Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL380 Gen10
(1.90 GHz, Intel Xeon Gold 6262V)

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

Hardware
CPU Name: Intel Xeon Gold 6262V
Max MHz.: 3600
Nominal: 1900
Enabled: 48 cores, 2 chips
Orderable: 1, 2 chip(s)
L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 33 MB I+D on chip per chip
Other: None
Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R, running at 2400)
Storage: 1 x 960 GB SATA SSD, RAID 0
Other: None

Software
OS: SUSE Linux Enterprise Server 15 (x86_64)
Compiler: C/C++: Version 19.0.2.187 of Intel C/C++
Compiler Build 20190117 for Linux;
Fortran: Version 19.0.2.187 of Intel Fortran
Compiler Build 20190117 for Linux
Parallel: Yes
Firmware: HPE BIOS Version U30 04/18/2019 released Apr-2019
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: None

SPEC® CPU2017 Floating Point Speed Result
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SPECspeed2017_fp_base = 128
SPECspeed2017_fp_peak = Not Run

Threads

spec

threads

603.bwaves_s 48
607.cactuBSSN_s 48
619.lbm_s 48
621.wrf_s 48
627.cam4_s 48
628.pop2_s 48
638.imagick_s 48
644.nab_s 48
649.fotonik3d_s 48
654.roms_s 48

Threads

SPECspeed2017_fp_base (128)
## Results Table

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</table>

### 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)
<table>
<thead>
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<th>Platform Notes (Continued)</th>
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</thead>
<tbody>
<tr>
<td>Memory Patrol Scrubbing set to Disabled</td>
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<tr>
<td>LLC Prefetch set to Enabled</td>
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<td>LLC Dead Line Allocation set to Disabled</td>
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<tr>
<td>Enhanced Processor Performance set to Enabled</td>
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<td>Workload Profile set to General Peak Frequency Compute</td>
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<tr>
<td>Energy/Performance Bias set to Balanced Power</td>
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<tr>
<td>Workload Profile set to Custom</td>
</tr>
<tr>
<td>Numa Group Size Optimization set to Flat</td>
</tr>
</tbody>
</table>

Sysinfo program /home/cpu2017_fpspeed/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-ta8j Sat Jun 22 22:32:19 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 6262V CPU @ 1.90GHz
  2 "physical id"s (chips)
  48 "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 : 24
  physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29
  physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13 16 17 18 19 20 21 24 25 26 27 28 29

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 48
On-line CPU(s) list: 0-47
Thread(s) per core: 1
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6262V CPU @ 1.90GHz
Stepping: 7
CPU MHz: 1900.000
BogoMIPS: 3800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K

(Continued on next page)
Platform Notes (Continued)

L2 cache: 1024K
L3 cache: 33792K
NUMA node0 CPU(s): 0-23
NUMA node1 CPU(s): 24-47
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 rdtsscp
lm constant_tsc arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid
aperfperf tsc_known_freq pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3
sdmb fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt
tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abrm tls dnonprefetch cpuid_fault
epb cat_l3 cdp_l3 invpcid_single intel_pmm mba tpr_shadow vnumi flexpriority ept
vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erva invpcl rtm cqm mpx rdt_a
avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl
xsaves opt xsave xgetenv xsavec qcm lcc qcm_occup lcc qcm_mbm_total qcm_mbm_local
ibpb ibrs stib dtherm ida arat pln pts pkg ospke avx512_vnni arch_capabilities ssbd

/proc/cpuinfo cache data
   cache size : 33792 KB

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 16 17 18 19 20 21 22 23
   node 0 size: 193015 MB
   node 0 free: 189073 MB
   node 1 cpus: 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
   node 1 size: 193333 MB
   node 1 free: 190681 MB
   node distances:
   node 0 1
   0: 10 21
   1: 21 10

From /proc/meminfo
   MemTotal: 395621720 KB
   HugePages_Total: 0
   Hugepagesize: 2048 KB

/usr/bin/lsb_release -d
   SUSE Linux Enterprise Server 15

From /etc/*release* /etc/*version*
   os-release:
      NAME="SLES"
      VERSION="15"
      VERSION_ID="15"
      PRETTY_NAME="SUSE Linux Enterprise Server 15"

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

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<td>Apr-2019</td>
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<tr>
<td>Software Availability:</td>
<td>Feb-2019</td>
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</tbody>
</table>

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**Platform Notes (Continued)**

```plaintext
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15"
```

```plaintext
uname -a:
    Linux linux-ta8j 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 Jun 22 20:02

SPEC is set to: /home/cpu2017_fpspeed

```plaintext
Filesystem Type Size Used Avail Use% Mounted on
/dev/sdb1 btrfs 895G 58G 837G 7% /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 04/18/2019
- Memory:
  - 24x UNKNOWN NOT AVAILABLE 16 GB 2 rank 2933, configured at 2400

(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,

(Continued on next page)
Hewlett Packard Enterprise
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SPECspeed2017_fp_base = 128
SPECspeed2017_fp_peak = Not Run

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

Compiler Version Notes (Continued)

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

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ProLiant DL380 Gen10
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SPECspeed2017_fp_peak = Not Run

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

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

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 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

Benmarks 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

Benmarks 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-ic19.0u1-flags-linux64.html
http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-CLX-revB.html
## SPEC CPU2017 Floating Point Speed Result

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

- http://www.spec.org/cpu2017/flags/HPE-ic19.0u1-flags-linux64.xml
- http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-V1.2-CLX-revB.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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