Technology**

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

## Peak Optimization Flags (Continued)

511.povray\_r: basepeak = yes

526.blender\_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

```
-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3 -zopt
-mllvm -unroll-threshold=100 -mllvm -loop-unswitch-threshold=200000
-finline-aggressive -faggressive-loop-transform -fvector-transform
-fscalar-transform -Mrecursive -fepilog-vectorization-of-inductions
-lamdlIBM -lamdalloc -lflang
```

## Peak Other Flags

C benchmarks:

-Wno-unused-command-line-argument

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument

Benchmarks using both C and C++:

-Wno-unused-command-line-argument

Benchmarks using Fortran, C, and C++:

-Wno-unused-command-line-argument

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

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-0.html>

<http://www.spec.org/cpu2017/flags/aocc400-flags.html>

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

<http://www.spec.org/cpu2017/flags/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Genoa-0.xml>

<http://www.spec.org/cpu2017/flags/aocc400-flags.xml>



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Lenovo Global Technology

ThinkSystem SR665 V3  
(3.10 GHz,AMD EPYC 9554)

SPECrate®2017\_fp\_base = 1230

SPECrate®2017\_fp\_peak = 1320

**CPU2017 License:** 9017

**Test Sponsor:** Lenovo Global Technology

**Tested by:** Lenovo Global Technology

**Test Date:** Dec-2022

**Hardware Availability:** Feb-2023

**Software Availability:** Nov-2022

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.8 on 2022-12-27 04:29:07-0500.

Report generated on 2023-01-17 18:47:09 by CPU2017 PDF formatter v6442.

Originally published on 2023-01-17.