



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y, 2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 9019

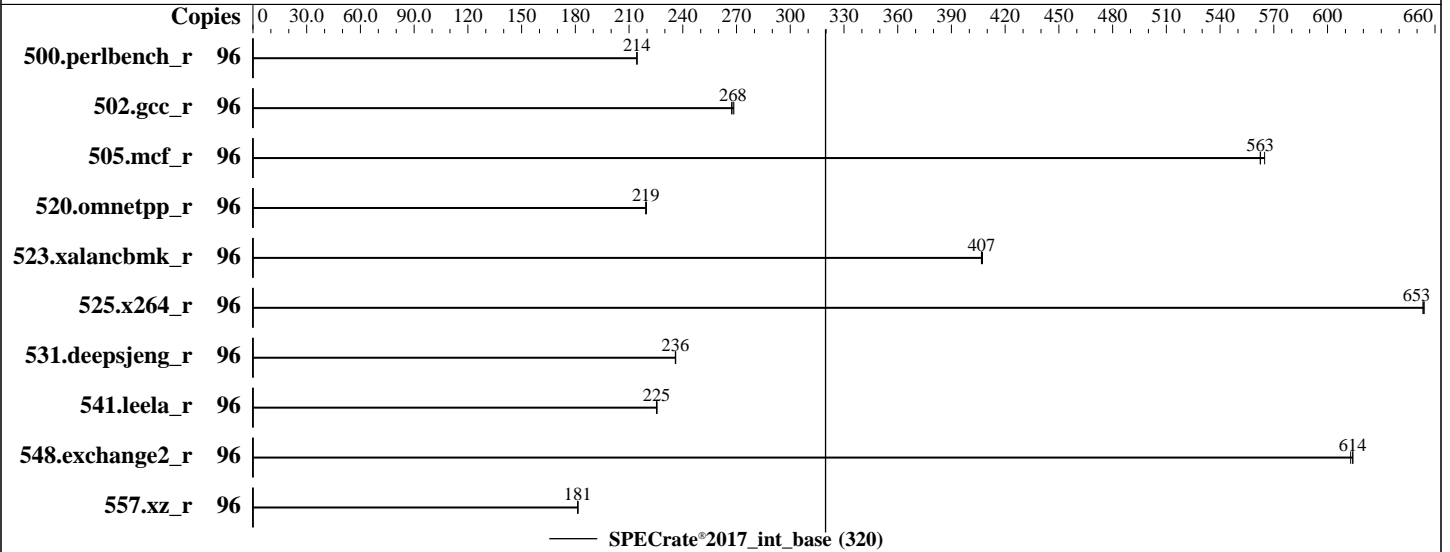
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jan-2022

Hardware Availability: Sep-2021

Software Availability: Sep-2021



### Hardware

CPU Name: Intel Xeon Gold 5318Y  
 Max MHz: 3400  
 Nominal: 2100  
 Enabled: 48 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 Chips  
 Cache L1: 32 KB I + 48 KB D on chip per core  
 L2: 1.25 MB I+D on chip per core  
 L3: 36 MB I+D on chip per chip  
 Other: None  
 Memory: 2 TB (32 x 64 GB 2Rx4 PC4-3200AA-R, running at 2933)  
 Storage: 1 x 240 GB M.2 SSD SATA  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP2 5.3.18-22-default  
 Compiler: C/C++: Version 2021.4.0 of Intel oneAPI DPC++/C++ Compiler Build 20210924 for Linux; Fortran: Version 2021.4.0 of Intel Fortran Compiler Classic Build 20210910 for Linux;  
 Parallel: No  
 Firmware: Version 5.0.1d released Aug-2021  
 File System: btrfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None  
 Power Management: OS set to prefer performance at the cost of additional power usage



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y, 2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

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

Test Date: Jan-2022  
Hardware Availability: Sep-2021  
Software Availability: Sep-2021

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	96	713	214	713	214	<b>713</b>	<b>214</b>							
502.gcc_r	96	<b>507</b>	<b>268</b>	509	267	506	269							
505.mcf_r	96	275	565	276	562	<b>276</b>	<b>563</b>							
520.omnetpp_r	96	574	219	573	220	<b>574</b>	<b>219</b>							
523.xalancbmk_r	96	<b>249</b>	<b>407</b>	249	407	249	407							
525.x264_r	96	<b>257</b>	<b>653</b>	257	653	257	654							
531.deepsjeng_r	96	466	236	<b>466</b>	<b>236</b>	466	236							
541.leela_r	96	706	225	705	226	<b>705</b>	<b>225</b>							
548.exchange2_r	96	410	613	<b>410</b>	<b>614</b>	410	614							
557.xz_r	96	<b>572</b>	<b>181</b>	572	181	571	181							

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

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

## Submit Notes

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

## Operating System Notes

Stack size set to unlimited using "ulimit -s unlimited"

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH =
"/home/intel/tbb/2021.4.0/env/./lib/intel64/gcc4.8:/home/intel/mpi/2021
.4.0//libfabric/lib:/home/intel/mpi/2021.4.0//lib/release:/home/intel/mp
i/2021.4.0//lib:/home/intel/compiler/2021.4.0/linux/compiler/lib/intel64
_lin:/home/intel/compiler/2021.4.0/linux/lib:/home/intel/clck/2021.4.0/l
ib/intel64:/home/cpu2017/je5.0.1-32"
MALLOCONF = "retain:true"
```

## General Notes

Binaries compiled on a system with 1x Intel Core i9-7940X CPU + 64GB RAM memory using openSUSE Leap 15.2  
Transparent Huge Pages enabled by default

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y, 2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Jan-2022

**Hardware Availability:** Sep-2021

**Software Availability:** Sep-2021

## General Notes (Continued)

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.

## Platform Notes

BIOS Settings:

Adjacent Cache Line Prefetcher set to Disabled

DCU Streamer Prefetch set to Disabled

Sub NUMA Clustering set to Enabled

LLC Dead Line set to Disabled

Memory Refresh Rate set to 1x Refresh

ADDDC Sparing set to Disabled

Patrol Scrub set to Disabled

Processor C6 Report set to Enabled

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on perf-blade3 Mon Jan 24 23:36:08 2022

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

For more information on this section, see  
<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Gold 5318Y CPU @ 2.10GHz

2 "physical id"s (chips)

96 "processors"

cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

cpu cores : 24

siblings : 48

physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

From lscpu from util-linux 2.33.1:

Architecture: x86\_64

CPU op-mode(s): 32-bit, 64-bit

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y, 2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jan-2022

Hardware Availability: Sep-2021

Software Availability: Sep-2021

### Platform Notes (Continued)

```

Byte Order:           Little Endian
Address sizes:        46 bits physical, 57 bits virtual
CPU(s):               96
On-line CPU(s) list: 0-95
Thread(s) per core:  2
Core(s) per socket:  24
Socket(s):            2
NUMA node(s):         4
Vendor ID:            GenuineIntel
CPU family:           6
Model:                106
Model name:           Intel(R) Xeon(R) Gold 5318Y CPU @ 2.10GHz
Stepping:             6
CPU MHz:              2667.695
CPU max MHz:          3400.0000
CPU min MHz:          800.0000
BogoMIPS:             4200.00
Virtualization:       VT-x
L1d cache:            48K
L1i cache:            32K
L2 cache:             1280K
L3 cache:             36864K
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
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
aperfmpperf 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 invpcid_single 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 wbnoinvd dtherm ida arat pln pts hwp hwp_act_window hwp_epp
hwp_pkg_req avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni
avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_l1d
arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 36864 KB

```

From numactl --hardware

```

WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 4 nodes (0-3)

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y, 2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Jan-2022

**Hardware Availability:** Sep-2021

**Software Availability:** Sep-2021

### Platform Notes (Continued)

```

node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 48 49 50 51 52 53 54 55 56 57 58 59
node 0 size: 515684 MB
node 0 free: 515316 MB
node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23 60 61 62 63 64 65 66 67 68 69 70 71
node 1 size: 516089 MB
node 1 free: 515810 MB
node 2 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 72 73 74 75 76 77 78 79 80 81 82 83
node 2 size: 516056 MB
node 2 free: 515738 MB
node 3 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 84 85 86 87 88 89 90 91 92 93 94 95
node 3 size: 516086 MB
node 3 free: 515782 MB
node distances:
node  0  1  2  3
  0:  10  11  20  20
  1:  11  10  20  20
  2:  20  20  10  11
  3:  20  20  11  10

```

From /proc/meminfo

```

MemTotal:      2113450392 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

/sys/devices/system/cpu/cpu\*/cpufreq/scaling\_governor has performance

From /etc/\*release\* /etc/\*version\*

```

os-release:
NAME="SLES"
VERSION="15-SP2"
VERSION_ID="15.2"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP2"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp2"

```

uname -a:

```

Linux perf-blade3 5.3.18-22-default #1 SMP Wed Jun 3 12:16:43 UTC 2020 (720aeba)
x86_64 x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2018-12207 (iTLB Multihit):          Not affected
CVE-2018-3620 (L1 Terminal Fault):      Not affected
Microarchitectural Data Sampling:      Not affected

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y, 2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Jan-2022

Hardware Availability: Sep-2021

Software Availability: Sep-2021

### Platform Notes (Continued)

CVE-2017-5754 (Meltdown):	Not affected
CVE-2018-3639 (Speculative Store Bypass):	Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1):	Mitigation: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):	Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

run-level 3 Jan 24 23:11

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	btrfs	222G	60G	162G	27%	/home

```

From /sys/devices/virtual/dmi/id
Vendor:      Cisco Systems Inc
Product:     UCSX-210C-M6
Serial:      FCH25057ALS

```

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:
  32x 0xCE00 M393A8G40AB2-CWE 64 GB 2 rank 3200, configured at 2933

```

```

BIOS:
  BIOS Vendor:      Cisco Systems, Inc.
  BIOS Version:     X210M6.5.0.1d.0.0816211754
  BIOS Date:        08/16/2021
  BIOS Revision:    5.22

```

(End of data from sysinfo program)

### 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 2021.4.0 Build 20210924

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y, 2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Jan-2022

**Hardware Availability:** Sep-2021

**Software Availability:** Sep-2021

## Compiler Version Notes (Continued)

Copyright (C) 1985-2021 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 2021.4.0 Build 20210924

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

```

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

```

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.4.0 Build 20210910\_000000

Copyright (C) 1985-2021 Intel Corporation. All rights reserved.

## Base Compiler Invocation

C benchmarks:

icx

C++ benchmarks:

icpx

Fortran benchmarks:

ifort

## 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



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2022 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS X210c M6 (Intel Xeon Gold 5318Y,  
2.10GHz)

SPECrate®2017\_int\_base = 320

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Jan-2022

**Hardware Availability:** Sep-2021

**Software Availability:** Sep-2021

## Base Optimization Flags

C benchmarks:

```
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math  
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-mbranches-within-32B-boundaries  
-L/home/intel/compiler/2021.4.0/linux/compiler/lib/intel64_lin  
-lqkmalloc
```

C++ benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto  
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4  
-mbranches-within-32B-boundaries  
-L/home/intel/compiler/2021.4.0/linux/compiler/lib/intel64_lin  
-lqkmalloc
```

Fortran benchmarks:

```
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div  
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte  
-mbranches-within-32B-boundaries  
-L/home/intel/compiler/2021.4.0/linux/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/Intel-ic2021-official-linux64\\_revA.2021-12-22.html](http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.2021-12-22.html)

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-ICX-rev1.html>

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

[http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64\\_revA.2021-12-22.xml](http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.2021-12-22.xml)

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.0-ICX-rev1.xml>

SPEC CPU and SPECrate 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 v1.1.8 on 2022-01-25 02:36:08-0500.

Report generated on 2022-02-15 16:27:00 by CPU2017 PDF formatter v6442.

Originally published on 2022-02-15.