# SPEC CPU®2017 Floating Point Rate Result

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.20 GHz, Intel Xeon Gold 5220)

**SPECrater®2017_fp_base = 383**  
**SPECrater®2017_fp_peak = Not Run**

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Aug-2019</td>
</tr>
</tbody>
</table>

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

### Hardware

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name</td>
<td>Intel Xeon Gold 5220</td>
</tr>
<tr>
<td>Max MHz</td>
<td>3900</td>
</tr>
<tr>
<td>Nominal</td>
<td>2200</td>
</tr>
<tr>
<td>Enabled</td>
<td>72 cores, 4 chips, 2 threads/core</td>
</tr>
<tr>
<td>Orderable</td>
<td>1, 2, 4 chip(s)</td>
</tr>
<tr>
<td>Cache L1</td>
<td>32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>L2</td>
<td>1 MB I+D on chip per core</td>
</tr>
<tr>
<td>L3</td>
<td>24.75 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Memory</td>
<td>1536 GB (48 x 32 GB 2Rx4 PC4-2933Y-R, running at 2666)</td>
</tr>
<tr>
<td>Storage</td>
<td>1 x 480 GB SAS SSD, RAID 0</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
</tbody>
</table>

### Software

<table>
<thead>
<tr>
<th>Component</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>SUSE Linux Enterprise Server 15 (x86_64)</td>
</tr>
<tr>
<td></td>
<td>Kernel 4.12.14-23-default</td>
</tr>
<tr>
<td>Compiler</td>
<td>C/C++: Version 19.0.2.187 of Intel C/C++</td>
</tr>
<tr>
<td></td>
<td>Compiler Build 20190117 for Linux;</td>
</tr>
<tr>
<td></td>
<td>Fortran: Version 19.0.2.187 of Intel Fortran</td>
</tr>
<tr>
<td></td>
<td>Compiler Build 20190117 for Linux</td>
</tr>
<tr>
<td>Parallel</td>
<td>No</td>
</tr>
<tr>
<td>Firmware</td>
<td>HPE BIOS Version U34 02/02/2019 released Apr-2019</td>
</tr>
<tr>
<td>File System</td>
<td>btrfs</td>
</tr>
<tr>
<td>System State</td>
<td>Run level 3 (multi-user)</td>
</tr>
<tr>
<td>Base Pointers</td>
<td>64-bit</td>
</tr>
<tr>
<td>Peak Pointers</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Other</td>
<td>None</td>
</tr>
<tr>
<td>Power Management</td>
<td>--</td>
</tr>
</tbody>
</table>

## Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECrate®2017_fp_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>144</td>
<td>326</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>144</td>
<td>210</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>144</td>
<td>437</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>144</td>
<td>220</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>144</td>
<td></td>
</tr>
</tbody>
</table>

---

**Note:** All results are normalized to SPECrate®2017_fp_base.
### Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>144</td>
<td>1553</td>
<td>930</td>
<td>1550</td>
<td>932</td>
<td><strong>1550</strong></td>
<td><strong>931</strong></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>144</td>
<td>561</td>
<td>325</td>
<td><strong>560</strong></td>
<td><strong>326</strong></td>
<td>559</td>
<td>326</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>144</td>
<td>482</td>
<td>284</td>
<td><strong>482</strong></td>
<td><strong>284</strong></td>
<td>480</td>
<td>285</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>144</td>
<td>1795</td>
<td>210</td>
<td>1800</td>
<td>209</td>
<td>1789</td>
<td>211</td>
</tr>
<tr>
<td>511 povray_r</td>
<td>144</td>
<td>769</td>
<td>437</td>
<td>770</td>
<td>437</td>
<td>768</td>
<td>438</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>144</td>
<td>691</td>
<td>220</td>
<td>692</td>
<td>219</td>
<td><strong>691</strong></td>
<td><strong>220</strong></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>144</td>
<td><strong>806</strong></td>
<td><strong>400</strong></td>
<td>806</td>
<td>400</td>
<td>797</td>
<td>405</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>144</td>
<td>522</td>
<td>420</td>
<td>521</td>
<td>421</td>
<td><strong>521</strong></td>
<td><strong>421</strong></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>144</td>
<td>574</td>
<td>439</td>
<td>572</td>
<td>440</td>
<td>575</td>
<td>438</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>144</td>
<td>392</td>
<td>913</td>
<td><strong>392</strong></td>
<td><strong>913</strong></td>
<td>392</td>
<td>912</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>144</td>
<td><strong>382</strong></td>
<td><strong>635</strong></td>
<td>383</td>
<td>633</td>
<td>378</td>
<td>641</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>144</td>
<td>1877</td>
<td>299</td>
<td>1877</td>
<td>299</td>
<td>1863</td>
<td>301</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>144</td>
<td>1323</td>
<td>173</td>
<td><strong>1322</strong></td>
<td><strong>173</strong></td>
<td>1322</td>
<td>173</td>
</tr>
</tbody>
</table>

SPECrate®2017_fp_base = 383
SPECrate®2017_fp_peak = Not Run

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

### Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

### 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
runcpu command invoked through numactl i.e.:
    numactl --interleave=all runcpu <etc>

### General Notes

Environment variables set by runcpu before the start of the run:
    LD_LIBRARY_PATH = "/cpu2017/lib/ia32:/cpu2017/lib/intel64"

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

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

**Hewlett Packard Enterprise**  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.20 GHz, Intel Xeon Gold 5220)

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base =</th>
<th>383</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak =</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

### General Notes (Continued)

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:**
- Thermal Configuration set to Maximum Cooling  
- 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 Throughput Compute  
- Workload Profile set to Custom  
- Energy/Performance Bias set to Balanced Performance  
- Advanced Memory Protection set to Advanced ECC  
- Sub-NUMA Clustering set to Disabled

Sysinfo program /cpu2017/bin/sysinfo  
Rev: r5974 of 2018-05-19 9bcde8f29999c33d61f64985e45859ea9  
running on consip Fri Sep 20 13:37:22 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

From `/proc/cpuinfo`
- model name: Intel(R) Xeon(R) Gold 5220 CPU @ 2.20GHz  
  - 4 "physical id"s (chips)  
  - 144 "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: 18  
  - siblings: 36  
  - physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
  - physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
  - physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27  
  - physical 3: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

From `lscpu:`  
- Architecture: x86_64  
- CPU op-mode(s): 32-bit, 64-bit

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

Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(2.20 GHz, Intel Xeon Gold 5220)

SPECrate®2017_fp_base = 383
SPECrate®2017_fp_peak = Not Run

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

Platform Notes (Continued)

Byte Order: Little Endian
CPU(s): 144
On-line CPU(s) list: 0-143
Thread(s) per core: 2
Core(s) per socket: 18
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 5220 CPU @ 2.20GHz
Stepping: 6
CPU MHz: 2200.000
BogoMIPS: 4400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-17,72-89
NUMA node1 CPU(s): 18-35,90-107
NUMA node2 CPU(s): 36-53,108-125
NUMA node3 CPU(s): 54-71,126-143
Flags: fpu vme de pse tsc msr pae mce 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 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 eb x86_64cmp13 tsc Ведь הקרדיט cpu_pnpe single intel_ppin mba tpr_shadow vnmi fexpriority ept vpid fsbg breeze 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 xsaves opt xsaveopt xsave cvtsi ctpin ccq llc cqm_occup llc cqm_mbm_total cqm_mbm_local ibpb ibrs stibp dtherm ida arat pln pts pkp ospke avx512_vnni arch_capabilities ssbd

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

available: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89
node 0 size: 386549 MB
node 0 free: 377119 MB
node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107

(Continued on next page)
Platform Notes (Continued)

node 1 size: 387065 MB
node 1 free: 379728 MB
node 2 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 108 109 110 111 112
113 114 115 116 117 118 119 120 121 122 123 124 125
node 2 size: 387065 MB
node 2 free: 379499 MB
node 3 cpus: 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 126 127 128 129 130
131 132 133 134 135 136 137 138 139 140 141 142 143
node 3 size: 386855 MB
node 3 free: 379402 MB
node distances:
  node 0 1 2 3
  0: 10 21 21 21
  1: 21 10 21 21
  2: 21 21 10 21
  3: 21 21 21 10

From /proc/meminfo
MemTotal: 1584675760 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 consip 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 Sep 20 08:47

SPEC is set to: /cpu2017

(Continued on next page)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(2.20 GHz, Intel Xeon Gold 5220)

SPECrate®2017_fp_base = 383
SPECrate®2017_fp_peak = Not Run

Platform Notes (Continued)

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda4</td>
<td>btrfs</td>
<td>444G</td>
<td>119G</td>
<td>325G</td>
<td>27%</td>
<td>/</td>
</tr>
</tbody>
</table>

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 U34 02/02/2019
Memory:
48x UNKNOWN NOT AVAILABLE 32 GB 2 rank 2933, configured at 2666

(End of data from sysinfo program)

Compiler Version Notes

C

| 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(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.

C++

| 508.namd_r(base) 510.parest_r(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.

C++, C

| 511.povray_r(base) 526.blender_r(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.

C++, C, Fortran

| 507.cactuBSSN_r(base) |

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.20 GHz, Intel Xeon Gold 5220)  

SPECrater®2017_fp_base = 383  
SPECrater®2017_fp_peak = Not Run

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.

==============================================================================  
Fortran         | 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)  
==============================================================================  
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.

==============================================================================  
Fortran, C      | 521.wrf_r(base) 527.cam4_r(base)  
==============================================================================  
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.  
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.

Base Compiler Invocation

C benchmarks:  
icc -m64 -std=c11

C++ benchmarks:  
icpc -m64

Fortran benchmarks:  
ifort -m64

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

Benchmarks using both C and C++:  
icpc -m64 icc -m64 -std=c11

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

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Hewlett Packard Enterprise**
(Test Sponsor: HPE)
ProLiant DL560 Gen10
(2.20 GHz, Intel Xeon Gold 5220)

<table>
<thead>
<tr>
<th>CPU2017 License: 3</th>
<th>Test Date: Sep-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: HPE</td>
<td>Hardware Availability: Apr-2019</td>
</tr>
<tr>
<td>Tested by: HPE</td>
<td>Software Availability: Aug-2019</td>
</tr>
</tbody>
</table>

**SPECratē2017_fp_base = 383**

**SPECratē2017_fp_peak = Not Run**

---

**Base Compiler Invocation (Continued)**

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

---

**Base Portability Flags**

503.bwaves_r: -DSPEC_LP64 507.cactuBSSN_r: -DSPEC_LP64 508.namd_r: -DSPEC_LP64 510.parest_r: -DSPEC_LP64 511.povray_r: -DSPEC_LP64 519.ibm_r: -DSPEC_LP64 521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian 526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char 527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG 538.imagick_r: -DSPEC_LP64 544.nab_r: -DSPEC_LP64 549.fotonik3d_r: -DSPEC_LP64 554.roms_r: -DSPEC_LP64

---

**Base Optimization Flags**

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4  

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs -align array32byte

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -auto -nostandard-realloc-lhs -align array32byte

Benchmarks using both C and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4

---

(Continued on next page)
Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL560 Gen10  
(2.20 GHz, Intel Xeon Gold 5220)  

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>383</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

CPU2017 License: 3  
Test Sponsor: HPE  
Test Date: Sep-2019  
Hardware Availability: Apr-2019  
Tested by: HPE  
Software Availability: Aug-2019

**Base Optimization Flags (Continued)**

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2  -ipo  -O3  -no-prec-div  -qopt-prefetch  -ffinite-math-only  
-qopt-mem-layout-trans=4  -auto  -nostandard-realloc-lhs  
-align array32byte

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-revB.html  

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-revB.xml  

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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

Tested with SPEC CPU®2017 v1.0.5 on 2019-09-20 13:37:22-0400.  