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

<table>
<thead>
<tr>
<th>Software</th>
<th>Hardware</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS: SUSE Linux Enterprise Server 15 SP2</td>
<td>CPU Name: Intel Xeon Gold 5318Y</td>
</tr>
<tr>
<td>5.3.18-22-default</td>
<td>Max MHz: 3400</td>
</tr>
<tr>
<td>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;</td>
<td>Nominal: 2100</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Enabled: 48 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Firmware: Version 5.0.1d released Aug-2021</td>
<td>Orderable: 1,2 Chips</td>
</tr>
<tr>
<td>File System: btrfs</td>
<td>Cache L1: 32 KB I + 48 KB D on chip per core</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td>L2: 1.25 MB I+D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L3: 36 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Peak Pointers: Not Applicable</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: None</td>
<td>Memory: 2 TB (32 x 64 GB 2Rx4 PC4-3200AA-R, running at 2933)</td>
</tr>
<tr>
<td>Power Management: OS set to prefer performance at the cost of additional power usage</td>
<td></td>
</tr>
</tbody>
</table>

| 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 |

Copies

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base (320)</th>
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<tr>
<td>505.mcf_r</td>
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<td>523.xalancbmk_r</td>
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<tr>
<td>525.x264_r</td>
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<tr>
<td>531.deepsjeng_r</td>
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<tr>
<td>548.exchange2_r</td>
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<tr>
<td>557.xz_r</td>
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Test Date: Jan-2022
Hardware Availability: Sep-2021
Software Availability: Sep-2021

660 30.0 60.0 90.0 120 150 180 210 240 270 300 330 360 390 420 450 480 510 540 570 600 630 660

CPU2017 License: 9019
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### Cisco Systems

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

**SPEC CPU®2017 Integer Rate Result**

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<td>181</td>
<td>572</td>
<td>181</td>
<td>572</td>
<td>181</td>
</tr>
</tbody>
</table>

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

SPEC CPU®2017 Integer Rate Result
Copyright 2017-2022 Standard Performance Evaluation Corporation

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

SPECrater®2017_int_base = 320
SPECrater®2017_int_peak = Not Run

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
ADDCS 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 982a61ec0915b55891ef0e16aca64d
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)
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Test Sponsor: Cisco Systems
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SPECrate®2017_int_base = 320
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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 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 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 f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 abm 3dnowprefetch cpuid_fault epb cat_l3 abm 3dnowprefetch cpuid_fault epb cat_l3

/proc/cpuinfo cache data

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

SPEC CPU®2017 Integer Rate Result

<table>
<thead>
<tr>
<th>SYSTEM</th>
<th>SPECrate®2017_int_base</th>
<th>SPECrate®2017_int_peak</th>
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<tr>
<td>Cisco Systems</td>
<td>320</td>
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</table>

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Test Date: Jan-2022
Hardware Availability: Sep-2021
Tested by: Cisco Systems
Software Availability: Sep-2021

Platform Notes (Continued)

- node 0 cpus: 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 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 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: 10 11 20 20
- node 1: 11 10 20 20
- node 2: 20 20 10 11
- node 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

Cisco Systems
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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)
Cisco Systems
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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
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### 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


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


---

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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 v1.1.8 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.