Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Platinum 8280, 2.70GHz)

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

Table:

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed2017_fp_base (102)</th>
</tr>
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<tbody>
<tr>
<td>603.bwaves_s 28</td>
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<tr>
<td>607.cactuBSSN_s 28</td>
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<tr>
<td>619.lbm_s 28</td>
<td></td>
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<tr>
<td>621.wrf_s 28</td>
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<tr>
<td>627.cam4_s 28</td>
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<tr>
<td>628.pop2_s 28</td>
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</tr>
<tr>
<td>638.imagick_s 28</td>
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<tr>
<td>644.nab_s 28</td>
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<tr>
<td>649.fotonik3d_s 28</td>
<td></td>
</tr>
<tr>
<td>654.roms_s 28</td>
<td></td>
</tr>
</tbody>
</table>

Hardware
CPU Name: Intel Xeon Platinum 8280
Max MHz.: 4000
Nominal: 2700
Enabled: 28 cores, 1 chip
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: 38.5 MB I+D on chip per chip
Other: None
Memory: 384 GB (12 x 32 GB 2Rx4 PC4-2933V-R)
Storage: 1 x 1.9 TB SSD SAS
Other: None

Software
OS: SUSE Linux Enterprise Server 15 (x86_64) 4.12.14-23-default
Compiler: C/C++: Version 19.0.1.144 of Intel C/C++ Compiler for Linux;
Fortran: Version 19.0.1.144 of Intel Fortran Compiler for Linux
Parallel: Yes
Firmware: Version 4.0.3.34 released Mar-2019
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None

Test Date: Mar-2019
Hardware Availability: Apr-2019
Software Availability: Nov-2018

SPECspeed2017_fp_base = 102
SPECspeed2017_fp_peak = Not Run
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Results Table

<table>
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<tr>
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</tbody>
</table>

SPECspeed2017_fp_base = 102
SPECspeed2017_fp_peak = Not Run

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,compact"
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64"
OMP_STACKSIZE = "16G"

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

Yes: 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:
Intel HyperThreading Technology set to Disabled
CPU performance set to Enterprise

(Continued on next page)
# SPEC CPU2017 Floating Point Speed Result

## Cisco Systems

**Cisco UCS C240 M5 (Intel Xeon Platinum 8280, 2.70GHz)**

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

### Platform Notes (Continued)

- 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-acp5 Sat Mar 16 17:04:47 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](https://www.spec.org/cpu2017/Docs/config.html#sysinfo)

**From /proc/cpuinfo**

```
model name : Intel(R) Xeon(R) Platinum 8280 CPU @ 2.70GHz
 1 "physical id"s (chips)
 28 "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 : 28
siblings : 28
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30
```

**From lscpu:**

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 28
On-line CPU(s) list: 0-27
Thread(s) per core: 1
Core(s) per socket: 28
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Platinum 8280 CPU @ 2.70GHz
Stepping: 7
CPU MHz: 2700.000
CPU max MHz: 4000.0000
CPU min MHz: 1000.0000
BogoMIPS: 5400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 39424K
NUMA node0 CPU(s): 0-27
```

(Continued on next page)
Cisco Systems
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Test Date: Mar-2019
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Platform Notes (Continued)

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 cdp_l3 invpcid_single mba tpr_shadow vmni flexpriority ept vpid fsgsbase
tsc_adjust bni hle avx2 smep bmi2 ersed msr管理体制 rtm cqm mpx cdq pmx avx512f avx512dq
rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec
xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_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

/proc/cpuinfo cache data
    cache size : 39424 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
    physical chip.
    available: 1 nodes (0)
    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
    node 0 size: 385590 MB
    node 0 free: 377310 MB
    node distances:
        node 0
            0:  10

From /proc/meminfo
    MemTotal: 394845024 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"
        ANSI_COLOR="0;32"
        CPE_NAME="cpe:/o:suse:sles:15"

    uname -a:
        Linux linux-acp5 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:

    (Continued on next page)
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Platform Notes (Continued)

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 Mar 16 09:36
SPEC is set to: /home/cpu2017
    Filesystem  Type  Size  Used Avail Use% Mounted on
    /dev/sdb1    xfs   1.9T   64G  1.8T   4% /

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. C240M5.4.0.3.34.0301190218 03/01/2019
    Memory:
      12x 0xCE00 M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934
      12x NO DIMM NO DIMM

(End of data from sysinfo program)

Compiler Version Notes
==============================================================================
 CC  619.lbm_s(base)  638.imagick_s(base)  644.nab_s(base)
==============================================================================
 Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
 Version 19.0.1.144 Build 20181018
 Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
==============================================================================
 FC  607.cactuBSSN_s(base)
==============================================================================
 Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
 Version 19.0.1.144 Build 20181018
 Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
 Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
 Version 19.0.1.144 Build 20181018
 Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
 Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
 64, Version 19.0.1.144 Build 20181018
 Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

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Compiler Version Notes (Continued)

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 FC 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)
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 Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
 64, Version 19.0.1.144 Build 20181018
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Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactusBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
  -assume byterecl

(Continued on next page)
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Base Portability Flags (Continued)
638.imagick_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags
C benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP

Fortran benchmarks:
-DSPEC_OPENMP -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs

Benchmarks using Fortran, C, and C++:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-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-revI.xml

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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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