Cisco Systems
Cisco UCS C220 M7 (Intel Xeon Gold 6542Y, 2.90GHz)

| SPECrate®2017_int_base | 503 |
| SPECrate®2017_int_peak | 519 |

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems
Test Date: Apr-2024
Hardware Availability: Feb-2024
Software Availability: Dec-2023

## Hardware

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Gold 6542Y</td>
</tr>
<tr>
<td>Max MHz</td>
<td>4100</td>
</tr>
<tr>
<td>Nominal</td>
<td>2900</td>
</tr>
<tr>
<td>Enabled</td>
<td>48 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable</td>
<td>1.2 Chips</td>
</tr>
<tr>
<td>Cache L1</td>
<td>32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>L2</td>
<td>2 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3</td>
<td>60 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>1 TB (16 x 64 GB 2Rx4 PC5-5600B-R, running at 5200)</td>
</tr>
<tr>
<td>Storage</td>
<td>1 x 960 GB M.2 SSD SATA</td>
</tr>
<tr>
<td>Other</td>
<td>CPU Cooling: Air</td>
</tr>
</tbody>
</table>

## Software

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>SUSE Linux Enterprise Server 15 SP4</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 2023.2.3 of Intel oneAPI DPC++/C++</td>
</tr>
<tr>
<td></td>
<td>Compiler for Linux</td>
</tr>
<tr>
<td></td>
<td>Fortran: Version 2023.2.3 of Intel Fortran</td>
</tr>
<tr>
<td></td>
<td>Compiler for Linux</td>
</tr>
<tr>
<td>Parallel</td>
<td>No</td>
</tr>
<tr>
<td>File System</td>
<td>btrfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>32/64-bit</td>
</tr>
<tr>
<td>Other</td>
<td>jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td>Power Management</td>
<td>BIOS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

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### SPEC CPU 2017 Integer Rate Result

| SPECrate®2017_int_base | 503 |
| SPECrate®2017_int_peak | 519 |

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<td>Hardware Availability</td>
<td>Feb-2024</td>
</tr>
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</tbody>
</table>

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>96</td>
<td>404</td>
<td>379</td>
<td>404</td>
<td>379</td>
<td>404</td>
<td>379</td>
<td>96</td>
<td>371</td>
<td>412</td>
<td>370</td>
<td>413</td>
<td>370</td>
<td>413</td>
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<tr>
<td>502.gcc_r</td>
<td>96</td>
<td>323</td>
<td>421</td>
<td>324</td>
<td>419</td>
<td>322</td>
<td>420</td>
<td>96</td>
<td>273</td>
<td>498</td>
<td>273</td>
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<td>498</td>
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<tr>
<td>505.mcf_r</td>
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<td>803</td>
<td>193</td>
<td>805</td>
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<td>803</td>
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<td>806</td>
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<tr>
<td>520.omnetpp_r</td>
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<td>384</td>
<td>328</td>
<td>383</td>
<td>329</td>
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<td>328</td>
<td>383</td>
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<tr>
<td>523.xalancbmk_r</td>
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<td>147</td>
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<td>147</td>
<td>688</td>
<td>148</td>
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<td>685</td>
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<tr>
<td>525.x264_r</td>
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<td>1080</td>
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<td>531.deepsjeng_r</td>
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<td>369</td>
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<td>370</td>
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<td>369</td>
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<tr>
<td>541.leela_r</td>
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<td>360</td>
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<td>361</td>
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<td>359</td>
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<td>548.exchange2_r</td>
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<td>1100</td>
<td>228</td>
<td>1100</td>
<td>96</td>
<td>232</td>
<td>1080</td>
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<td>1100</td>
<td>228</td>
<td>1100</td>
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<tr>
<td>557.xz_r</td>
<td>96</td>
<td>426</td>
<td>244</td>
<td>432</td>
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<td>96</td>
<td>426</td>
<td>244</td>
<td>432</td>
<td>240</td>
<td>431</td>
<td>241</td>
</tr>
</tbody>
</table>

**SPECrate®2017_int_base = 503**

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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/lib/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/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.

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.

(Continued on next page)
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SPEC CPU®2017 Integer Rate Result

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General Notes (Continued)

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

BIOS Settings:
Sub NUMA Clustering set to Enable SNC2(2-clusters)
ADDCS Sparing set to Disabled
DCU Streamer Prefetch set to Disabled
Enhanced CPU performance set to Auto
LLC Dead Line set to Disabled
Processor C6 Report set to Enabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c3ae2c992c097bec197
running on localhost Wed Apr 17 23:33:25 2024

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

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1. uname -a
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuid
7. lscpu
8. numacl --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/kshugepaged
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
23:33:25 up 7 min, 1 user, load average: 0.00, 0.03, 0.01
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 23:33 5.00s 1.21s 0.20s -bash

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Platform Notes (Continued)

3. Username
   From environment variable $USER: root

4. ulimit -a
   core file size          (blocks, -c) unlimited
   data seg size           (kbytes, -d) unlimited
   scheduler priority      (priority) 0
   file size               (blocks, -f) unlimited
   pending signals         (-i 4126910
   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) 4126910
   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 --action-build --action-validate --define default-platform-flags --define numcopies=96 -c
     ic2023.2.3-lin-sapphire-rapids-rate-20231121.cfg --reportable --iterations 3 --define smt-on --define
     cores=48 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune all -- all
     intrate
   runcpu --action-build --action-validate --define default-platform-flags --define numcopies=96 --configfile
     ic2023.2.3-lin-sapphire-rapids-rate-20231121.cfg --reportable --iterations 3 --define smt-on --define
     cores=48 --define physicalfirst --define invoke_with_interleave --define drop_caches --tune all
     --output_format all --nopower --runmode rate --temp base:peak --size referate intrate --nopreenv
     --note-preenv --logfile $SPEC/tmp/CPU2017.091/tempplogs/preenv.intrate.091.1.0.log --lognum 091.0
     --from_runcpu 2
     specperl $SPEC/bin/sysinfo
     $SPEC = /home/cpu2017

6. /proc/cpuinfo
   model name      : INTEL(R) XEON(R) GOLD 6542Y
   vendor_id       : GenuineIntel
   cpu family      : 6
   model           : 207
   stepping        : 2
   microcode       : 0x210000200
   bugs            : spectre_v1 spectre_v2 spec_store_bypass swags
   cpu cores       : 24
   siblings        : 48
   2 physical ids (chips)
   96 processors (hardware threads)
   physical id 0: core ids 0-23
   physical id 0: core ids 0-23
   physical id 0: apicids 0-47
   physical id 1: apicids 128-175
Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for

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Platform Notes (Continued)

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
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95
Vendor ID: GenuineIntel
Model name: INTEL(R) XEON(R) GOLD 6542Y
CPU family: 6
Model: 207
Thread(s) per core: 2
Core(s) per socket: 24
Stepping: 2
CPU max MHz: 4100.000
CPU min MHz: 800.000
BogoMIPS: 5800.00

Flags:

fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
clflush dtc acpi mmx fxsr mmxex sax2e as ht tm pbe syscall nx pdpe1gb rdtscp
lm constant_tsc art arch_performance pebs bts rep_good nopl xtopology
nonstop_tsc cpuid aperffmr tsc_known_fq npi pclmulqdq dtes64 monitor
des_cpl smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pclid dca sse4_1 ssse2_sse4_2
x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdxrdn lahf_lm
ahl amh dnmw prefetch cpuid_fault eph cat_13 cat_12 cdp_13 invpcid_single
cdp_12 ssbd mba ibrs lbpb stibp ibrs_enhanced fsbase tsc_adjust bml1 hle
avx2 smp libm3 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_occu_cqm_mmm_total
cq_mmb_local avx_vnni avx512_bf16 wbinvd dtherm ida arat pln pts hwp
hwp_act_window hwp_mpp hwp_pkg_req avx512vbi unip pkp ospe waitpkg
avx512_v5mi2 gfini vae vpclmulqdq avx512_vnni avx512_vml_avx512_extension
avx512_vfopcpndctq l577 rdipd bus_lock_detect coldmote movdiri movdir64b
enqcmd fmsd md_clear serialize txslvdrk pconfig arch_lbr avx512_fp16
amx_tile flush_l1d arch_capabilities

L1d cache: 2.3 MiB (48 instances)
L1i cache: 1.5 MiB (48 instances)
L2 cache: 96 MiB (48 instances)
L3 cache: 120 MiB (2 instances)
NUMA node(s): 4
NUMA node0 CPU(s): 0-11,48-59
NUMA node1 CPU(s): 12-23,60-71
NUMA node2 CPU(s): 24-35,72-83
NUMA node3 CPU(s): 36-47,84-95
Vulnerability rtt multihit: Not affected
Vulnerability Lttfs: Not affected
Vulnerability Mtxds: 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 Srbd: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:

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**Platform Notes (Continued)**

<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>2.3M</td>
<td>12</td>
<td>Data</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L1i</td>
<td>32K</td>
<td>1.5M</td>
<td>8</td>
<td>Instruction</td>
<td>1</td>
<td>64</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L2</td>
<td>2M</td>
<td>90M</td>
<td>16</td>
<td>Unified</td>
<td>2</td>
<td>2048</td>
<td>1</td>
<td>64</td>
</tr>
<tr>
<td>L3</td>
<td>60M</td>
<td>120M</td>
<td>15</td>
<td>Unified</td>
<td>3</td>
<td>65536</td>
<td>1</td>
<td>64</td>
</tr>
</tbody>
</table>

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 4 nodes (0-3)

node 0 cpus: 0-11,48-59
node 0 size: 257689 MB
node 0 free: 256279 MB
node 1 cpus: 12-23,60-71
node 1 size: 258041 MB
node 1 free: 257487 MB
node 2 cpus: 24-35,72-83
node 2 size: 258041 MB
node 2 free: 257642 MB
node 3 cpus: 36-47,84-95
node 3 size: 257978 MB
node 3 free: 257574 MB
node distances:

<table>
<thead>
<tr>
<th>node</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>12</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>10</td>
<td>21</td>
<td>21</td>
</tr>
<tr>
<td>2</td>
<td>21</td>
<td>21</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>21</td>
<td>21</td>
<td>12</td>
<td>10</td>
</tr>
</tbody>
</table>

9. /proc/meminfo

MemTotal: 1056513412 kB

10. who -r

run-level 3 Apr 17 23:26

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

<table>
<thead>
<tr>
<th>STATE</th>
<th>UNIT FILES</th>
</tr>
</thead>
<tbody>
<tr>
<td>enabled</td>
<td>YaST2-Firstboot YaST2-Second-Stage apparmor auditd cron getty@ havedeg irqbalance iscsi issue-generator kbdsettings klog libvirt lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd ssdh wicked wickedd-auto4 wickeddd-dhcpd wickeddd-dhcpd wickeddd-nanny</td>
</tr>
<tr>
<td>enabled-runtime</td>
<td>systemd-remount-fs</td>
</tr>
<tr>
<td>disabled</td>
<td>autoservice autostart-ntfs avainability boot-sysct1 ca-certificates chrony-wait chronyd console-getty cups cups-browsed debug-shell dsnmasq ebtidb exchange-bmc-os-info firewalld gpm grub2-once havedeg-switch-root ipmi ipmiupd iscsi-init iscsidman db-create multipathd nfs nfs-blinkmap nfs-server nfsserver rdisc rrdmon rmdirconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd strongswan strongswan-starter svnserve systemd-boot-check-no-failures systemd-network-generator systemd-nspawn@ systemd-sysexec systemd-time-sync systemd-timesyncd tcad udiskid2 virtinterfaced virtnetworkd virtnodeudev virtmfilterd virtproxyd virtgmemud virtsecreted virtstoraged pcacrd virtlockdevd virtlogd wicked</td>
</tr>
</tbody>
</table>
Cisco Systems
Cisco UCS C220 M7 (Intel Xeon Gold 6542Y, 2.90GHz)

SPECraten\textsuperscript{2017}_int_base = 503
SPECraten\textsuperscript{2017}_int_peak = 519

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems
Test Date: Apr-2024
Hardware Availability: Feb-2024
Software Availability: Dec-2023

Platform Notes (Continued)

13. Linux kernel boot-time arguments, from /proc/cmdline
   BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
   root=UUID=2e0ad397-074a-46f8-9f0a-5231b03b9d87
   splash=silent
   mitigations=auto
   quiet
   security=apparmor

14. cpupower frequency-info
   analyzing CPU 0:
   current policy: frequency should be within 800 MHz and 4.10 GHz.
   The governor "performance" may decide which speed to use
   within this range.
   boost state support:
   Supported: yes
   Active: yes

15. sysctl
   kernel.numa_balancing                1
   kernel.randomize_va_space            2
   vm.compartment_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.extratag_threshold                500
   vm.min_unmapped_ratio                1
   vm.nr_hugepages                      0
   vm.nr_hugepages_mempolicy            0
   vm.nr_overcommit_hugepages           0
   vm.swappiness                        1
   vm.watermark_boost_factor            15000
   vm.watermark_scale_factor            10
   vm.zone_reclaim_mode                 0

16. /sys/kernel/mm/transparent_hugepage
   defrag [always] 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/hugepaged
   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

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

From /etc/*-release /etc/*-version
os-release SUSE Linux Enterprise Server 15 SP4

---

19. Disk information
SPEC is set to: /home/cpu2017

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>btrfs</td>
<td>445G</td>
<td>19G</td>
<td>425G</td>
<td>5%</td>
<td>/home</td>
</tr>
</tbody>
</table>

---

20. /sys/devices/virtual/dmi/id
Vendor: Cisco Systems Inc
Product: UCSC-C220-M7S
Serial: WZP2702091W

---

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:
16x 0xCE00 M321R8GA0PB0-CWMCH 64 GB 2 rank 5600, configured at 5200

---

22. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor: Cisco Systems, Inc.
BIOS Version: C220M7.4.3.3a.0.0118241337
BIOS Date: 01/18/2024
BIOS Revision: 5.32

---

**Compiler Version Notes**

---

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x
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---

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2023.2.3 Build x
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---

Intel(R) oneAPI DPC++/C++ Compiler for applications running on IA-32, Version 2023.2.3 Build x
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Cisco Systems  
Cisco UCS C220 M7 (Intel Xeon Gold 6142Y, 2.90GHz)

<table>
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**Compiler Version Notes (Continued)**

<table>
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<tr>
<th>Base Compiler Invocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>C benchmarks: icx</td>
</tr>
<tr>
<td>C++ benchmarks: icpx</td>
</tr>
<tr>
<td>Fortran benchmarks: ifx</td>
</tr>
</tbody>
</table>

**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
```
Cisco Systems
Cisco UCS C220 M7 (Intel Xeon Gold 6542Y, 2.90GHz)

SPEC CPU®2017 Integer Rate Result
Copyright 2017-2024 Standard Performance Evaluation Corporation

SPECrate®2017_int_base = 503
SPECrate®2017_int_peak = 519

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Tested by: Cisco Systems

Test Date: Apr-2024
Hardware Availability: Feb-2024
Software Availability: Dec-2023

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

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

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -D_FILE_OFFSET_BITS=64
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

(Continued on next page)
## SPEC CPU®2017 Integer Rate Result

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**Tested by:** Cisco Systems

| Test Date: | Apr-2024  
| Hardware Availability: | Feb-2024  
| Software Availability: | Dec-2023 |

### Peak Portability Flags (Continued)

- **557.xz_r:** -DSPEC_LP64

### Peak Optimization Flags

**C benchmarks:**

- 500.perlbench_r: -w -std=c11 -m64 -Wl,-z,muldefs -fprofile-generate(pass 1)  
- fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)  
- flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse  
- funroll-loops -qopt-mem-layout-trans=4  
- fno-strict-overflow  
- L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/intel64_lin  
- lqkmalloc

- 502.gcc_r: -m32  
- L/home/specdev/new_compilers/ic2023.2.3/compiler/lib/ia32_lin  
- std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)  
- fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)  
- flto -Ofast -xCORE-AVX512 -ffast-math -mfpmath=sse  
- funroll-loops -qopt-mem-layout-trans=4  
- L/usr/local/jemalloc32-5.0.1/lib -ljemalloc

- 505.mcf_r: basepeak = yes

**C++ benchmarks:**

- 520.omnetpp_r: basepeak = yes
- 523.xalancbmk_r: basepeak = yes
- 531.deepsjeng_r: basepeak = yes
- 541.leela_r: basepeak = yes

(Continued on next page)
## Cisco Systems

### SPEC CPU®2017 Integer Rate Result

**Cisco UCS C220 M7 (Intel Xeon Gold 6542Y, 2.90GHz)**

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### Peak Optimization Flags (Continued)

For Fortran benchmarks:

548.exchange2_r:basepeak = yes

The flags files that were used to format this result can be browsed at:


You can also download the XML flags sources by saving the following links:


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