Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6242, 2.80GHz)

SPECspeed®2017_int_base = 10.0
SPECspeed®2017_int_peak = Not Run

CPU2017 License: 9019
Test Sponsor: Cisco Systems
Test Date: Sep-2019
Tested by: Cisco Systems
Hardware Availability: Apr-2019

Software Availability: May-2019

CPU Name: Intel Xeon Gold 6242
Max MHz: 3900
Nominal: 2800
Enabled: 32 cores, 2 chips
Orderable: 1,2 Chips
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 22 MB I+D on chip per core
Other: None
Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933V-R)
Storage: 1 x 1.9 TB SSD SAS
Other: None

OS: SUSE Linux Enterprise Server 15 (x86_64) 4.12.14-23-default
Compiler: C/C++: Version 19.0.4.227 of Intel C/C++ Compiler for Linux;
Fortran: Version 19.0.4.227 of Intel Fortran Compiler for Linux
Parallel: Yes
Firmware: Version 4.0.4g released Jul-2019
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: --
## Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6242, 2.80GHz)

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

### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>32</td>
<td>260</td>
<td>6.82</td>
<td>262</td>
<td>6.77</td>
<td>258</td>
<td>6.88</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>32</td>
<td>418</td>
<td>9.54</td>
<td>417</td>
<td>9.56</td>
<td>412</td>
<td>9.66</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>378</td>
<td>12.5</td>
<td>377</td>
<td>12.5</td>
<td>377</td>
<td>12.5</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>32</td>
<td>226</td>
<td>7.22</td>
<td>226</td>
<td>7.21</td>
<td>224</td>
<td>7.29</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>32</td>
<td>115</td>
<td>12.3</td>
<td>114</td>
<td>12.4</td>
<td>114</td>
<td>12.4</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>32</td>
<td>122</td>
<td>14.4</td>
<td>122</td>
<td>14.4</td>
<td>122</td>
<td>14.4</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>264</td>
<td>5.44</td>
<td>264</td>
<td>5.44</td>
<td>264</td>
<td>5.44</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>32</td>
<td>357</td>
<td>4.77</td>
<td>357</td>
<td>4.78</td>
<td>357</td>
<td>4.78</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>176</td>
<td>16.7</td>
<td>176</td>
<td>16.7</td>
<td>177</td>
<td>16.6</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>32</td>
<td>277</td>
<td>22.3</td>
<td>276</td>
<td>22.4</td>
<td>277</td>
<td>22.3</td>
</tr>
</tbody>
</table>

### Operating System Notes

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

### General Notes

Environment variables set by runcpu before the start of the run:
- KMP_AFFINITY = "granularity= fine,scatter"  
- LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"  
- OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM  
memory using Redhat Enterprise Linux 7.5  
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

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.

Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6242, 2.80GHz)

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

SPECspeed®2017_int_base = 10.0
SPECspeed®2017_int_peak = Not Run
Test Date: Sep-2019
Hardware Availability: Apr-2019
Software Availability: May-2019

Platform Notes

BIOS Settings:
Intel HyperThreading Technology set to Disabled
CPU performance set to Enterprise
Power Performance Tuning set to OS Controls
SNC set to Disabled
Patrol Scrub set to Disabled
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-diml Tue Oct 1 00:42:17 2019

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 6242 CPU @ 2.80GHz
  2 "physical id"s (chips)
  32 "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 : 16
  siblings : 16
    physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
    physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 1
Core(s) per socket: 16
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6242 CPU @ 2.80GHz
Stepping: 6
CPU MHz: 2800.000
CPU max MHz: 3900.0000
CPU min MHz: 1200.0000
BogoMIPS: 5600.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K

(Continued on next page)
## Cisco Systems

Cisco UCS C220 M5 (Intel Xeon Gold 6242, 2.80GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>10.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Test Sponsor:** Cisco Systems  
**Test Date:** Sep-2019  
**CPU2017 License:** 9019  
**Hardware Availability:** Apr-2019  
**Software Availability:** May-2019

**Tested by:** Cisco Systems

### Platform Notes (Continued)

- **L2 cache:** 1024K
- **L3 cache:** 22528K
- **NUMA node0 CPU(s):** 0-15
- **NUMA node1 CPU(s):** 16-31
- **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 pccid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_13 cdp_13 invpcid_single intel_ppin mba tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local ibpb ibrs stibp dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni arch_capabilities ssbd

From `numactl --hardware`  
**WARNING:** a numactl 'node' might or might not correspond to a physical chip.

- **available:** 2 nodes (0-1)
- **node 0 cpus:** 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
- **node 0 size:** 192068 MB
- **node 0 free:** 191679 MB
- **node 1 cpus:** 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
- **node 1 size:** 193521 MB
- **node 1 free:** 193101 MB
- **node distances:**

  - **node 0:** 0 1
  - **node 1:** 10 21
  - **node 2:** 21 10

From `/proc/meminfo`

- **MemTotal:** 394843920 kB
- **HugePages_Total:** 0
- **Hugepagesize:** 2048 kB

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

**os-release:**
- **NAME**="SLES"
- **VERSION="15"
- **VERSION_ID="15"
- **PRETTY_NAME="SUSE Linux Enterprise Server 15"
- **ID="sles"
- **ID_LIKE="suse"

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

ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15"

uname -a:
Linux linux-diml 4.12.14-23-default #1 SMP Tue May 29 21:04:44 UTC 2018 (cd0437b)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- **CVE-2017-5754** (Meltdown): Not affected
- **CVE-2017-5753** (Spectre variant 1): Mitigation: __user pointer sanitization
- **CVE-2017-5715** (Spectre variant 2): Mitigation: Indirect Branch Restricted Speculation, IBPB, IBRS_FW

run-level 3 Oct 1 00:41

SPEC is set to: /home/cpu2017

```
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda1      xfs   224G   20G  204G   9% /
```

Additional information from dmidecode 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.

- BIOS Cisco Systems, Inc. C220M5.4.0.4g.0.0712190011 07/12/2019
- Memory:
  - 24x 0xCE00 M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

(End of data from sysinfo program)

## Compiler Version Notes

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

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, 
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
```

```
C++     | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)  
|  641.leela_s(base)

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
```

(Continued on next page)
Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6242, 2.80GHz)
SPEC CPU®2017 Integer Speed Result

Cisco Systems
Cisco UCS C220 M5 (Intel Xeon Gold 6242, 2.80GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>10.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

CPU2017 License: 9019                Test Date: Sep-2019
Test Sponsor: Cisco Systems          Hardware Availability: Apr-2019
Tested by: Cisco Systems             Software Availability: May-2019

Base Optimization Flags (Continued)

C benchmarks (continued):
- L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
- Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
  -qopt-mem-layout-trans=4
- L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
  -lqkmalloc

Fortran benchmarks:
- xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
  -nostandard-realloc-lhs

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:
http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-V1.2-revJ.xml

Originally published on 2019-11-04.
Report generated on 2020-08-05 16:20:07 by CPU2017 PDF formatter v6255.