SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090
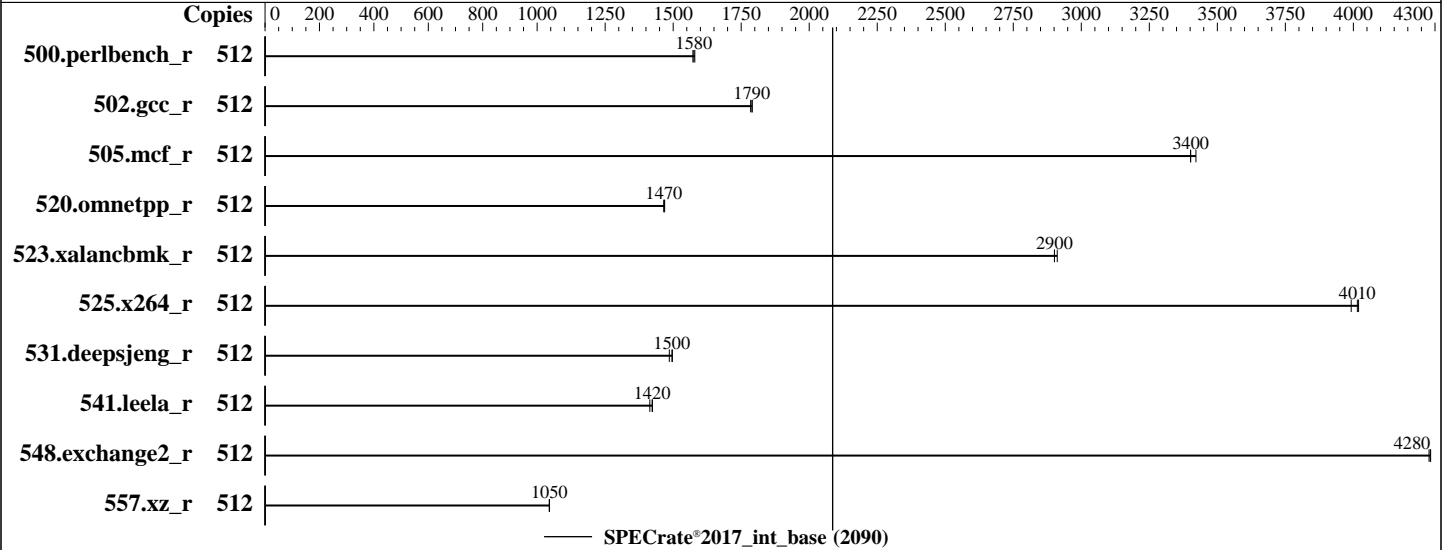
SPECrate®2017_int_peak = Not Run

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

Benchmark	Copies	Result
500.perlbench_r	512	1580
502.gcc_r	512	1790
505.mcf_r	512	3400
520.omnetpp_r	512	1470
523.xalancbmk_r	512	2900
525.x264_r	512	4010
531.deepsjeng_r	512	1500
541.leela_r	512	1420
548.exchange2_r	512	4280
557.xz_r	512	1050

SPECrate®2017_int_base (2090)

Hardware

CPU Name: Intel Xeon Platinum 8454H
 Max MHz: 3400
 Nominal: 2100
Enabled: 256 cores, 8 chips, 2 threads/core
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: No
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: None
Power Management: BIOS and OS set to prefer performance at the cost
 of additional power usage

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	512	518	1570	**517**	**1580**	516	1580							
502.gcc_r	512	**405**	**1790**	406	1780	405	1790							
505.mcf_r	512	243	3400	242	3420	**243**	**3400**							
520.omnetpp_r	512	457	1470	**458**	**1470**	458	1470							
523.xalancbmk_r	512	186	2900	186	2910	**186**	**2900**							
525.x264_r	512	**223**	**4010**	223	4020	225	3990							
531.deepsjeng_r	512	395	1490	**392**	**1500**	392	1500							
541.leela_r	512	596	1420	**596**	**1420**	600	1410							
548.exchange2_r	512	**313**	**4280**	313	4280	314	4280							
557.xz_r	512	529	1050	**529**	**1050**	529	1040							
SPECrate®2017_int_base =	**2090**													
SPECrate®2017_int_peak =	**Not Run**													

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

Submit Notes

```
 The numactl mechanism was used to bind copies to processors. The config file option 'submit'
 was used to generate numactl commands to bind each copy to a specific processor.
 For details, please see the config file.
```

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:
LD_LIBRARY_PATH =
    "/home/cpu2017-1.1.9-ic2023.2.3/lib/intel64:/home/cpu2017-1.1.9-ic2023.2.3/lib/ia32:/home/cpu2017-1.1.
    9-ic2023.2.3/je5.0.1-32"
MALLOC_CONF = "retain:true"
```

General Notes

```
 Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM
 memory using Red Hat Enterprise Linux 8.4
 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
 runcpu command invoked through numactl i.e.:
 numactl --interleave=all runcpu <etc>
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.
```

(Continued on next page)

Standard Performance Evaluation Corporation (info@spec.org)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Lenovo Global Technology

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

SPECrate®2017_int_base =　　2090

SPECrate®2017_int_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

General Notes (Continued)

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
C-States set to Legacy
SNC set to SNC4
LLC Prefetch set to Disabled

 Sysinfo program /home/cpu2017-1.1.9-ic2023.2.3/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on localhost Tue Dec 19 14:22:48 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
   14:22:48 up 14:00,  1 user,  load average: 14.40, 247.39, 399.02
   USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
   root     tty1     -                00:23   13:54m  1.12s  0.02s /bin/bash ./speccpu_rock.sh


 ------------------------------------------------------------
 3. Username
   From environment variable $USER:  root
```

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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)

```
    ----------------------------------------------------------
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) 16511800
  max locked memory       (kbytes, -l) 64
  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) 16511800
  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 --define numcopies=512 -c
   ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=256 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base -o all intrate
 runcpu --nobuild --action validate --define default-platform-flags --define numcopies=512 --configfile
   ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=256 --define physicalfirst
   --define invoke_with_interleave --define drop_caches --tune base --output_format all --nopower --runmode
   rate --tune base --size refrate intrate --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.214/templogs/preenv.intrate.214.0.log --lognum 214.0 --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         : 64
    8 physical ids (chips)
    512 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 0-63
    physical id 1: apicids 128-191
```

(Continued on next page)

Lenovo Global Technology

SPECrate®2017_int_base = 2090

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

SPECrate®2017_int_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 2: apicids 256-319
       physical id 3: apicids 384-447
       physical id 4: apicids 512-575
       physical id 5: apicids 640-703
       physical id 6: apicids 768-831
       physical id 7: apicids 896-959
     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):                         512
       On-line CPU(s) list:            0-511
       Vendor ID:                      GenuineIntel
       Model name:                     Intel(R) Xeon(R) Platinum 8454H
       CPU family:                     6
       Model:                          143
       Thread(s) per core:             2
       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 monitor
                                       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):                   32
       NUMA node0 CPU(s):              0-7,256-263
       NUMA node1 CPU(s):              8-15,264-271
       NUMA node2 CPU(s):              16-23,272-279
       NUMA node3 CPU(s):              24-31,280-287
       NUMA node4 CPU(s):              32-39,288-295
       NUMA node5 CPU(s):              40-47,296-303
       NUMA node6 CPU(s):              48-55,304-311
```

(Continued on next page)

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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 node7 CPU(s):            56-63,312-319
  NUMA node8 CPU(s):            64-71,320-327
  NUMA node9 CPU(s):            72-79,328-335
  NUMA node10 CPU(s):           80-87,336-343
  NUMA node11 CPU(s):           88-95,344-351
  NUMA node12 CPU(s):           96-103,352-359
  NUMA node13 CPU(s):           104-111,360-367
  NUMA node14 CPU(s):           112-119,368-375
  NUMA node15 CPU(s):           120-127,376-383
  NUMA node16 CPU(s):           128-135,384-391
  NUMA node17 CPU(s):           136-143,392-399
  NUMA node18 CPU(s):           144-151,400-407
  NUMA node19 CPU(s):           152-159,408-415
  NUMA node20 CPU(s):           160-167,416-423
  NUMA node21 CPU(s):           168-175,424-431
  NUMA node22 CPU(s):           176-183,432-439
  NUMA node23 CPU(s):           184-191,440-447
  NUMA node24 CPU(s):           192-199,448-455
  NUMA node25 CPU(s):           200-207,456-463
  NUMA node26 CPU(s):           208-215,464-471
  NUMA node27 CPU(s):           216-223,472-479
  NUMA node28 CPU(s):           224-231,480-487
  NUMA node29 CPU(s):           232-239,488-495
  NUMA node30 CPU(s):           240-247,496-503
  NUMA node31 CPU(s):           248-255,504-511
  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: 32 nodes (0-31)
  node 0 cpus: 0-7,256-263
  node 0 size: 128548 MB
  node 0 free: 127568 MB
  node 1 cpus: 8-15,264-271
  node 1 size: 129019 MB
  node 1 free: 128207 MB
  node 2 cpus: 16-23,272-279
  node 2 size: 129019 MB
  node 2 free: 128156 MB
  node 3 cpus: 24-31,280-287
  node 3 size: 129019 MB
```

(Continued on next page)

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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)

```
      node 3 free: 128183 MB
      node 4 cpus: 32-39,288-295
      node 4 size: 129019 MB
      node 4 free: 128188 MB
      node 5 cpus: 40-47,296-303
      node 5 size: 129019 MB
      node 5 free: 128121 MB
      node 6 cpus: 48-55,304-311
      node 6 size: 129019 MB
      node 6 free: 128136 MB
      node 7 cpus: 56-63,312-319
      node 7 size: 129019 MB
      node 7 free: 128163 MB
      node 8 cpus: 64-71,320-327
      node 8 size: 129019 MB
      node 8 free: 128137 MB
      node 9 cpus: 72-79,328-335
      node 9 size: 129019 MB
      node 9 free: 128220 MB
      node 10 cpus: 80-87,336-343
      node 10 size: 129019 MB
      node 10 free: 128202 MB
      node 11 cpus: 88-95,344-351
      node 11 size: 129019 MB
      node 11 free: 128210 MB
      node 12 cpus: 96-103,352-359
      node 12 size: 129019 MB
      node 12 free: 128150 MB
      node 13 cpus: 104-111,360-367
      node 13 size: 129019 MB
      node 13 free: 128244 MB
      node 14 cpus: 112-119,368-375
      node 14 size: 129019 MB
      node 14 free: 128226 MB
      node 15 cpus: 120-127,376-383
      node 15 size: 129019 MB
      node 15 free: 128240 MB
      node 16 cpus: 128-135,384-391
      node 16 size: 129019 MB
      node 16 free: 128247 MB
      node 17 cpus: 136-143,392-399
      node 17 size: 129019 MB
      node 17 free: 128237 MB
      node 18 cpus: 144-151,400-407
      node 18 size: 129019 MB
      node 18 free: 128241 MB
      node 19 cpus: 152-159,408-415
      node 19 size: 129019 MB
      node 19 free: 128242 MB
      node 20 cpus: 160-167,416-423
      node 20 size: 129019 MB
      node 20 free: 128244 MB
      node 21 cpus: 168-175,424-431
      node 21 size: 128985 MB
      node 21 free: 128202 MB
      node 22 cpus: 176-183,432-439
      node 22 size: 129019 MB
      node 22 free: 128235 MB
      node 23 cpus: 184-191,440-447
      node 23 size: 129019 MB
```

(Continued on next page)

Lenovo Global Technology

SPECrate®2017_int_base = 2090

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

SPECrate®2017_int_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)

```
     node 23 free: 128247 MB
     node 24 cpus: 192-199,448-455
     node 24 size: 129019 MB
     node 24 free: 128216 MB
     node 25 cpus: 200-207,456-463
     node 25 size: 129019 MB
     node 25 free: 128243 MB
     node 26 cpus: 208-215,464-471
     node 26 size: 129019 MB
     node 26 free: 128227 MB
     node 27 cpus: 216-223,472-479
     node 27 size: 129019 MB
     node 27 free: 127814 MB
     node 28 cpus: 224-231,480-487
     node 28 size: 129019 MB
     node 28 free: 128225 MB
     node 29 cpus: 232-239,488-495
     node 29 size: 129019 MB
     node 29 free: 128237 MB
     node 30 cpus: 240-247,496-503
     node 30 size: 129019 MB
     node 30 free: 128220 MB
     node 31 cpus: 248-255,504-511
     node 31 size: 128872 MB
     node 31 free: 128084 MB
     node distances:
     node   0   1   2   3   4   5   6   7   8   9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24
      25  26  27  28  29  30  31
       0:  10  12  12  12  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
       1:  12  10  12  12  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
       2:  12  12  10  12  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
       3:  12  12  12  10  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
       4:  21  21  21  21  10  12  12  12  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
       5:  21  21  21  21  12  10  12  12  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
       6:  21  21  21  21  12  12  10  12  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
       7:  21  21  21  21  12  12  12  10  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
       8:  21  21  21  21  31  31  31  31  10  12  12  12  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
       9:  21  21  21  21  31  31  31  31  12  10  12  12  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
      10:  21  21  21  21  31  31  31  31  12  12  10  12  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
      11:  21  21  21  21  31  31  31  31  12  12  12  10  21  21  21  21  21  21  21  21  31  31  31  31  31
      31  31  31  21  21  21  21
      12:  31  31  31  31  21  21  21  21  21  21  21  21  10  12  12  12  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
      13:  31  31  31  31  21  21  21  21  21  21  21  21  12  10  12  12  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
      14:  31  31  31  31  21  21  21  21  21  21  21  21  12  12  10  12  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
      15:  31  31  31  31  21  21  21  21  21  21  21  21  12  12  12  10  31  31  31  31  21  21  21  21  21
      21  21  21  31  31  31  31
```

Lenovo Global Technology

SPECrate®2017_int_base = 2090

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

SPECrate®2017_int_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)

```
  16:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  10  12  12  12  21  21  21  21  21
       21  21  21  31  31  31  31
  17:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  12  10  12  12  21  21  21  21  21
       21  21  21  31  31  31  31
  18:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  12  12  10  12  21  21  21  21  21
       21  21  21  31  31  31  31
  19:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  12  12  12  10  21  21  21  21  21
       21  21  21  31  31  31  31
  20:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  10  12  12  12  31
       31  31  31  21  21  21  21
  21:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  12  10  12  12  31
       31  31  31  21  21  21  21
  22:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  12  12  10  12  31
       31  31  31  21  21  21  21
  23:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  12  12  12  10  31
       31  31  31  21  21  21  21
  24:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  10
       12  12  12  21  21  21  21
  25:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  12
       10  12  12  21  21  21  21
  26:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  12
       12  10  12  21  21  21  21
  27:  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  12
       12  12  10  21  21  21  21
  28:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
       21  21  21  10  12  12  12
  29:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
       21  21  21  12  10  12  12
  30:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
       21  21  21  12  12  10  12
  31:  31  31  31  31  21  21  21  21  21  21  21  21  31  31  31  31  31  31  31  31  21  21  21  21  21
       21  21  21  12  12  12  10

    -----------------------------------------------------------
    9. /proc/meminfo
      MemTotal:       4227053192 kB


    -----------------------------------------------------------
    10. who -r
      run-level 3 Dec 19 00:23


    -----------------------------------------------------------
    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
```

(Continued on next page)

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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)

```
                          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
    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
```

(Continued on next page)

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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)

```
   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/sdc3      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:
      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       | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(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++     | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base) 541.leela_r(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.
----------------------------------------------------------------------------------------------


==============================================================================================
Fortran | 548.exchange2_r(base)
```

(Continued on next page)

SPEC CPU®2017 Integer Rate Result

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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

Compiler Version Notes (Continued)

```
----------------------------------------------------------------------------
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.
----------------------------------------------------------------------------
```

Base Compiler Invocation

C benchmarks:
`icx`

C++ benchmarks:
`icpx`

Fortran benchmarks:
`ifx`

Base Portability Flags

500.perlbench_r: `-DSPEC_LP64 -DSPEC_LINUX_X64`
502.gcc_r: `-DSPEC_LP64`
505.mcf_r: `-DSPEC_LP64`
520.omnetpp_r: `-DSPEC_LP64`
523.xalancbmk_r: `-DSPEC_LP64 -DSPEC_LINUX`
525.x264_r: `-DSPEC_LP64`
531.deepsjeng_r: `-DSPEC_LP64`
541.leela_r: `-DSPEC_LP64`
548.exchange2_r: `-DSPEC_LP64`
557.xz_r: `-DSPEC_LP64`

Base Optimization Flags

C benchmarks:
```
-w -std=c11 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc
```

C++ benchmarks:
```
-w -std=c++14 -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc
```

(Continued on next page)

Lenovo Global Technology

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

SPECrate®2017_int_base =   2090

SPECrate®2017_int_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

Base Optimization Flags (Continued)

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin
-lqkmalloc
```

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 2023-12-19 01:22:47-0500.
Report generated on 2024-01-17 09:58:28 by CPU2017 PDF formatter v6716.
Originally published on 2024-01-17.