



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

CPU2017 License: 9019

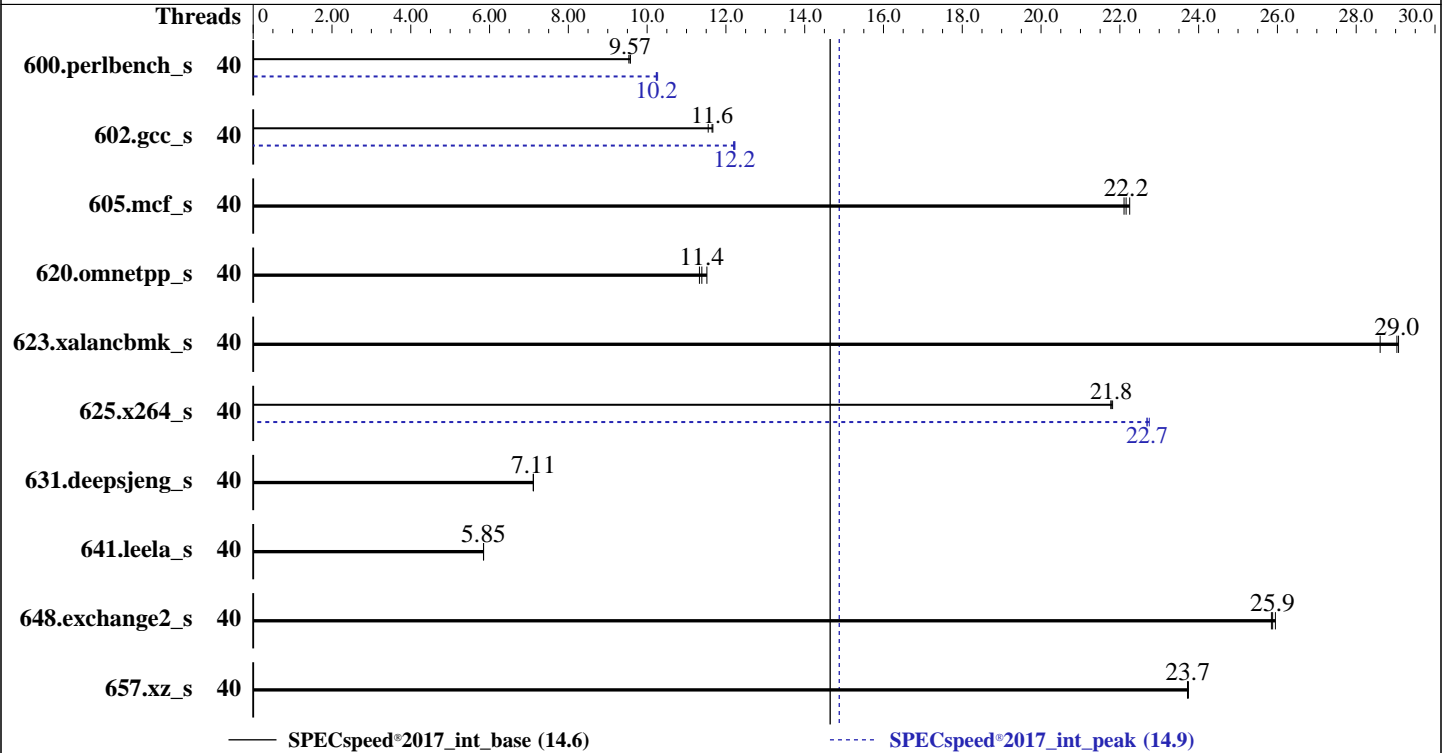
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022



### Hardware

CPU Name: Intel Xeon Silver 4416+  
 Max MHz: 3900  
 Nominal: 2000  
 Enabled: 40 cores, 2 chips  
 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: 37.5 MB I+D on chip per chip  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R, running at 4000)  
 Storage: 1 x 240 GB M.2 SSD SATA  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP4  
 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 for Linux;  
 Parallel: Yes  
 Firmware: Version 4.3.2a released Jul-2023  
 File System: btrfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc memory allocator V5.0.1  
 Power Management: BIOS set to prefer power save with minimal impact on performance



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	40	186	9.54	<b>185</b>	<b>9.57</b>	185	9.57	40	<b>173</b>	<b>10.2</b>	173	10.2	173	10.3
602.gcc_s	40	345	11.6	341	11.7	<b>342</b>	<b>11.6</b>	40	326	12.2	327	12.2	<b>326</b>	<b>12.2</b>
605.mcf_s	40	214	22.1	212	22.3	<b>213</b>	<b>22.2</b>	40	214	22.1	212	22.3	<b>213</b>	<b>22.2</b>
620.omnetpp_s	40	142	11.5	<b>143</b>	<b>11.4</b>	144	11.3	40	142	11.5	<b>143</b>	<b>11.4</b>	144	11.3
623.xalancbmk_s	40	<b>48.8</b>	<b>29.0</b>	48.7	29.1	49.5	28.6	40	<b>48.8</b>	<b>29.0</b>	48.7	29.1	49.5	28.6
625.x264_s	40	80.9	21.8	81.0	21.8	<b>81.0</b>	<b>21.8</b>	40	77.7	22.7	77.5	22.7	<b>77.7</b>	<b>22.7</b>
631.deepsjeng_s	40	201	7.12	<b>201</b>	<b>7.11</b>	202	7.11	40	201	7.12	<b>201</b>	<b>7.11</b>	202	7.11
641.leela_s	40	292	5.85	<b>292</b>	<b>5.85</b>	292	5.85	40	292	5.85	<b>292</b>	<b>5.85</b>	292	5.85
648.exchange2_s	40	113	25.9	114	25.8	<b>114</b>	<b>25.9</b>	40	113	25.9	114	25.8	<b>114</b>	<b>25.9</b>
657.xz_s	40	261	23.7	<b>261</b>	<b>23.7</b>	260	23.7	40	261	23.7	<b>261</b>	<b>23.7</b>	260	23.7

SPECspeed®2017\_int\_base = **14.6**

SPECspeed®2017\_int\_peak = **14.9**

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](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,compact"  
LD\_LIBRARY\_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/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)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Oct-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Dec-2022

## 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.

jemalloc, a general purpose malloc implementation

built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

## Platform Notes

BIOS Settings:

Intel Hyper-Threading Technology set to Disabled

Sub NUMA Clustering set to Disabled

LLC Dead Line set to Disabled

ADDDC Sparing set to Disabled

Processor C6 Report set to Enabled

UPI Link Enablement 1

UPI Power Management Enabled

Sysinfo program /home/cpu2017/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on localhost Tue Oct 3 03:02:58 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 (249.11+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  
-----

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Oct-2023

Hardware Availability: Mar-2023

Software Availability: Dec-2022

### Platform Notes (Continued)

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
   03:02:58 up 1 min,  1 user,  load average: 0.26, 0.14, 0.05
USER  TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root  tty1    -              03:02   10.00s  1.40s  0.09s  -bash
-----

```

```

-----
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) 4127013
   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) 4127013
   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 --define default-platform-flags -c ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define cores=40
     --tune all -o all --define drop_caches intspeed
   runcpu --define default-platform-flags --configfile ic2023.0-lin-sapphirerapids-speed-20221201.cfg --define
     cores=40 --tune all --output_format all --define drop_caches --nopower --runmode speed --tune base:peak
     --size refspeed intspeed --nopreenv --note-preenv --logfile
     $SPEC/tmp/CPU2017.086/temlogs/preenv.intspeed.086.0.log --lognum 086.0 --from_runcpu 2
   specperl $SPEC/bin/sysinfo
   $SPEC = /home/cpu2017
-----

```

```

-----
6. /proc/cpuinfo
   model name      : Intel(R) Xeon(R) Silver 4416+
   vendor_id      : GenuineIntel
   cpu family     : 6
   model          : 143
   stepping       : 8
   microcode      : 0x2b000461
   bugs           : spectre_v1 spectre_v2 spec_store_bypass swapgs
   cpu cores      : 20
   siblings       : 20
   2 physical ids (chips)
   40 processors (hardware threads)
-----

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

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

**Test Date:** Oct-2023  
**Hardware Availability:** Mar-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

physical id 0: core ids 0-19  
physical id 1: core ids 0-19  
physical id 0: apicids 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38  
physical id 1: apicids 128,130,132,134,136,138,140,142,144,146,148,150,152,154,156,158,160,162,164,166  
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):                40
On-line CPU(s) list:   0-39
Vendor ID:             GenuineIntel
Model name:            Intel(R) Xeon(R) Silver 4416+
CPU family:            6
Model:                143
Thread(s) per core:   1
Core(s) per socket:   20
Socket(s):             2
Stepping:              8
CPU max MHz:           3900.0000
CPU min MHz:           800.0000
BogoMIPS:              4000.00
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 hwp hwp_act_window hwp_epp hwp_pkg_req 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:             1.9 MiB (40 instances)
L1i cache:             1.3 MiB (40 instances)
L2 cache:              80 MiB (40 instances)
L3 cache:              75 MiB (2 instances)
NUMA node(s):         2
NUMA node0 CPU(s):    0-19
NUMA node1 CPU(s):    20-39
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/swapgs barriers and __user pointer sanitization
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

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

**Test Date:** Oct-2023  
**Hardware Availability:** Mar-2023  
**Software Availability:** Dec-2022

### Platform Notes (Continued)

Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling  
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	1.9M	12	Data	1	64	1	64
L1i	32K	1.3M	8	Instruction	1	64	1	64
L2	2M	80M	16	Unified	2	2048	1	64
L3	37.5M	75M	15	Unified	3	40960	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: 0-19  
node 0 size: 515706 MB  
node 0 free: 514416 MB  
node 1 cpus: 20-39  
node 1 size: 516070 MB  
node 1 free: 515416 MB  
node distances:  
node 0 1  
0: 10 21  
1: 21 10

9. /proc/meminfo

MemTotal: 1056539656 kB

10. who -r

run-level 3 Oct 3 03:01

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@ haveged irqbalance issue-generator kbdsettings klog lvm2-monitor nscd postfix purge-kernels rollback rsyslog smartd sshd 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 firewallld gpm grub2-once haveged-switch-root ipmi ipmievd issue-add-ssh-keys kexec-load ksm kvm_stat lunmask man-db-create multipathd nfs nfs-blkmap rdisc rpcbind rpmconfigcheck rsyncd serial-getty@ smartd_generate_opts snmpd snmptrapd svnservice systemd-boot-check-no-failures systemd-network-generator systemd-sysext systemd-time-wait-sync systemd-timesyncd udisks2 wickedd
indirect	wickedd

13. Linux kernel boot-time arguments, from /proc/cmdline

BOOT\_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default  
root=UUID=105eebe6-343f-430f-8199-ebf93f502b47  
splash=silent

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Oct-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Dec-2022

### Platform Notes (Continued)

```
mitigations=auto
quiet
security=apparmor
```

#### 14. cpupower frequency-info

```
analyzing CPU 0:
  current policy: frequency should be within 800 MHz and 3.90 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      1
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                 8
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                  1
vm.watermark_boost_factor      15000
vm.watermark_scale_factor      10
vm.zone_reclaim_mode           1
```

#### 16. /sys/kernel/mm/transparent\_hugepage

```
defrag      [always] defer defer+madvise madvise never
enabled     [always] madvise never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force
```

#### 17. /sys/kernel/mm/transparent\_hugepage/khugepaged

```
alloc_sleep_millisecs 60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs  10000
```

#### 18. OS release

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

#### 19. Disk information

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Oct-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Dec-2022

## Platform Notes (Continued)

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	btrfs	222G	13G	208G	6%	/home

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

```
Vendor:      Cisco Systems Inc
Product:     UCSX-210C-M7
Serial:      FCH270978FN
```

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 M321R8GA0BB0-CQKDG 64 GB 2 rank 4800, configured at 4000

22. BIOS

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

```
BIOS Vendor:      Cisco Systems, Inc.
BIOS Version:     X210M7.4.3.2a.0.0710230213
BIOS Date:        07/10/2023
BIOS Revision:    5.29
```

## Compiler Version Notes

```
=====  
C          | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)  
          | 657.xz_s(base, peak)  
=====
```

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, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)  
          | 641.leela_s(base, peak)  
=====
```

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, peak)  
=====
```

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.





# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Oct-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Dec-2022

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## 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
```



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Oct-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Dec-2022

## Peak Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifx

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
600.perlbench_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
602.gcc_s: -m64 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX2(pass 1)
-flto -Ofast(pass 1) -xCORE-AVX512 -O3 -ffast-math
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-fiopenmp -DSPEC_OPENMP -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

```
605.mcf_s: basepeak = yes
```

```
625.x264_s: -m64 -std=c11 -Wl,-z,muldefs -xsapphirerapids -O3
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -fiopenmp -DSPEC_OPENMP
-fno-alias -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

```
657.xz_s: basepeak = yes
```

C++ benchmarks:

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210C M7 (Intel Xeon Silver 4416+, 2.00GHz)

SPECspeed®2017\_int\_base = 14.6

SPECspeed®2017\_int\_peak = 14.9

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Oct-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Dec-2022

## Peak Optimization Flags (Continued)

620.omnetpp\_s: basepeak = yes

623.xalancbmk\_s: basepeak = yes

631.deepsjeng\_s: basepeak = yes

641.leela\_s: basepeak = yes

Fortran benchmarks:

648.exchange2\_s: basepeak = yes

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-SPR-revJ.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic2023-official-linux64.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-SPR-revJ.xml>

SPEC CPU and SPECspeed are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2023-10-03 03:02:57-0400.

Report generated on 2024-01-29 18:12:49 by CPU2017 PDF formatter v6716.

Originally published on 2023-10-24.