**SPEC CPU®2017 Integer Speed Result**

**Lenovo Global Technology**

ThinkSystem SR630 V3  
(3.60 GHz, Intel Xeon Gold 6444Y)

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

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### Hardware

- **CPU Name:** Intel Xeon Gold 6444Y  
- **Max MHz:** 4000  
- **Nominal:** 3600  
- **Enabled:** 32 cores, 2 chips, 2 threads/core  
- **Orderable:** 1.2 chips  
- **Cache L1:** 32 KB I + 48 KB D on chip per core  
- **L2:** 2 MB I+D on chip per core  
- **L3:** 45 MB I+D on chip per core  
- **Memory:** 512 GB (16 x 32 GB 2Rx8 PC5-4800B-R)  
- **Storage:** 1 x 960 GB SATA SSD  
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 15 SP4 (x86_64)  
- **Kernel:** 5.14.21-150400.22-default  
- **Compiler:** C/C++: Version 2023.0 of Intel oneAPI DPC++/C++ Compiler for Linux; Fortran: Version 2023.0 of Intel Fortran Compiler Classic for Linux; C/C++: Version 2023.0 of Intel C/C++ Compiler Classic for Linux  
- **Parallel:** Yes  
- **Firmware:** Lenovo BIOS Version ESE109L 1.10 released Jan-2023  
- **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

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### Threads

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlb_m_s</td>
<td>64</td>
<td>9.86</td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>12.5</td>
<td>23.4</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>12.5</td>
<td>30.4</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>7.35</td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>64</td>
<td>5.99</td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xf_s</td>
<td>64</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**SPECspeed2017_int_base = 15.5**

**SPECspeed2017_int_peak = Not Run**
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Threads</th>
<th>Seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
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<td>180</td>
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<td>180</td>
<td>9.87</td>
<td>180</td>
<td>9.86</td>
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<tr>
<td>602.gcc_s</td>
<td>64</td>
<td>317</td>
<td>12.6</td>
<td>319</td>
<td>12.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>64</td>
<td>202</td>
<td>23.4</td>
<td>201</td>
<td>23.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>64</td>
<td>130</td>
<td>12.5</td>
<td>130</td>
<td>12.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
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<td>46.6</td>
<td>30.4</td>
<td>46.7</td>
<td>30.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>64</td>
<td>78.3</td>
<td>22.5</td>
<td>78.2</td>
<td>22.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>64</td>
<td>195</td>
<td>7.35</td>
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<td>7.36</td>
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<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>64</td>
<td>285</td>
<td>5.99</td>
<td>285</td>
<td>5.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>64</td>
<td>111</td>
<td>26.6</td>
<td>111</td>
<td>26.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>64</td>
<td>228</td>
<td>27.1</td>
<td>228</td>
<td>27.1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

Compiler Notes

SPEC has ruled that the compiler used for this result was performing a compilation that specifically improves the performance of the 523.xalancbmk_r / 623.xalancbmk_s benchmarks using a priori knowledge of the SPEC code and dataset to perform a transformation that has narrow applicability.

In order to encourage optimizations that have wide applicability (see rule 1.4 https://www.spec.org/cpu2017/Docs/runrules.html#rule_1.4), SPEC will no longer publish results using this optimization.

This result is left in the SPEC results database for historical reference.

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,scatter"
- LD_LIBRARY_PATH = "/home/cpu2017-1.1.9-ic2023.0/lib/intel64:/home/cpu2017-1.1.9-ic2023.0/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

(Continued on next page)
**General Notes (Continued)**

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.


**Platform Notes**

BIOS configuration:
Choose Operating Mode set to Maximum Performance and then set it to Custom Mode
C-state set to Legacy

Sysinfo program /home/cpu2017-1.1.9-ic2023.0/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c66e2c92cc097bec197
running on localhost Tue Feb 21 23:45:18 2023

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

```
1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numaclt --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
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 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022 (49db222)
   x86_64 x86_64 x86_64 GNU/Linux

2. w
   23:45:18 up 1 min, 1 user, load average: 0.25, 0.08, 0.03
```

(Continued on next page)
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SPECspeed®2017_int_base = 15.5
SPECspeed®2017_int_peak = Not Run

Platform Notes (Continued)

<table>
<thead>
<tr>
<th>USER</th>
<th>TTY</th>
<th>FROM</th>
<th>LOGIN@</th>
<th>IDLE</th>
<th>JCPU</th>
<th>PCPU</th>
<th>WHAT</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>tty1</td>
<td>-</td>
<td>23:44</td>
<td>5.00s</td>
<td>0.75s</td>
<td>0.00s</td>
<td>-bash</td>
</tr>
</tbody>
</table>

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) 2062626
   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) 2062626
   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
   -bash
   runcpu --nobuild --action validate --define default-platform-flags -c
   ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=32 --tune base -o all --define
   intspeedaffinity --define smt-on --define drop_caches intspeed
   runcpu --nobuild --action validate --define default-platform-flags --configfile
   ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=32 --tune base --output_format all --define
   intspeedaffinity --define smt-on --define drop_caches --nopower --runnode speed --tune base --size
   refspeed intspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.111/templogs/preenv.intspeed.111.0.log --lognum 111.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017-1.1.9-ic2023.0

6. /proc/cpuinfo
   
   model name      : Intel(R) Xeon(R) Gold 6444Y
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 143
   stepping        : 8
   microcode       : 0x2b000161
   bugs            : spectre_v1 spectre_v2 spec_store_bypass swappgs
   cpu cores       : 16
   siblings        : 32
   2 physical ids (chips)
   64 processors (hardware threads)
   physical id 0: core ids 0-15
   physical id 1: core ids 0-15
   physical id 0: apic ids 0-31
   physical id 1: apic ids 128-159

(Continued on next page)
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**Platform Notes (Continued)**

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 2.37.2:

- 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):                  64
- On-line CPU(s) list:     0-63
- Vendor ID:               GenuineIntel
- Model name:              Intel(R) Xeon(R) Gold 6444Y
- CPU family:              6
- Model:                   143
- Thread(s) per core:      2
- Core(s) per socket:      16
- Socket(s):               2
- Stepping:                8
- BogoMIPS:                7200.00
- Flags:                   fpu vme de pse tsc msr pae mce cmov pat pse36
                          clflush dts acpi mmx fxsr sse sse2 ht tm pbe syscall nx pdpe1gb
                          rdtes64 lm constant_tsc art arch_perfmon pebs bts rep_good
                          nopl nx tsc_deadline_timer aes xsave f16c rdrand
                          lahf_lm abm 3nowprefetch cpuid_fault eb cat_l13 cat_l12
cdp_L3
                          invpcid_single intel_ppi cdp l2 sabd mba ibrs ibpb ibrs_enhanced
                          trp_shadow vnni flexpriority ept vpid ept_ad fsgsbase
cds_adjust bmi1 hle
                          avx2 smep bmi2 erms invpcid rtm cmc rdt_a avx512f
cdsdq rdseed adx smap
cdsdq fma clflushopt clwb intel_pt avx512cd sha_ni avx512bw avx512vl
                          xsaves xsaveopt xsaves xsaveopt xgetbv1 xsaves cqm_11c
cqm_occup_11c cqm_mmb_total
                          cqm_mbb_local split_lock_detect avx_vnni avx512_bw
dtirm dtherm idate
                          arat pln pts avx512vni umber pkpu tsp avx512vni umber pkpu
cpue waitkg avx512vni umber pkpu gfni vaes
                          vpc1mulqdq avx512vni avx512vni umber pkpu gfni vaes
                          rtp
                          bus_lock_detect cidemote movdiri movdir64b enqcmd
                          farm md_clear serialize
tsxtdtrk pconf arch_lbr avx512_fp16 amx_tile flush_l1d arch_capabilities

  Virtualization:          VT-x
  L1d cache:               1.5 MiB (32 instances)
  L1i cache:               1 MiB (32 instances)
  L2 cache:                64 MiB (32 instances)
  L3 cache:                90 MiB (2 instances)
  NUMA node(s):            2
  NUMA node0 CPU(s):       0-15,32-47
  NUMA node1 CPU(s):       16-31,48-63
  Vulnerability Itlb multihit:  Not affected
  Vulnerability L1tf:      Not affected
  Vulnerability Mds:       Not affected
  Vulnerability Meltdown:  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
  Vulnerability Srbds:     Not affected
  Vulnerability Tsa async abort: Not affected

From lscpu --cache:

<table>
<thead>
<tr>
<th>NAME</th>
<th>ONE-SIZE</th>
<th>ALL-SIZE</th>
<th>WAYS</th>
<th>TYPE</th>
<th>LEVEL</th>
<th>SETS</th>
<th>PHY-LINE</th>
<th>COHERENCY-SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1d</td>
<td>48K</td>
<td>1.5M</td>
<td>12</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

(Continued on next page)
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SPECSpeed®2017_int_base = 15.5
SPECSpeed®2017_int_peak = Not Run

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Platform Notes (Continued)

L1i       32K       1M    8 Instruction     1    64        1             64
L2         2M      64M   16 Unified         2  2048        1             64
L3        45M      90M   15 Unified         3 49152        1             64

8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
available: 2 nodes (0-1)
node 0 cpus: 0-15,32-47
node 0 size: 257703 MB
node 0 free: 256672 MB
node 1 cpus: 16-31,48-63
node 1 size: 257976 MB
node 1 free: 257504 MB
node distances:
  node   0   1
  0:  10  21
  1:  21  10

9. /proc/meminfo
MemTotal:       528056656 kB

10. who -r
run-level 3 Feb 21 23:44

11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
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@ hovedge irqbalance
                    issue-generator kbdsettings klog lvm2-monitor nsd postfix purge-kernels rollback rayslog
                    smartd sshd wicked wickedd-auto4 wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny
   enabled-runtime  systemd-remount-fs
   disabled         autofs autyast-initscripts blk-availability boot-sysctl ca-certificate chrony-wait
                    chronyd console-getty cups cups-browsed debug-shell ehtables exchange-lmc-os-info
                    firewallld gpm grub2-once hovedge-switch-root ipmi ipmielvd issue-add-ssh-keys kexec-load
                    lumask man-db-create multipathd nfs nfs-blkmap rdisc rpcbind rpmconfigcheck rsyncd
                    serial-getty@ smartd_generate_opts snmpd snmptrapd systemd-boot-check-no-failures
                    systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd
   indirect         wicked

13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
   root=UUID=efe3d3bb-d17b-48bc-af3c-7ee429916327
   splash=silent
   mitigations=auto
   quiet
   security=apparmor

14. cpupower frequency-info
   analyzing CPU 0:
   Unable to determine current policy

(Continued on next page)
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**Test Sponsor:** Lenovo Global Technology  
**Tested by:** Lenovo Global Technology  
**Test Date:** Feb-2023  
**Hardware Availability:** Feb-2023  
**Software Availability:** Dec-2022

---

**Platform Notes (Continued)**

boost state support:  
   Supported: yes  
   Active: yes

---

15. **/sysctl**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>kernel.numa_balancing</td>
<td>1</td>
</tr>
<tr>
<td>kernel.randomize_va_space</td>
<td>2</td>
</tr>
<tr>
<td>vm.compaction_proactiveness</td>
<td>20</td>
</tr>
<tr>
<td>vm.dirty_background_bytes</td>
<td>0</td>
</tr>
<tr>
<td>vm.dirty_background_ratio</td>
<td>10</td>
</tr>
<tr>
<td>vm.dirty_bytes</td>
<td>0</td>
</tr>
<tr>
<td>vm.dirty_expire_centisecs</td>
<td>3000</td>
</tr>
<tr>
<td>vm.dirty_ratio</td>
<td>20</td>
</tr>
<tr>
<td>vm.dirty_writeback_centisecs</td>
<td>500</td>
</tr>
<tr>
<td>vm.dirtytime_expire_seconds</td>
<td>43200</td>
</tr>
<tr>
<td>vm.extfrag_threshold</td>
<td>500</td>
</tr>
<tr>
<td>vm.min_unmapped_ratio</td>
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</tr>
<tr>
<td>vm.nr_hugepages</td>
<td>0</td>
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<tr>
<td>vm.nr_hugepages_mempolicy</td>
<td>0</td>
</tr>
<tr>
<td>vm.nr_overcommit_hugepages</td>
<td>0</td>
</tr>
<tr>
<td>vm.swappiness</td>
<td>60</td>
</tr>
<tr>
<td>vm.watermark_boost_factor</td>
<td>15000</td>
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<tr>
<td>vm.watermark_scale_factor</td>
<td>10</td>
</tr>
<tr>
<td>vm.zone_reclaim_mode</td>
<td>0</td>
</tr>
</tbody>
</table>

---

16. **/sys/kernel/mm/transparent_hugepage**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>defrag</td>
<td>always defer + madvise [madvise] never</td>
</tr>
<tr>
<td>enabled</td>
<td>[always] madvise never</td>
</tr>
<tr>
<td>hpage_pmd_size</td>
<td>2097152</td>
</tr>
<tr>
<td>shmem_enabled</td>
<td>always within_size advise [never] deny force</td>
</tr>
</tbody>
</table>

---

17. **/sys/kernel/mm/transparent_hugepage/hugepaged**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>alloc_sleep_millisecs</td>
<td>60000</td>
</tr>
<tr>
<td>defrag</td>
<td>1</td>
</tr>
<tr>
<td>max_ptes_none</td>
<td>511</td>
</tr>
<tr>
<td>max_ptes_shared</td>
<td>256</td>
</tr>
<tr>
<td>max_ptes_swap</td>
<td>64</td>
</tr>
<tr>
<td>pages_to_scan</td>
<td>4096</td>
</tr>
<tr>
<td>scan_sleep_millisecs</td>
<td>10000</td>
</tr>
</tbody>
</table>

---

18. **OS release**

From `/etc/*-release` `/etc/*-version`

```text
os-release SUSE Linux Enterprise Server 15 SP4
```

---

19. **Disk information**

SPEC is set to: /home/cpu2017-1.1.9.ic2023.0

Filesystem | Type | Size | Used | Avail | Use% | Mounted on |
---|---|---|---|---|---|---|
/dev/sda2 | xfs | 894G | 64G | 830G | 8% | / |

---

20. **/sys/devices/virtual/dmi/id**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor</td>
<td>Lenovo</td>
</tr>
<tr>
<td>Product</td>
<td>ThinkSystem SR630 V3 MB, EGS, DDR5, NY, 1U</td>
</tr>
<tr>
<td>Product Family</td>
<td>ThinkSystem</td>
</tr>
<tr>
<td>Serial</td>
<td>1234567890</td>
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(Continued on next page)
### Lenovo Global Technology

**ThinkSystem SR630 V3**
(3.60 GHz, Intel Xeon Gold 6444Y)

<table>
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<tr>
<th>CPU2017 License:</th>
<th>Lenovo Global Technology</th>
</tr>
</thead>
<tbody>
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<td>Test Sponsor:</td>
<td>Lenovo Global Technology</td>
</tr>
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<td>Tested by:</td>
<td>Lenovo Global Technology</td>
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### SPEC CPU®2017 Integer Speed Result

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<th>SPECspeed®2017_int_base</th>
<th>15.5</th>
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</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

21. dmidecode

Additional information from dmidecode 3.2 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:
  - 2x Samsung M321R4GA3BB0-CQKMG 32 GB 2 rank 4800
  - 14x Samsung M321R4GA3BB0-CQKVVG 32 GB 2 rank 4800

22. BIOS

(This section combines info from /sys/devices and dmidecode.)

- BIOS Vendor: Lenovo
- BIOS Version: ESE109L-1.10
- BIOS Date: 01/07/2023
- BIOS Revision: 1.10
- Firmware Revision: 1.0

### Compiler Version Notes

- **C**
  - 600.perlbench_s(base) 602.qcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(base)

  Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
  Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

- **C++**
  - 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)

  Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
  Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

- **Fortran**
  - 648.exchange2_s(base)

  Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version 2023.0.0 Build 20221201
  Copyright (C) 1985-2022 Intel Corporation. All rights reserved.

### Base Compiler Invocation

- **C benchmarks:**
  - icx

- **C++ benchmarks:**
  - icpx

- **Fortran benchmarks:**
  - ifx
Lenovo Global Technology
ThinkSystem SR630 V3
(3.60 GHz, Intel Xeon Gold 6444Y)

**SPECspeed®2017_int_base** = 15.5
**SPECspeed®2017_int_peak** = Not Run

---

**Base Portability Flags**

- 600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
- 602.gcc_s: -DSPEC_LP64
- 605.mcf_s: -DSPEC_LP64
- 620.omnetpp_s: -DSPEC_LP64
- 623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
- 625.x264_s: -DSPEC_LP64
- 631.deepsjeng_s: -DSPEC_LP64
- 641.leela_s: -DSPEC_LP64
- 648.exchange2_s: -DSPEC_LP64
- 657.xz_s: -DSPEC_LP64

---

**Base Optimization Flags**

**C benchmarks:**
- m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
- mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -fiopenmp
- DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

**C++ benchmarks:**
- m64 -std=c++14 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math
- flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
- L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

**Fortran benchmarks:**
- m64 -Wl,-z,muldefs -xsapphirerapids -O3 -ffast-math -flto
- mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
- nostandard-realloc-lhs -align array32byte
- 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-O.html
http://www.spec.org/cpu2017/flags/Intel-ic2023-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-O.xml
http://www.spec.org/cpu2017/flags/Intel-ic2023-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 2023-02-21 10:45:18-0500.
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