SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Lenovo Global Technology

$SPECspeed®2017\_fp\_base = 367$

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

$SPECspeed®2017_fp_peak = $ Not Run

CPU2017 License: 9017　　　　　　　　　　　　　　　　**Test Date:** Dec-2023
Test Sponsor: Lenovo Global Technology　　　　　　**Hardware Availability:** Oct-2023
Tested by: Lenovo Global Technology　　　　　　　**Software Availability:** Dec-2023

Threads scale: 0 150 300 450 600 750 900 1050 1250 1450 1650 1850 2050 2250 2450 2650 2850 3050 3300

- **603.bwaves_s** 256 — 3240
- **607.cactuBSSN_s** 256 — 465
- **619.lbm_s** 256 — 445
- **621.wrf_s** 256 — 117
- **627.cam4_s** 256 — 115
- **628.pop2_s** 256 — 67.8
- **638.imagick_s** 256 — 597
- **644.nab_s** 256 — 1030
- **649.fotonik3d_s** 256 — 211
- **654.roms_s** 256 — 557

—— **SPECspeed®2017_fp_base (367)**

Hardware

CPU Name: Intel Xeon Platinum 8454H
 Max MHz: 3400
 Nominal: 2100
Enabled: 256 cores, 8 chips
Orderable: 8 chips
Cache L1: 32 KB I + 48 KB D on chip per core
 L2: 2 MB I+D on chip per core
 L3: 82.5 MB I+D on chip per chip
 Other: None
Memory: 4 TB (64 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 1 x 480 GB SATA SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 15 SP5
 Kernel 5.14.21-150500.53-default
Compiler: C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++
 Compiler for Linux;
 Fortran: Version 2023.2.3 of Intel Fortran
 Compiler for Linux;
Parallel: Yes
Firmware: Lenovo BIOS Version EBE104O-1.10 released
 Dec-2023;
 tested with pre-release version EBE103M-1.10
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc memory allocator V5.0.1
Power Management: BIOS and OS set to prefer performance at the cost
 of additional power usage

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base =   367

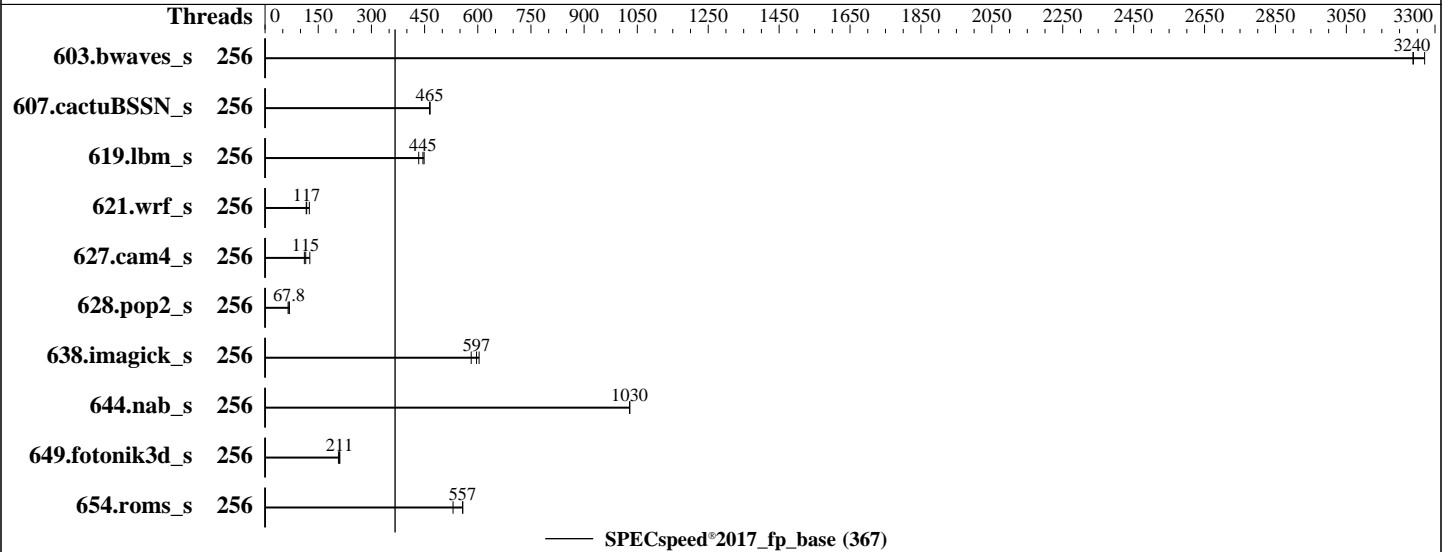SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	256	18.0	3270	18.2	3240	**18.2**	**3240**							
607.cactuBSSN_s	256	**35.9**	**465**	35.8	465	35.9	464							
619.lbm_s	256	11.7	449	12.1	433	**11.8**	**445**							
621.wrf_s	256	114	116	106	125	**113**	**117**							
627.cam4_s	256	70.2	126	**77.3**	**115**	80.0	111							
628.pop2_s	256	173	68.6	183	65.0	**175**	**67.8**							
638.imagick_s	256	24.8	581	23.9	604	**24.2**	**597**							
644.nab_s	256	17.0	1030	**17.0**	**1030**	17.0	1030							
649.fotonik3d_s	256	**43.3**	**211**	44.0	207	43.3	211							
654.roms_s	256	**28.3**	**557**	28.2	558	29.7	530							
SPECspeed®2017_fp_base =		**367**												
SPECspeed®2017_fp_peak =		**Not Run**												

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Operating System Notes

```
Stack size set to unlimited using "ulimit -s unlimited"
```

Environment Variables Notes

```
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2017-1.1.9-ic2023.2.3/lib/intel64:/home/cpu2017-1.1.9-ic2023.2.3/je5.0.1-64"
MALLOC_CONF = "retain:true"
OMP_STACKSIZE = "192M"
```

General Notes

```
 Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
 memory using Redhat Enterprise Linux 8.0
 Transparent Huge Pages enabled by default
 Prior to runcpu invocation
 Filesystem page cache synced and cleared with:
 sync; echo 3>        /proc/sys/vm/drop_caches
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.
 jemalloc, a general purpose malloc implementation
 built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
 sources available from jemalloc.net or https://github.com/jemalloc/jemalloc/releases
```

Platform Notes

```
BIOS configuration:
Choose Operating Mode set to Maximum Performance
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base =   367

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Platform Notes (Continued)

```
Hyper-Threading set to Disabled
Adjacent Cache Prefetch set to Disabled
AMP Prefetch set to Enable

 Sysinfo program /home/cpu2017-1.1.9-ic2023.2.3/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Thu Dec 21 19:09:20 2023

 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 249 (249.16+suse.171.gdad0071f15)
 12. Services, from systemctl list-unit-files
 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 5.14.21-150500.53-default #1 SMP PREEMPT_DYNAMIC Wed May 10 07:56:26 UTC 2023 (b630043)
   x86_64 x86_64 x86_64 GNU/Linux


 ------------------------------------------------------------
 2. w
    19:09:20 up  1:11,  1 user,  load average: 8.20, 116.23, 175.24
    USER     TTY       FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
    root     tty1      -                17:59    1:08m  1.13s  0.00s /bin/bash ./speccpu_rock.sh


 ------------------------------------------------------------
 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) 16512357
   max locked memory       (kbytes, -l) 64
```

(Continued on next page)

SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Lenovo Global Technology

SPECspeed®2017_fp_base =   367

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Platform Notes (Continued)

```
  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) 16512357
  virtual memory          (kbytes, -v) unlimited
  file locks                    (-x) unlimited

    -----------------------------------------------------------
5. sysinfo process ancestry
 /usr/lib/systemd/systemd --switched-root --system --deserialize 30
 login -- root
 -bash
 /bin/bash ./speccpu_rock.sh
 /bin/bash ./speccpu_rock.sh
 runcpu --nobuild --action validate --define default-platform-flags -c
   ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define cores=256 --tune base -o all --define drop_caches
   fpspeed
 runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2023.2.3-lin-core-avx512-speed-20231121.cfg --define cores=256 --tune base --output_format all --define
   drop_caches --nopower --runmode speed --tune base --size refspeed fpspeed --nopreenv --note-preenv
   --logfile $SPEC/tmp/CPU2017.226/templogs/preenv.fpspeed.226.0.log --lognum 226.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /home/cpu2017-1.1.9-ic2023.2.3

    -----------------------------------------------------------
6. /proc/cpuinfo
    model name        : Intel(R) Xeon(R) Platinum 8454H
    vendor_id         : GenuineIntel
    cpu family        : 6
    model             : 143
    stepping          : 8
    microcode         : 0x2b0004b1
    bugs              : spectre_v1 spectre_v2 spec_store_bypass swapgs eibrs_pbrsb
    cpu cores         : 32
    siblings          : 32
    8 physical ids (chips)
    256 processors (hardware threads)
    physical id 0: core ids 0-31
    physical id 1: core ids 0-31
    physical id 2: core ids 0-31
    physical id 3: core ids 0-31
    physical id 4: core ids 0-31
    physical id 5: core ids 0-31
    physical id 6: core ids 0-31
    physical id 7: core ids 0-31
    physical id 0: apicids
    0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58,60,62
    physical id 1: apicids
    128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166,168,170,172,174,176,178,1
    80,182,184,186,188,190
    physical id 2: apicids
    256,258,260,262,264,266,268,270,272,274,276,278,280,282,284,286,288,290,292,294,296,298,300,302,304,306,3
    08,310,312,314,316,318
    physical id 3: apicids
    384,386,388,390,392,394,396,398,400,402,404,406,408,410,412,414,416,418,420,422,424,426,428,430,432,434,4
    36,438,440,442,444,446
```

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base = 367

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Platform Notes (Continued)

```
    physical id 4: apicids
    512,514,516,518,520,522,524,526,528,530,532,534,536,538,540,542,544,546,548,550,552,554,556,558,560,562,5
    64,566,568,570,572,574
    physical id 5: apicids
    640,642,644,646,648,650,652,654,656,658,660,662,664,666,668,670,672,674,676,678,680,682,684,686,688,690,6
    92,694,696,698,700,702
    physical id 6: apicids
    768,770,772,774,776,778,780,782,784,786,788,790,792,794,796,798,800,802,804,806,808,810,812,814,816,818,8
    20,822,824,826,828,830
    physical id 7: apicids
    896,898,900,902,904,906,908,910,912,914,916,918,920,922,924,926,928,930,932,934,936,938,940,942,944,946,9
    48,950,952,954,956,958
  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 2.37.4:
  Architecture:           x86_64
  CPU op-mode(s):         32-bit, 64-bit
  Address sizes:          46 bits physical, 57 bits virtual
  Byte Order:             Little Endian
  CPU(s):                 256
  On-line CPU(s) list:    0-255
  Vendor ID:              GenuineIntel
  Model name:             Intel(R) Xeon(R) Platinum 8454H
  CPU family:             6
  Model:                  143
  Thread(s) per core:     1
  Core(s) per socket:     32
  Socket(s):              8
  Stepping:               8
  CPU max MHz:            3400.0000
  CPU min MHz:            800.0000
  BogoMIPS:               4200.00
  Flags:                  fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                          clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp
                          lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology
                          nonstop_tsc cpuid aperfmperf tsc_known_freq pni pclmulqdq dtes64 ds_cpl
                          vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2
                          x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm
                          abm 3dnowprefetch cpuid_fault epb cat_l3 cat_l2 cdp_l3 invpcid_single
                          intel_ppin cdp_l2 ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
                          flexpriority ept vpid ept_ad fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
                          erms invpcid rtm cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma
                          clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl xsaveopt xsavec
                          xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                          split_lock_detect avx_vnni avx512_bf16 wbnoinvd dtherm ida arat pln pts
                          avx512vbmi umip pku ospke waitpkg avx512_vbmi2 gfni vaes vpclmulqdq
                          avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid bus_lock_detect
                          cldemote movdiri movdir64b enqcmd fsrm md_clear serialize tsxldtrk pconfig
                          arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities
  Virtualization:         VT-x
  L1d cache:              12 MiB (256 instances)
  L1i cache:              8 MiB (256 instances)
  L2 cache:               512 MiB (256 instances)
  L3 cache:               660 MiB (8 instances)
  NUMA node(s):           8
  NUMA node0 CPU(s):      0-31
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base =   367

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Platform Notes (Continued)

```
  NUMA node1 CPU(s):             32-63
  NUMA node2 CPU(s):             64-95
  NUMA node3 CPU(s):             96-127
  NUMA node4 CPU(s):             128-159
  NUMA node5 CPU(s):             160-191
  NUMA node6 CPU(s):             192-223
  NUMA node7 CPU(s):             224-255
  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/swapgs barriers and __user pointer sanitization
  Vulnerability Spectre v2:      Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRSB-eIBRS SW
                                 sequence
  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      12M   12 Data             1     64        1             64
    L1i      32K       8M    8 Instruction      1     64        1             64
    L2        2M     512M   16 Unified          2   2048        1             64
    L3     82.5M     660M   15 Unified          3  90112        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: 0-31
  node 0 size: 515582 MB
  node 0 free: 514185 MB
  node 1 cpus: 32-63
  node 1 size: 516087 MB
  node 1 free: 514119 MB
  node 2 cpus: 64-95
  node 2 size: 516087 MB
  node 2 free: 514269 MB
  node 3 cpus: 96-127
  node 3 size: 516087 MB
  node 3 free: 512840 MB
  node 4 cpus: 128-159
  node 4 size: 516087 MB
  node 4 free: 514375 MB
  node 5 cpus: 160-191
  node 5 size: 516087 MB
  node 5 free: 514112 MB
  node 6 cpus: 192-223
  node 6 size: 516087 MB
  node 6 free: 513868 MB
  node 7 cpus: 224-255
  node 7 size: 516012 MB
  node 7 free: 514086 MB
  node distances:
  node   0   1   2   3   4   5   6   7
    0:  10  21  21  31  31  21  21  31
    1:  21  10  31  21  21  31  31  21
    2:  21  31  10  21  21  31  31  21
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base = 367

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Platform Notes (Continued)

```
      3:  31  21  21  10  31  21  21  31
      4:  31  21  21  31  10  21  21  31
      5:  21  31  31  21  21  10  31  21
      6:  21  31  31  21  21  31  10  21
      7:  31  21  21  31  31  21  21  10

  ------------------------------------------------------------
  9. /proc/meminfo
    MemTotal:       4227195688 kB

  ------------------------------------------------------------
  10. who -r
    run-level 3 Dec 21 17:58

  ------------------------------------------------------------
  11. Systemd service manager version: systemd 249 (249.16+suse.171.gdad0071f15)
    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 postfix purge-kernels rollback
                    rsyslog smartd sshd 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 gpm grub2-once haveged haveged-switch-root ipmi ipmievd issue-add-ssh-keys
                    kexec-load lunmask man-db-create multipathd nfs nfs-blkmap nmb nvmf-autoconnect rpcbind
                    rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts smb snmpd snmptrapd
                    systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                    systemd-time-wait-sync systemd-timesyncd
    generated       ntp_sync
    indirect        wickedd

  ------------------------------------------------------------
  13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/boot/vmlinuz-5.14.21-150500.53-default
    root=UUID=b994fb3e-4843-44ed-8f13-53774aafae18
    splash=silent
    mitigations=auto
    quiet
    security=apparmor

  ------------------------------------------------------------
  14. cpupower frequency-info
    analyzing CPU 0:
      current policy: frequency should be within 800 MHz and 3.40 GHz.
                      The governor "powersave" 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       2
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base =   367

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Platform Notes (Continued)

```
     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                        20
     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                         60
     vm.watermark_boost_factor          15000
     vm.watermark_scale_factor             10
     vm.zone_reclaim_mode                   0


   ----------------------------------------------------------
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 SP5


   ----------------------------------------------------------
19. Disk information
SPEC is set to: /home/cpu2017-1.1.9-ic2023.2.3
   Filesystem     Type  Size  Used Avail Use% Mounted on
   /dev/sda3      xfs   445G   83G  363G  19% /


   ----------------------------------------------------------
20. /sys/devices/virtual/dmi/id
     Vendor:        Lenovo
     Product:       ThinkSystem SR950 V3
     Product Family: ThinkSystem
     Serial:        BLRSDV044


   ----------------------------------------------------------
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:
```

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base =   367

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Platform Notes (Continued)

```
     41x SK Hynix HMCG94AEBRA102N 64 GB 2 rank 4800
     14x SK Hynix HMCG94AEBRA109N 64 GB 2 rank 4800
     9x SK Hynix HMCG94AEBRA123N 64 GB 2 rank 4800


    -------------------------------------------------------------
    22. BIOS
   (This section combines info from /sys/devices and dmidecode.)
      BIOS Vendor:       Lenovo
      BIOS Version:      EBE103M-1.10
      BIOS Date:         10/10/2023
      BIOS Revision:     1.10
      Firmware Revision: 1.10
```

Compiler Version Notes

```
==============================================================================
C                | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
C++, C, Fortran | 607.cactuBSSN_s(base)
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
Fortran          | 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------


==============================================================================
Fortran, C       | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
------------------------------------------------------------------------------
Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
Copyright (C) 1985-2023 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:

icx

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base = 367

SPECspeed®2017_fp_peak = Not Run

CPU2017 License: 9017

Test Sponsor: Lenovo Global Technology

Tested by: Lenovo Global Technology

Test Date: Dec-2023

Hardware Availability: Oct-2023

Software Availability: Dec-2023

Base Compiler Invocation (Continued)

Fortran benchmarks:
`ifx`

Benchmarks using both Fortran and C:
`ifx icx`

Benchmarks using Fortran, C, and C++:
`icpx icx ifx`

Base Portability Flags

603.bwaves_s: `-DSPEC_LP64`
607.cactuBSSN_s: `-DSPEC_LP64`
619.lbm_s: `-DSPEC_LP64`
621.wrf_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian`
627.cam4_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG`
628.pop2_s: `-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian -assume byterecl`
638.imagick_s: `-DSPEC_LP64`
644.nab_s: `-DSPEC_LP64`
649.fotonik3d_s: `-DSPEC_LP64`
654.roms_s: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
`-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Fortran benchmarks:
`-w -m64 -Wl,-z,muldefs -DSPEC_OPENMP -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Benchmarks using both Fortran and C:
`-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int -nostandard-realloc-lhs -align array32byte -auto -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

(Continued on next page)

Lenovo Global Technology

ThinkSystem SR950 V3
(2.10 GHz, Intel Xeon Platinum 8454H)

SPECspeed®2017_fp_base = 367

SPECspeed®2017_fp_peak = Not Run

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

Test Date: Dec-2023
Hardware Availability: Oct-2023
Software Availability: Dec-2023

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++:

```
-w -std=c++14 -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP -Wno-implicit-int
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

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-Eaglestream-AA.html
http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.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-Eaglestream-AA.xml
http://www.spec.org/cpu2017/flags/Intel-ic2023p2-official-linux64.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 2023-12-21 06:09:20-0500.
Report generated on 2024-01-17 09:58:28 by CPU2017 PDF formatter v6716.
Originally published on 2024-01-17.