Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Platinum 8253, 2.20GHz)

SPEC has determined that this result does not comply with the SPEC OSG Guidelines for General Availability and the SPEC CPU 2017 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a CPU that is not supported by Cisco with the given system configuration.

### Threads
- 603.bwaves_s
- 607.cactuBSSN_s
- 619.lbm_s
- 621.wrf_s
- 627.cam4_s
- 628.pop2_s
- 638.imagick_s
- 644.nab_s
- 649.fotonik3d_s
- 654.roms_s

### Hardware
- **CPU Name:** Intel Xeon Platinum 8253
- **Max MHz:** 3000
- **Nominal:** 2200
- **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 chip
- **Other:** None
- **Memory:** 768 GB (24 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 19.0.4.227 of Intel C/C++ Compiler for Linux;
  Fortran: Version 19.0.4.227 of Intel Fortran Compiler for Linux
- **Parallel:** Yes
- **Firmware:** Version 4.0.4d released May-2019
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** None
- **Power Management:** --
SPEC CPU®2017 Floating Point Speed Result
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Results Table

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</tbody>
</table>

SPECspeed®2017_fp_base = SPECspeed®2017_fp_peak =

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

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/intel64"
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.

(Continued on next page)
SPEC has determined that this result does not comply with the SPEC OSG Guidelines for General Availability and the SPEC CPU 2017 run and reporting rules. Specifically, the submitter has notified SPEC that the system was run with a CPU that is not supported by Cisco with the given system configuration.

General Notes (Continued)

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
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 9bcede8f2999c33d61f64985e45859ea9
running on linux-3c6s Sat Aug 24 01:23:00 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) Platinum 8253 CPU @ 2.20GHz
32 "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.)
qup 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

(Continued on next page)
SPEC CPU®2017 Floating Point Speed Result

Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Platinum 8253, 2.20GHz)

SPECspeed®2017_fp_peak = SPECspeed®2017_fp_base =

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

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Platform Notes (Continued)

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) Platinum 8253 CPU @ 2.20GHz
Stepping: 6
CPU MHz: 2200.000
CPU max MHz: 3000.0000
CPU min MHz: 1000.0000
BogoMIPS: 4400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 22528K
NUMA node0 CPU(s): 0-15
NUMA node1 CPU(s): 16-31
Flags: fpu vme de pse 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_tscJoined tácach permon pebs rep_good nopl xtopology nonstop_tsc cpuid aperfimperf 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 en cat_l3 cdp_l3 invpcid_single intel_pni mba tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2  3dnowpreft cpuid cpuid cpuid cpuid faults cpuid cpuid cpuid faults cpuid cpui

/proc/cpuinfo cache data
cache size : 22528 KB

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Platform Notes (Continued)

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: 385604 MB
node 0 free: 377879 MB
node 1 cpus: 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
node 1 size: 387056 MB
node 1 free: 386678 MB
node distances:
node   0   1
0:  10  21
1:  21  10

From /proc/meminfo
MemTotal:       791205404 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-3c6s 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

(Continued on next page)
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Platform Notes (Continued)

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 Aug 23 19:40

SPEC is set to: /home/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda1 xfs 224G 26G 198G 12% /

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. C240M5.4.0.4d.0.0506190827 05/06/2019
Memory:
24x 0xCE00 M393A4K40CB2-CVF 32 GB 2 rank 2933, configured at 2934

(End of data from sysinfo program)

Compiler Version Notes

<table>
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<tr>
<th>619.lbm_s(base, peak) 638.imagick_s(base, peak) 644.nab_s(base, peak)</th>
</tr>
</thead>
</table>

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++, C, Fortran | 607.cactuBSSN_s(base, peak) |

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.

(Continued on next page)
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Compiler Version Notes (Continued)

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.

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416
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Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

Fortran benchmarks:
ifort -m64

(Continued on next page)
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Base Compiler Invocation (Continued)

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.cactuBSSN_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 byt-recl
632.octane_s: -DSPEC_LP64
644.nab_s: -DSPEC_LP64
649.fotonik3d_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

(Continued on next page)
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**Base Optimization Flags (Continued)**

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`

**Peak 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`

**Peak Portability Flags**

Same as Base Portability Flags
Cisco Systems
Cisco UCS C240 M5 (Intel Xeon Platinum 8253, 2.20GHz)

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### Peak Optimization Flags

**C benchmarks:**
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -gopenmp -DSPEC_OPENMP

**Fortran benchmarks:**
603.bwaves_s: -prof-gen(pass 1) -prof-use(pass 2) -DSPEC_SUPPRESS_OPENMP
-DSPEC_OPENMP -O2 -xCORE-AVX512 -qopt-prefetch -ipo -O3
-ffinite-math-only -no-prec-div -qopt-mem-layout-trans=4
-gopenmp -nostandard-realloc-lhs

649.fotonik3d_s: Same as 603.bwaves_s

654.roms_s: -DSPEC_OPENMP -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4
-gopenmp -nostandard-realloc-lhs

Benchmarks using Fortran and C:
621.wrf_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX512
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div
-qopt-mem-layout-trans=4 -DSPEC_SUPPRESS_OPENMP -gopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs

628.pop2_s: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -gopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs

628.pop2_s: Same as 621.wrf_s

Benchmarks using Fortran, C, and C++:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -gopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs
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The flags files that were used to format this result can be browsed at

You can also download the XML representations 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.

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