SPEC CPU®2017 Floating Point Rate Result

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

$SPECrate®2017\_fp\_base = 1380$
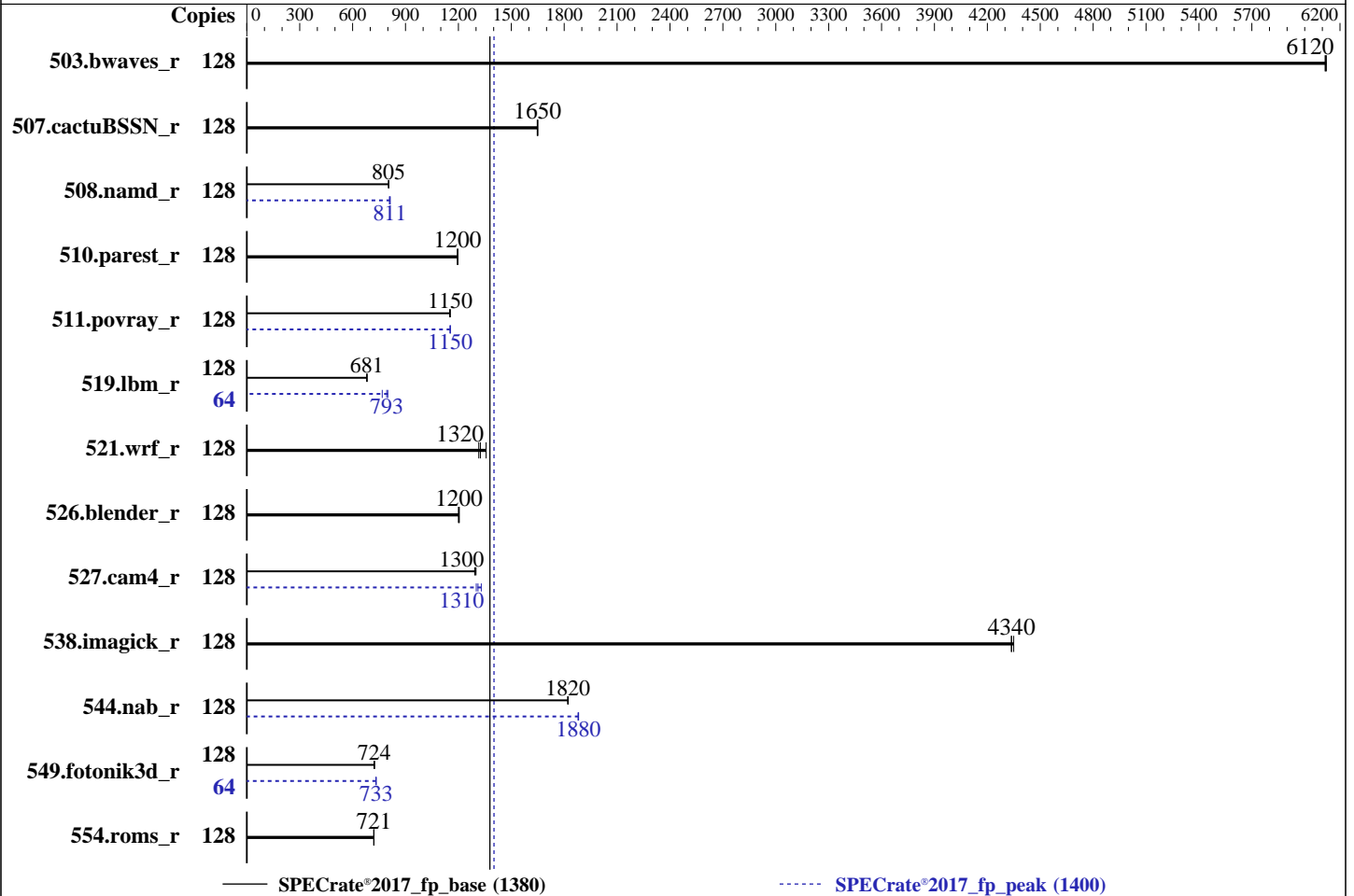
$SPECrate®2017\_fp\_peak = 1400$

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Benchmark	Copies	Base	Peak
503.bwaves_r	128	6120	
507.cactuBSSN_r	128	1650	
508.namd_r	128	805	811
510.parest_r	128	1200	
511.povray_r	128	1150	1150
519.lbm_r	128 / 64	681	793
521.wrf_r	128	1320	
526.blender_r	128	1200	
527.cam4_r	128	1300	1310
538.imagick_r	128	4340	
544.nab_r	128	1820	1880
549.fotonik3d_r	128 / 64	724	733
554.roms_r	128	721	

───── **SPECrate®2017_fp_base (1380)**   ∙∙∙∙∙ **SPECrate®2017_fp_peak (1400)**

Hardware

CPU Name: AMD EPYC 9375F
 Max MHz: 4800
 Nominal: 3800
Enabled: 64 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 / 4 cores
 Other: None
Memory: 768 GB (24 x 32 GB 2Rx8 PC5-6400B-R, running at 6000)
Storage: 1 x 1.92 TB M.2 NVME SSD
Other: CPU Cooling: Air

Software

OS: SUSE Linux Enterprise Server 15 SP6
 Kernel 6.4.0-150600.21-default
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: No
Firmware: Lenovo BIOS Version QGE133I 7.20 released Feb-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

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

Results Table

Benchmark	Base						Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	128	**210**	**6120**	210	6120	210	6120	128	**210**	**6120**	210	6120	210	6120
507.cactuBSSN_r	128	98.2	1650	98.4	1650	**98.2**	**1650**	128	98.2	1650	98.4	1650	**98.2**	**1650**
508.namd_r	128	151	805	**151**	**805**	151	803	128	150	809	**150**	**811**	149	813
510.parest_r	128	280	1190	**280**	**1200**	280	1200	128	280	1190	**280**	**1200**	280	1200
511.povray_r	128	**259**	**1150**	259	1150	260	1150	128	259	1150	259	1150	**259**	**1150**
519.lbm_r	128	198	682	**198**	**681**	198	681	64	84.4	800	87.8	768	**85.0**	**793**
521.wrf_r	128	211	1360	**216**	**1320**	218	1320	128	211	1360	**216**	**1320**	218	1320
526.blender_r	128	162	1200	162	1200	**162**	**1200**	128	162	1200	162	1200	**162**	**1200**
527.cam4_r	128	**173**	**1300**	173	1290	172	1300	128	168	1330	172	1300	**171**	**1310**
538.imagick_r	128	**73.4**	**4340**	73.2	4350	73.4	4340	128	**73.4**	**4340**	73.2	4350	73.4	4340
544.nab_r	128	118	1820	**118**	**1820**	118	1820	128	114	1880	**115**	**1880**	115	1880
549.fotonik3d_r	128	689	724	691	722	**689**	**724**	64	**340**	**733**	341	732	340	733
554.roms_r	128	**282**	**721**	282	721	283	719	128	**282**	**721**	282	721	283	719
SPECrate®2017_fp_base =			1380											
SPECrate®2017_fp_peak =			1400											

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.

cpupower set to performance mode
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Operating System Notes (Continued)

```
cpupower frequency-set -r -g performance
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/cpu2017-1.1.9-amd-aocc500_znver5_A1.2/amd_rate_aocc500_znver5_A_lib/lib:/home/cpu2017-1.1.9-amd
     -aocc500_znver5_A1.2/amd_rate_aocc500_znver5_A_lib/lib32:"
MALLOC_CONF = "retain:true"
```

General Notes

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

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5753 (Spectre variant 1)
is mitigated in the system as tested and documented.
Yes: The test sponsor attests, as of date of publication, that CVE-2017-5715 (Spectre variant 2)
is mitigated in the system as tested and documented.
```

Platform Notes

```
BIOS configuration:
Choose Operating Mode set to Maximum Performance and then set it to Custom Mode
P-State set to Enabled
NUMA Nodes per Socket set to NPS2
L1 Stride Prefetcher set to Disabled
ACPI SRAT L3 Cache as NUMA Domain set to Enabled

 Sysinfo program /home/cpu2017-1.1.9-amd-aocc500_znver5_A1.2/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Wed Feb 26 10:53:26 2025

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

 ------------------------------------------------------------
 Table of contents
 ------------------------------------------------------------
  1. uname -a
  2. w
  3. Username
  4. ulimit -a
  5. sysinfo process ancestry
  6. /proc/cpuinfo
  7. lscpu
  8. numactl --hardware
  9. /proc/meminfo
 10. who -r
 11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
 12. Services, from systemctl list-unit-files
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
    13. Linux kernel boot-time arguments, from /proc/cmdline
    14. cpupower frequency-info
    15. sysctl
    16. /sys/kernel/mm/transparent_hugepage
    17. /sys/kernel/mm/transparent_hugepage/khugepaged
    18. OS release
    19. Disk information
    20. /sys/devices/virtual/dmi/id
    21. dmidecode
    22. BIOS
    -----------------------------------------------------------


    -----------------------------------------------------------
    1. uname -a
      Linux localhost 6.4.0-150600.21-default #1 SMP PREEMPT_DYNAMIC Thu May 16 11:09:22 UTC 2024 (36c1e09)
      x86_64 x86_64 x86_64 GNU/Linux


    -----------------------------------------------------------
    2. w
       10:53:26 up 4 min,  1 user,  load average: 0.13, 0.44, 0.24
      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) 3094097
      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) 3094097
      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_1.01.sh
     /bin/bash ./Run026-compliant-amd-ratefp.sh
     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 fprate
     runcpu --configfile amd_rate_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
       --runmode rate --tune base:peak --size test:train:refrate fprate --nopreenv --note-preenv --logfile
       $SPEC/tmp/CPU2017.236/templogs/preenv.fprate.236.0.log --lognum 236.0 --from_runcpu 2
     specperl $SPEC/bin/sysinfo
```

(Continued on next page)

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
$SPEC = /home/cpu2017-1.1.9-amd-aocc500_znver5_A1.2

-------------------------------------------------------------
6. /proc/cpuinfo
   model name       : AMD EPYC 9375F 32-Core Processor
   vendor_id        : AuthenticAMD
   cpu family       : 26
   model            : 2
   stepping         : 1
   microcode        : 0xb00211a
   bugs             : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
   TLB size         : 192 4K pages
   cpu cores        : 32
   siblings         : 64
   2 physical ids (chips)
   128 processors (hardware threads)
   physical id 0: core ids 0-3,8-11,16-19,24-27,32-35,40-43,48-51,56-59
   physical id 1: core ids 0-3,8-11,16-19,24-27,32-35,40-43,48-51,56-59
   physical id 0: apicids 0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119
   physical id 1: apicids 128-135,144-151,160-167,176-183,192-199,208-215,224-231,240-247
 Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for
 virtualized systems.  Use the above data carefully.


-------------------------------------------------------------
7. lscpu

From lscpu from util-linux 2.39.3:
 Architecture:           x86_64
 CPU op-mode(s):         32-bit, 64-bit
 Address sizes:          52 bits physical, 57 bits virtual
 Byte Order:             Little Endian
 CPU(s):                 128
 On-line CPU(s) list:    0-127
 Vendor ID:              AuthenticAMD
 BIOS Vendor ID:         Advanced Micro Devices, Inc.
 Model name:             AMD EPYC 9375F 32-Core Processor
 BIOS Model name:        AMD EPYC 9375F 32-Core Processor          Unknown CPU @ 3.8GHz
 BIOS CPU family:        107
 CPU family:             26
 Model:                  2
 Thread(s) per core:     2
 Core(s) per socket:     32
 Socket(s):              2
 Stepping:               1
 Frequency boost:        enabled
 CPU(s) scaling MHz:     101%
 CPU max MHz:            3800.0000
 CPU min MHz:            1500.0000
 BogoMIPS:               7588.64
 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
```

(Continued on next page)

Page 5

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Lenovo Global Technology

SPECrate®2017_fp_base = 1380

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_peak = 1400

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Feb-2025

Hardware Availability: Mar-2025

Software Availability: Oct-2024

Platform Notes (Continued)

```
                            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 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
    Virtualization:         AMD-V
    L1d cache:              3 MiB (64 instances)
    L1i cache:              2 MiB (64 instances)
    L2 cache:               64 MiB (64 instances)
    L3 cache:               512 MiB (16 instances)
    NUMA node(s):           16
    NUMA node0 CPU(s):      0-3,64-67
    NUMA node1 CPU(s):      4-7,68-71
    NUMA node2 CPU(s):      8-11,72-75
    NUMA node3 CPU(s):      12-15,76-79
    NUMA node4 CPU(s):      16-19,80-83
    NUMA node5 CPU(s):      20-23,84-87
    NUMA node6 CPU(s):      24-27,88-91
    NUMA node7 CPU(s):      28-31,92-95
    NUMA node8 CPU(s):      32-35,96-99
    NUMA node9 CPU(s):      36-39,100-103
    NUMA node10 CPU(s):     40-43,104-107
    NUMA node11 CPU(s):     44-47,108-111
    NUMA node12 CPU(s):     48-51,112-115
    NUMA node13 CPU(s):     52-55,116-119
    NUMA node14 CPU(s):     56-59,120-123
    NUMA node15 CPU(s):     60-63,124-127
    Vulnerability Gather data sampling:  Not affected
    Vulnerability Itlb multihit:         Not affected
    Vulnerability L1tf:                  Not affected
    Vulnerability Mds:                   Not affected
    Vulnerability Meltdown:              Not affected
    Vulnerability Mmio stale data:       Not affected
    Vulnerability Reg file data sampling: Not affected
    Vulnerability Retbleed:              Not affected
    Vulnerability Spec rstack overflow:  Not affected
    Vulnerability Spec store bypass:     Mitigation; Speculative Store Bypass disabled via prctl
    Vulnerability Spectre v1:            Mitigation; usercopy/swapgs barriers and __user pointer sanitization
    Vulnerability Spectre v2:            Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
                                         always-on; RSB filling; PBRSB-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       3M   12 Data           1    64       1            64
      L1i      32K       2M    8 Instruction    1    64       1            64
      L2        1M      64M   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: 16 nodes (0-15)
    node 0 cpus: 0-3,64-67
    node 0 size: 47962 MB
```

(Continued on next page)

Lenovo Global Technology

SPECrate®2017_fp_base = 1380

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
        node 0 free: 47695 MB
        node 1 cpus: 4-7,68-71
        node 1 size: 48381 MB
        node 1 free: 48154 MB
        node 2 cpus: 8-11,72-75
        node 2 size: 48381 MB
        node 2 free: 48174 MB
        node 3 cpus: 12-15,76-79
        node 3 size: 48381 MB
        node 3 free: 48171 MB
        node 4 cpus: 16-19,80-83
        node 4 size: 48381 MB
        node 4 free: 48151 MB
        node 5 cpus: 20-23,84-87
        node 5 size: 48381 MB
        node 5 free: 48151 MB
        node 6 cpus: 24-27,88-91
        node 6 size: 48381 MB
        node 6 free: 48099 MB
        node 7 cpus: 28-31,92-95
        node 7 size: 48381 MB
        node 7 free: 48143 MB
        node 8 cpus: 32-35,96-99
        node 8 size: 48381 MB
        node 8 free: 48155 MB
        node 9 cpus: 36-39,100-103
        node 9 size: 48381 MB
        node 9 free: 48164 MB
        node 10 cpus: 40-43,104-107
        node 10 size: 48381 MB
        node 10 free: 48172 MB
        node 11 cpus: 44-47,108-111
        node 11 size: 48381 MB
        node 11 free: 47643 MB
        node 12 cpus: 48-51,112-115
        node 12 size: 48381 MB
        node 12 free: 48163 MB
        node 13 cpus: 52-55,116-119
        node 13 size: 48282 MB
        node 13 free: 48078 MB
        node 14 cpus: 56-59,120-123
        node 14 size: 48343 MB
        node 14 free: 48126 MB
        node 15 cpus: 60-63,124-127
        node 15 size: 48381 MB
        node 15 free: 48126 MB
        node distances:
        node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15
          0:  10  11  11  11  12  12  12  12  32  32  32  32  32  32  32  32
          1:  11  10  11  11  12  12  12  12  32  32  32  32  32  32  32  32
          2:  11  11  10  11  12  12  12  12  32  32  32  32  32  32  32  32
          3:  11  11  11  10  12  12  12  12  32  32  32  32  32  32  32  32
          4:  12  12  12  12  10  11  11  11  32  32  32  32  32  32  32  32
          5:  12  12  12  12  11  10  11  11  32  32  32  32  32  32  32  32
          6:  12  12  12  12  11  11  10  11  32  32  32  32  32  32  32  32
          7:  12  12  12  12  11  11  11  10  32  32  32  32  32  32  32  32
          8:  32  32  32  32  32  32  32  32  10  11  11  11  12  12  12  12
          9:  32  32  32  32  32  32  32  32  11  10  11  11  12  12  12  12
         10:  32  32  32  32  32  32  32  32  11  11  10  11  12  12  12  12
         11:  32  32  32  32  32  32  32  32  11  11  11  10  12  12  12  12
```

(Continued on next page)

Lenovo Global Technology

SPECrate®2017_fp_base = 1380

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
   12:  32  32  32  32  32  32  32  32  12  12  12  12  10  11  11  11
   13:  32  32  32  32  32  32  32  32  12  12  12  12  11  10  11  11
   14:  32  32  32  32  32  32  32  32  12  12  12  12  11  11  10  11
   15:  32  32  32  32  32  32  32  32  12  12  12  12  11  11  11  10


   --------------------------------------------------------------
9. /proc/meminfo
   MemTotal:       792116056 kB


   --------------------------------------------------------------
10. who -r
   run-level 3 Feb 26 10:49


   --------------------------------------------------------------
11. Systemd service manager version: systemd 254 (254.10+suse.84.ge8d77af424)
   Default Target  Status
   multi-user      running


   --------------------------------------------------------------
12. Services, from systemctl list-unit-files
   STATE           UNIT FILES
   enabled         YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron getty@ irqbalance issue-generator
                   kbdsettings klog lvm2-monitor nscd nvmefc-boot-connections nvmf-autoconnect postfix
                   purge-kernels rollback rsyslog sapconf smartd sshd sysctl-logger systemd-pstore 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 ebtables 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 sysstat systemd-boot-check-no-failures
                   systemd-confext systemd-network-generator systemd-sysext systemd-time-wait-sync
                   systemd-timesyncd
   generated       ntp_sync
   indirect        systemd-userdbd uuidd wickedd


   --------------------------------------------------------------
13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-6.4.0-150600.21-default
   root=UUID=240b751b-cc96-4bc0-bc79-208919660c0a
   splash=silent
   mitigations=auto
   quiet
   security=apparmor


   --------------------------------------------------------------
14. cpupower frequency-info
   analyzing CPU 99:
     current policy: frequency should be within 1.50 GHz and 3.80 GHz.
                     The governor "performance" may decide which speed to use
                     within this range.
     boost state support:
       Supported: yes
       Active: yes


   --------------------------------------------------------------
15. sysctl
   kernel.numa_balancing             1
   kernel.randomize_va_space         0
   vm.compaction_proactiveness       20
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Platform Notes (Continued)

```
   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


   ----------------------------------------------------------------
16. /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


   ----------------------------------------------------------------
17. /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


   ----------------------------------------------------------------
18. OS release
   From /etc/*-release /etc/*-version
   os-release SUSE Linux Enterprise Server 15 SP6


   ----------------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017-1.1.9-amd-aocc500_znver5_A1.2
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/nvme0n1p3 xfs   1.8T   93G  1.7T   6% /


   ----------------------------------------------------------------
20. /sys/devices/virtual/dmi/id
     Vendor:          Lenovo
     Product:         ThinkSystem SR675 V3 System Board
     Product Family: ThinkSystem
     Serial:          None


   ----------------------------------------------------------------
21. dmidecode
   Additional information from dmidecode 3.4 follows.  WARNING: Use caution when you interpret this section.
   The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
   determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
   "DMTF SMBIOS" standard.
   Memory:
     12x SK Hynix HMCG88AHBRA471N 32 GB 2 rank 6400, configured at 6000
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Feb-2025

Hardware Availability: Mar-2025

Software Availability: Oct-2024

Platform Notes (Continued)

```
      2x SK Hynix HMCG88AHBRA472N 32 GB 2 rank 6400, configured at 6000
      10x SK Hynix HMCG88AHBRA478N 32 GB 2 rank 6400, configured at 6000


     -----------------------------------------------------------
     22. BIOS
     (This section combines info from /sys/devices and dmidecode.)
        BIOS Vendor:      Lenovo
        BIOS Version:     QGE133I-7.20
        BIOS Date:        02/05/2025
        BIOS Revision:    7.20
        Firmware Revision: 9.10
```

Compiler Version Notes

```
==============================================================================================
C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak) 544.nab_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++             | 508.namd_r(base, peak) 510.parest_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++, C          | 511.povray_r(base, peak) 526.blender_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
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++, C, Fortran | 507.cactuBSSN_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
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
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Compiler Version Notes (Continued)

```
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin
--------------------------------------------------------------------------------------------

================================================================================
Fortran        | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_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, C     | 521.wrf_r(base, peak) 527.cam4_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
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
```

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
```

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

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

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

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Base Optimization Flags (Continued)

Fortran benchmarks (continued):
```
-lflang -ldl
```

Benchmarks using both Fortran and C:
```
-m64 -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 -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 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fepilog-vectorization-of-inductions
-lamdlibm -lamdalloc -lflang -ldl
```

Benchmarks using both C and C++:
```
-m64 -std=c++14 -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
-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 -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000 -lamdlibm -lamdalloc -lflang
-ldl
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c++14 -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
-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 -mllvm -unroll-threshold=100
-mllvm -loop-unswitch-threshold=200000 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fepilog-vectorization-of-inductions
-lamdlibm -lamdalloc -lflang -ldl
```

Base Other Flags

C benchmarks:
```
-Wno-unused-command-line-argument
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

Base Other Flags (Continued)

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
```

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
```

SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Feb-2025

Hardware Availability: Mar-2025

Software Availability: Oct-2024

Peak Optimization Flags

C benchmarks:

519.lbm_r: `-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast`
`-march=znver5 -fveclib=AMDLIBM -ffast-math -flto`
`-fstruct-layout=7 -mllvm -unroll-threshold=50`
`-fremap-arrays -fstrip-mining`
`-mllvm -inline-threshold=1000`
`-mllvm -reduce-array-computations=3 -zopt -lamdlibm`
`-lamdalloc -ldl`

538.imagick_r: `basepeak = yes`

544.nab_r: `-m64 -flto -Wl,-mllvm -Wl,-ldist-scalar-expand`
`-fenable-aggressive-gather -Ofast -march=znver5`
`-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 -ldl`

C++ benchmarks:

508.namd_r: `-m64 -std=c++14`
`-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3`
`-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Ofast`
`-march=znver5 -fveclib=AMDLIBM -ffast-math -flto`
`-mllvm -unroll-threshold=100`
`-mllvm -reduce-array-computations=3 -zopt -lamdlibm`
`-lamdalloc -ldl`

510.parest_r: `basepeak = yes`

Fortran benchmarks:

503.bwaves_r: `basepeak = yes`

549.fotonik3d_r: `-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast`
`-march=znver5 -fveclib=AMDLIBM -ffast-math -flto`
`-Mrecursive -mllvm -reduce-array-computations=3`
`-fepilog-vectorization-of-inductions -fvector-transform`
`-fscalar-transform -lamdlibm -lamdalloc -ldl -lflang`

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

https://www.spec.org/

Lenovo Global Technology

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_base = 1380

SPECrate®2017_fp_peak = 1400

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Feb-2025

Hardware Availability: Mar-2025

Software Availability: Oct-2024

Peak Optimization Flags (Continued)

554.roms_r: `basepeak = yes`

Benchmarks using both Fortran and C:

521.wrf_r: `basepeak = yes`

527.cam4_r: `-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6`
`-Wl,-mllvm -Wl,-reduce-array-computations=3`
`-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast`
`-march=znver5 -fveclib=AMDLIBM -ffast-math -flto`
`-fstruct-layout=7 -mllvm -unroll-threshold=50`
`-mllvm -inline-threshold=1000 -fremap-arrays`
`-mllvm -reduce-array-computations=3 -zopt -Mrecursive`
`-funroll-loops -mllvm -lsr-in-nested-loop`
`-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc`
`-ldl -lflang`

Benchmarks using both C and C++:

511.povray_r: `-m64 -std=c++14`
`-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 -Ofast -march=znver5`
`-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=7`
`-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000`
`-fremap-arrays -mllvm -reduce-array-computations=3 -zopt`
`-mllvm -unroll-threshold=100`
`-mllvm -loop-unswitch-threshold=200000 -lamdlibm`
`-lamdalloc -ldl`

526.blender_r: `basepeak = yes`

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: `basepeak = yes`

Peak Other Flags

C benchmarks:
`-Wno-unused-command-line-argument`

C++ benchmarks:
`-Wno-unused-command-line-argument`

(Continued on next page)

Lenovo Global Technology

SPECrate®2017_fp_base = 1380

ThinkSystem SR675 V3
(3.80 GHz, AMD EPYC 9375F)

SPECrate®2017_fp_peak = 1400

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

Test Date: Feb-2025
Hardware Availability: Mar-2025
Software Availability: Oct-2024

Peak Other Flags (Continued)

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-Turin-E.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/Lenovo-Platform-SPECcpu2017-Flags-V1.2-Turin-E.xml
http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.xml

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

Tested with SPEC CPU®2017 v1.1.9 on 2025-02-25 21:53:26-0500.
Report generated on 2025-03-26 10:36:07 by CPU2017 PDF formatter v6716.
Originally published on 2025-03-25.