



SPEC CPU®2017 Integer Rate Result

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Lenovo Global Technology

SPECrate®2017_int_base = 3470

ThinkSystem SR950 V3
(1.90 GHz, Intel Xeon Platinum 8490H)

SPECrate®2017_int_peak = Not Run

CPU2017 License: 9017

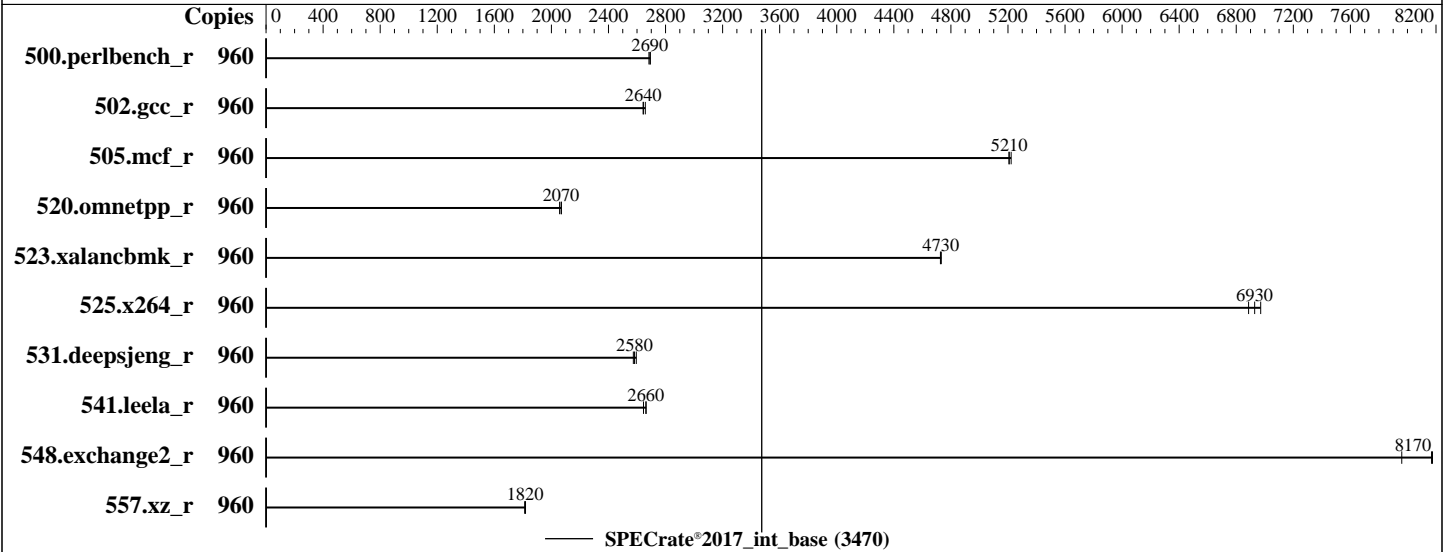
Test Date: Nov-2023

Test Sponsor: Lenovo Global Technology

Hardware Availability: Oct-2023

Tested by: Lenovo Global Technology

Software Availability: Dec-2023



Hardware

CPU Name: Intel Xeon Platinum 8490H
 Max MHz: 3500
 Nominal: 1900
 Enabled: 480 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: 112.5 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 EBE103M 1.10 released Oct-2023
 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



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Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	960	568	2690	570	2680	567	2690							
502.gcc_r	960	514	2640	514	2640	511	2660							
505.mcf_r	960	298	5210	298	5210	297	5220							
520.omnetpp_r	960	608	2070	612	2060	609	2070							
523.xalancbmk_r	960	214	4730	214	4730	214	4730							
525.x264_r	960	244	6890	243	6930	241	6970							
531.deepsjeng_r	960	424	2600	427	2570	426	2580							
541.leela_r	960	597	2660	601	2650	597	2660							
548.exchange2_r	960	316	7960	308	8170	308	8180							
557.xz_r	960	572	1810	571	1820	570	1820							

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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.

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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 Sun Nov 26 07:27:33 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
07:27:33 up 5:11, 1 user, load average: 0.40, 0.13, 6.97
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 02:17 37.00s 1.22s 0.02s /bin/bash ./speccpu_rock.sh

3. Username
From environment variable \$USER: root

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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) 16511358
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) 16511358
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=960 -c
  ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=480 --define physicalfirst
  --define invoke_with_interleave --define drop_caches --tune base -o all intrate
runcpu --nobuild --action validate --define default-platform-flags --define numcopies=960 --configfile
  ic2023.2.3-lin-sapphirerapids-rate-20231121.cfg --define smt-on --define cores=480 --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/CPU2017.029/temlogs/preenv.intrate.029.0.log --lognum 029.0 --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 8490H
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      : 60
siblings       : 120
8 physical ids (chips)
960 processors (hardware threads)
physical id 0: core ids 0-59
physical id 1: core ids 0-59
physical id 2: core ids 0-59
physical id 3: core ids 0-59
physical id 4: core ids 0-59
physical id 5: core ids 0-59
physical id 6: core ids 0-59
physical id 7: core ids 0-59
physical id 0: apicids 0-119
physical id 1: apicids 128-247

```

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Platform Notes (Continued)

physical id 2: apicids 256-375
physical id 3: apicids 384-503
physical id 4: apicids 512-631
physical id 5: apicids 640-759
physical id 6: apicids 768-887
physical id 7: apicids 896-1015

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):                960
On-line CPU(s) list:   0-959
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Platinum 8490H
CPU family:            6
Model:                143
Thread(s) per core:   2
Core(s) per socket:   60
Socket(s):             8
Stepping:              8
CPU max MHz:          3500.0000
CPU min MHz:          800.0000
BogoMIPS:              3800.00
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_lld arch_capabilities
Virtualization:        VT-x
L1d cache:             22.5 MiB (480 instances)
L1i cache:             15 MiB (480 instances)
L2 cache:              960 MiB (480 instances)
L3 cache:              900 MiB (8 instances)
NUMA node(s):         32
NUMA node0 CPU(s):    0-14,480-494
NUMA node1 CPU(s):    15-29,495-509
NUMA node2 CPU(s):    30-44,510-524
NUMA node3 CPU(s):    45-59,525-539
NUMA node4 CPU(s):    60-74,540-554
NUMA node5 CPU(s):    75-89,555-569
NUMA node6 CPU(s):    90-104,570-584

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Platform Notes (Continued)

```

NUMA node7 CPU(s):      105-119,585-599
NUMA node8 CPU(s):      120-134,600-614
NUMA node9 CPU(s):      135-149,615-629
NUMA node10 CPU(s):     150-164,630-644
NUMA node11 CPU(s):     165-179,645-659
NUMA node12 CPU(s):     180-194,660-674
NUMA node13 CPU(s):     195-209,675-689
NUMA node14 CPU(s):     210-224,690-704
NUMA node15 CPU(s):     225-239,705-719
NUMA node16 CPU(s):     240-254,720-734
NUMA node17 CPU(s):     255-269,735-749
NUMA node18 CPU(s):     270-284,750-764
NUMA node19 CPU(s):     285-299,765-779
NUMA node20 CPU(s):     300-314,780-794
NUMA node21 CPU(s):     315-329,795-809
NUMA node22 CPU(s):     330-344,810-824
NUMA node23 CPU(s):     345-359,825-839
NUMA node24 CPU(s):     360-374,840-854
NUMA node25 CPU(s):     375-389,855-869
NUMA node26 CPU(s):     390-404,870-884
NUMA node27 CPU(s):     405-419,885-899
NUMA node28 CPU(s):     420-434,900-914
NUMA node29 CPU(s):     435-449,915-929
NUMA node30 CPU(s):     450-464,930-944
NUMA node31 CPU(s):     465-479,945-959
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/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2:  Mitigation; Enhanced IBRS, IBPB conditional, RSB filling, PBRSE-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	22.5M	12	Data	1	64	1	64
L1i	32K	15M	8	Instruction	1	64	1	64
L2	2M	960M	16	Unified	2	2048	1	64
L3	112.5M	900M	15	Unified	3	122880	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: 0-14,480-494
node 0 size: 128545 MB
node 0 free: 127162 MB
node 1 cpus: 15-29,495-509
node 1 size: 129016 MB
node 1 free: 127700 MB
node 2 cpus: 30-44,510-524
node 2 size: 129016 MB
node 2 free: 127825 MB
node 3 cpus: 45-59,525-539
node 3 size: 129016 MB

```

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Platform Notes (Continued)

```

node 3 free: 127758 MB
node 4 cpus: 60-74,540-554
node 4 size: 129016 MB
node 4 free: 127833 MB
node 5 cpus: 75-89,555-569
node 5 size: 129016 MB
node 5 free: 127785 MB
node 6 cpus: 90-104,570-584
node 6 size: 129016 MB
node 6 free: 127752 MB
node 7 cpus: 105-119,585-599
node 7 size: 129016 MB
node 7 free: 127755 MB
node 8 cpus: 120-134,600-614
node 8 size: 129016 MB
node 8 free: 127728 MB
node 9 cpus: 135-149,615-629
node 9 size: 129016 MB
node 9 free: 127745 MB
node 10 cpus: 150-164,630-644
node 10 size: 129016 MB
node 10 free: 127796 MB
node 11 cpus: 165-179,645-659
node 11 size: 129016 MB
node 11 free: 127779 MB
node 12 cpus: 180-194,660-674
node 12 size: 128981 MB
node 12 free: 127677 MB
node 13 cpus: 195-209,675-689
node 13 size: 129016 MB
node 13 free: 127825 MB
node 14 cpus: 210-224,690-704
node 14 size: 129016 MB
node 14 free: 127830 MB
node 15 cpus: 225-239,705-719
node 15 size: 129016 MB
node 15 free: 127817 MB
node 16 cpus: 240-254,720-734
node 16 size: 129016 MB
node 16 free: 127833 MB
node 17 cpus: 255-269,735-749
node 17 size: 129016 MB
node 17 free: 127847 MB
node 18 cpus: 270-284,750-764
node 18 size: 129016 MB
node 18 free: 127852 MB
node 19 cpus: 285-299,765-779
node 19 size: 129016 MB
node 19 free: 127836 MB
node 20 cpus: 300-314,780-794
node 20 size: 129016 MB
node 20 free: 127813 MB
node 21 cpus: 315-329,795-809
node 21 size: 129016 MB
node 21 free: 127842 MB
node 22 cpus: 330-344,810-824
node 22 size: 129016 MB
node 22 free: 127853 MB
node 23 cpus: 345-359,825-839
node 23 size: 129016 MB

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Platform Notes (Continued)

```

node 23 free: 127775 MB
node 24 cpus: 360-374,840-854
node 24 size: 129016 MB
node 24 free: 127795 MB
node 25 cpus: 375-389,855-869
node 25 size: 129016 MB
node 25 free: 127839 MB
node 26 cpus: 390-404,870-884
node 26 size: 129016 MB
node 26 free: 127847 MB
node 27 cpus: 405-419,885-899
node 27 size: 129016 MB
node 27 free: 127285 MB
node 28 cpus: 420-434,900-914
node 28 size: 129016 MB
node 28 free: 127788 MB
node 29 cpus: 435-449,915-929
node 29 size: 129016 MB
node 29 free: 127823 MB
node 30 cpus: 450-464,930-944
node 30 size: 129016 MB
node 30 free: 127802 MB
node 31 cpus: 465-479,945-959
node 31 size: 128869 MB
node 31 free: 127696 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 31 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 31 31 31 31 31 31 31 31 21 21 21 21 21
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2: 12 12 10 12 21 21 21 21 21 21 21 31 31 31 31 31 31 31 31 21 21 21 21 21
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```

16: 31 31 31 31 21 21 21 21 21 21 21 21 31 31 31 31 10 12 12 21 21 21 21 21
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30: 31 31 31 31 21 21 21 21 21 21 21 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 31 31 31 31 31 31 31 21 21 21 21 21
21 21 21 12 12 12 10

```

```

-----
9. /proc/meminfo
MemTotal: 4226940088 kB
-----

```

```

-----
10. who -r
run-level 3 Nov 26 02:17
-----

```

```

-----
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 nvme-fc-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 ebttables 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 nvme-autoconnect rpcbind
rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts smb snmpd snmptrapd
systemd-boot-check-no-failures systemd-network-generator systemd-sysext
-----

```

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SPEC CPU®2017 Integer Rate Result

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SPECrate®2017_int_peak = Not Run

CPU2017 License: 9017

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Test Date: Nov-2023

Hardware Availability: Oct-2023

Software Availability: Dec-2023

Platform Notes (Continued)

generated	systemd-time-wait-sync	systemd-timesyncd
indirect	ntp_sync	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 3.50 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

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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/sda3 xfs 445G 82G 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 HMC94AEBRA102N 64 GB 2 rank 4800
14x SK Hynix HMC94AEBRA109N 64 GB 2 rank 4800
9x SK Hynix HMC94AEBRA123N 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
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=====
Fortran | 548.exchange2_r(base)

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Compiler Version Notes (Continued)

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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

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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>

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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 2023-11-25 18:27:33-0500.

Report generated on 2023-12-11 09:56:52 by CPU2017 PDF formatter v6716.

Originally published on 2023-12-11.