<table>
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<tr>
<th>Benchmark</th>
<th>Result</th>
<th>Threads</th>
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<td>603.bwaves_s</td>
<td>87.8</td>
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<td>607.cactuBSSN_s</td>
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<td>621.wrf_s</td>
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<td>627.cam4_s</td>
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<td>628.pop2_s</td>
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<tr>
<td>638.imagick_s</td>
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<td>644.nab_s</td>
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<tr>
<td>649.fotonik3d_s</td>
<td>78.3</td>
<td>16</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Gold 5217
- **Max MHz.:** 3700
- **Nominal:** 3000
- **Enabled:** 16 cores, 2 chips
- **Orderable:** 1, 2 chip(s)
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **Cache L2:** 1 MB I+D on chip per core
- **Cache L3:** 11 MB I+D on chip per chip
- **Memory:** 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
- **Storage:** 1 x 960 GB SATA SSD, RAID 0
- **File System:** btrfs

**Software**

- **OS:** SUSE Linux Enterprise Server 15 (x86_64)
- **Kernel:** 4.12.14-23-default
- **Compiler:** C/C++: Version 19.0.2.187 of Intel C/C++
- **Fortran:** Version 19.0.2.187 of Intel Fortran
- **Parallel:** Yes
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable

**SPECspeed2017_fp_base = 83.4**

**SPECspeed2017_fp_peak = Not Run**

**Test Date:** May-2019

**Hardware Availability:** Apr-2019

**Software Availability:** Feb-2019
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.00 GHz, Intel Xeon Gold 5217)

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Feb-2019

Results Table

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<td>78.3</td>
</tr>
</tbody>
</table>

SPECspeed2017_fp_base = 83.4
SPECspeed2017_fp_peak = Not Run

Operating System Notes
Stack size set to unlimited using "ulimit -s unlimited"
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

General Notes
Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/home/cpu2017_fpspeed/lib/ia32;/home/cpu2017_fpspeed/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
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 Configuration:
Hyper-Threading set to Disabled
Thermal Configuration set to Maximum Cooling

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

- Memory Patrol Scrubbing set to Disabled
- LLC Prefetch set to Enabled
- LLC Dead Line Allocation set to Disabled
- Enhanced Processor Performance set to Enabled
- Workload Profile set to General Peak Frequency Compute
- Energy/Performance Bias set to Balanced Power
- Workload Profile set to Custom
- Numa Group Size Optimization set to Flat

Sysinfo program /home/cpu2017_fpspeed/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on dl380-clx-sles15 Wed May 15 21:52:22 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) Gold 5217 CPU @ 3.00GHz
  - 2 "physical id"s (chips)
  - 16 "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: 8
  - siblings: 8
  - physical 0: cores 0 1 2 3 4 5 6 7
  - physical 1: cores 0 1 2 3 4 5 6 7

From lscpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 16
- On-line CPU(s) list: 0-15
- Thread(s) per core: 1
- Core(s) per socket: 8
- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Gold 5217 CPU @ 3.00GHz
- Stepping: 6
- CPU MHz: 3000.000
- BogoMIPS: 6000.00
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.00 GHz, Intel Xeon Gold 5217)

SPECspeed2017_fp_base = 83.4
SPECspeed2017_fp_peak = Not Run

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Test Date: May-2019
Hardware Availability: Apr-2019
Software Availability: Feb-2019

Platform Notes (Continued)

L2 cache: 1024K
L3 cache: 11264K
NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 8-15

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 arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperf perf tsc_known_freq pni pclmulqdq dtst64 monitor ds_cpl vmx smx est tm2 ssse3
sdkg fma cx16 xtrpr 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 cat13 cdp13 invpcid_single intel_pinn mba tpr_shadow vmni flexpriority ept
vpid fsgsbse tsc_adjust bni1 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 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
  node 0 size: 193019 MB
  node 0 free: 192109 MB
  node 1 cpus: 8 9 10 11 12 13 14 15
  node 1 size: 193337 MB
  node 1 free: 189982 MB
  node distances:
    node 0 1
    0: 10 21
    1: 21 10

From /proc/meminfo
MemTotal: 395629892 kB
HugePages_Total: 0
Hugepagesize: 4096 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"

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

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.00 GHz, Intel Xeon Gold 5217)

SPECspeed2017_fp_base = 83.4
SPECspeed2017_fp_peak = Not Run

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Platform Notes (Continued)

CPE_NAME="cpe:/o:suse:sles:15"

uname -a:
    Linux dl380-clx-sles15 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 May 15 19:16

SPEC is set to: /home/cpu2017_fpspeed
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/sda3 btrfs 407G 86G 321G 22% /home

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 HPE U30 02/02/2019
    Memory:
        1x HPE 840756-091 16 GB 2 rank 2666
        23x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2666

(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 19.0.2.187 Build 20190117
Copyright (C) 1985-2019 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 19.0.2.187 Build 20190117
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

(Continued on next page)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(3.00 GHz, Intel Xeon Gold 5217)

SPECspeed2017_fp_base = 83.4
SPECspeed2017_fp_peak = Not Run

CPU2017 License: 3
Test Sponsor: HPE
Tested by: HPE

Compiler Version Notes (Continued)

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.2.187 Build 20190117
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.2.187 Build 20190117
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

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
## SPEC CPU2017 Floating Point Speed Result

### Hewlett Packard Enterprise

(Test Sponsor: HPE)

ProLiant DL380 Gen10

(3.00 GHz, Intel Xeon Gold 5217)

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**Test Date:** May-2019  
**Hardware Availability:** Apr-2019  
**Software Availability:** Feb-2019

### Base Portability Flags

- 603.bwaves_s: -DSPEC_LP64
- 607.cactuBSSN_s: -DSPEC_LP64
- 619.hm_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
- 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
  -qopt-prefetch-issue-excl-hint -ansi-alias -complex-limited-range

**Fortran benchmarks:**

-DSPEC_OPENMP -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
  -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
  -qopt-prefetch-issue-excl-hint -ansi-alias -complex-limited-range
  -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
  -qopt-prefetch-issue-excl-hint -ansi-alias -complex-limited-range
  -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
  -qopt-prefetch-issue-excl-hint -ansi-alias -complex-limited-range
  -nostandard-realloc-lhs

The flags files that were used to format this result can be browsed at

http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-CLX-revA.html
http://www.spec.org/cpu2017/flags/HPE-ic19.0u1-flags-linux64.2019-04-03.00.html
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL380 Gen10  
(3.00 GHz, Intel Xeon Gold 5217)  

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Test Date: May-2019  
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You can also download the XML flags sources by saving the following links:  
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-CLX-revA.xml  
http://www.spec.org/cpu2017/flags/HPE-ic19.0u1-flags-linux64.2019-04-03.00.xml  

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Tested with SPEC CPU2017 v1.0.5 on 2019-05-15 21:52:21-0400.  
Originally published on 2019-06-11.