## SPEC CPU®2017 Floating Point Rate Result

Hewlett Packard Enterprise  
(Test Sponsor: HPE)  
ProLiant DL360 Gen11  
(2.00 GHz, Intel Xeon Platinum 8480+)

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon Platinum 8480+</td>
<td>OS: Red Hat Enterprise Linux release 9.0 (Plow)</td>
</tr>
<tr>
<td><strong>Max MHz:</strong> 3800</td>
<td>Kernel 5.14.0-70.13.1.el9_0.x86_64</td>
</tr>
<tr>
<td><strong>Nominal:</strong> 2000</td>
<td>Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++</td>
</tr>
<tr>
<td><strong>Enabled:</strong> 112 cores, 2 chips, 2 threads/core</td>
<td>Compiler for Linux: Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;</td>
</tr>
<tr>
<td><strong>Orderable:</strong> 1, 2 chip(s)</td>
<td><strong>Parallel:</strong> No</td>
</tr>
<tr>
<td><strong>Cache L1:</strong> 32 KB I + 48 KB D on chip per core</td>
<td><strong>Firmware:</strong> HPE BIOS Version v1.20 11/24/2022 released Nov-2022</td>
</tr>
<tr>
<td><strong>L2:</strong> 2 MB I+D on chip per core</td>
<td><strong>File System:</strong> xfs</td>
</tr>
<tr>
<td><strong>L3:</strong> 105 MB I+D on chip per core</td>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>Other:</strong> None</td>
<td><strong>Base Pointers:</strong> 64-bit</td>
</tr>
<tr>
<td><strong>Memory:</strong> 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)</td>
<td><strong>Peak Pointers:</strong> 64-bit</td>
</tr>
<tr>
<td><strong>Storage:</strong> 1 x 960 GB SATA SSD</td>
<td><strong>Other:</strong> jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td><strong>Other:</strong> None</td>
<td><strong>Power Management:</strong> BIOS and OS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

| SPECrate®2017_fp_base = 932  |  |
| SPECrate®2017_fp_peak = 995  |  |

| Test Sponsor: HPE  | Test Date: Nov-2022  |
| Hardware Availability: Jan-2023  |  |
| Software Availability: May-2022  |  |

| Tested by: HPE  |  |

### Software Availability:
- CPU2017 License: 3
- Test Date: Nov-2022
- Tested by: HPE
- Software Availability: May-2022

### Hardware Availability:
- CPU Name: Intel Xeon Platinum 8480+
- Max MHz: 3800
- Nominal: 2000
- Enabled: 112 cores, 2 chips, 2 threads/core
- Orderable: 1, 2 chip(s)
- Cache L1: 32 KB I + 48 KB D on chip per core
- L2: 2 MB I+D on chip per core
- L3: 105 MB I+D on chip per chip
- Other: None
- Memory: 1 TB (16 x 64 GB 2Rx4 PC5-4800B-R)
- Storage: 1 x 960 GB SATA SSD
- Other: None

### Software Availability:
- OS: Red Hat Enterprise Linux release 9.0 (Plow)
- Kernel 5.14.0-70.13.1.el9_0.x86_64
- Compiler: C/C++: Version 2022.1 of Intel oneAPI DPC++/C++
- Compiler for Linux: Fortran: Version 2022.1 of Intel Fortran Compiler for Linux;
- Parallel: No
- Firmware: HPE BIOS Version v1.20 11/24/2022 released Nov-2022
- File System: xfs
- System State: Run level 3 (multi-user)
- Base Pointers: 64-bit
- Peak Pointers: 64-bit
- Other: jemalloc memory allocator V5.0.1
- Power Management: BIOS and OS set to prefer performance at the cost of additional power usage

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<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate®2017_fp_base (932)</th>
<th>SPECrate®2017_fp_peak (995)</th>
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<tr>
<td>503.bwaves_r</td>
<td>224</td>
<td>999</td>
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<tr>
<td>507.cactuBSSN_r</td>
<td>112</td>
<td>1040</td>
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<tr>
<td>508.namd_r</td>
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<td>510.parest_r</td>
<td>112</td>
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<td>511.povray_r</td>
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<td>527.cam4_r</td>
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<td>538.imagick_r</td>
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**SPECrate®2017_fp_base = 932**  
**SPECrate®2017_fp_peak = 995**
## Results Table

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

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

IRQ balance service was stopped using "systemctl stop irqbalance.service"
Tuned-adm profile was set to Throughput-Performance using "tuned-adm profile throughput-performance" perf-bias for all the CPUs is set using "cpupower set -b 0"

### Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
MALLOC_CONF = "retain:true"
```
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SPECraten®2017_fp_base = 932
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</tr>
</tbody>
</table>

General Notes

Binaries compiled on a system with 2x Intel Xeon Platinum 8280M CPU + 384GB RAM memory using Red Hat Enterprise Linux 8.4

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

The system ROM used for this result contains Intel microcode version 0x2b000111 for the Intel Xeon Platinum 8480+ processor.

BIOS Configuration:
  Workload Profile set to General Throughput Compute
  Thermal Configuration set to Maximum Cooling
  Enhanced Processor Performance Profile set to Aggressive
  Last Level Cache (LLC) Dead Line Allocation set to Disabled
  Memory Patrol Scrubbing set to Disabled
  Workload Profile set to Custom
  DCU Stream Prefetcher set to Disabled
  Adjacent Sector Prefetch set to Disabled
  Minimum Processor Idle Power Package C-State set to Package C6 (non-retention) State

Sysinfo program /home/cpu2017/bin/sysinfo
  Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16aca61558
  running on localhost.localdomain Thu Apr  7 05:31:22 2022

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 8480+
  2 "physical id"s (chips)
  224 "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 : 56
  siblings : 112
  physical 0: cores 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 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55

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Platform Notes (Continued)

physical 1: cores 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 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55

From lscpu from util-linux 2.37.4:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Address sizes: 46 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 224
On-line CPU(s) list: 0-223
Vendor ID: GenuineIntel
BIOS Vendor ID: Intel(R) Corporation
Model name: Intel(R) Xeon(R) Platinum 8480+
BIOS Model name: Intel(R) Xeon(R) Platinum 8480+
CPU family: 6
Model: 143
Thread(s) per core: 2
Core(s) per socket: 56
Socket(s): 2
Stepping: 6
BogoMIPS: 4000.00
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 sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cat_d2 cd8 idapppcd 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 cat_d2 cd8 idapppcd dca sse4_1 sse4_2 x2apic movbe popcnt

Virtualization:
VT-x
L1d cache: 5.3 MiB (112 instances)
L1i cache: 3.5 MiB (112 instances)
L2 cache: 224 MiB (112 instances)
L3 cache: 210 MiB (2 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-13,112-125
NUMA node1 CPU(s): 14-27,126-139
NUMA node2 CPU(s): 28-41,140-153
NUMA node3 CPU(s): 42-55,154-167

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Platform Notes (Continued)

NUMA node4 CPU(s): 56–69,168–181
NUMA node5 CPU(s): 70–83,182–195
NUMA node6 CPU(s): 84–97,196–209
NUMA node7 CPU(s): 98–111,210–223
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Enhanced IBRS, IBPB conditional, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

From lscpu --cache:
NAME ONE-SIZE ALL-SIZE WAYS TYPE LEVEL SETS PHY-LINE COHERENCY-SIZE
L1d  48K  5.3M  12 Data  1  64  1  64
L1i  32K  3.5M  8 Instruction  1  64  1  64
L2   2M  224M  16 Unified  2  2048  1  64
L3  105M  210M  15 Unified  3 114688  1  64

 From /proc/cpuinfo cache data
 cache size : 107520 KB

WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 8 nodes (0-7)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 112 113 114 115 116 117 118 119 120 121
            122 123 124 125
node 0 size: 128730 MB
node 0 free: 127672 MB
node 1 cpus: 14 15 16 17 18 19 20 21 22 23 24 25 26 27 126 127 128 129 130 131 132 133
            134 135 136 137 138 139
node 1 size: 128981 MB
node 1 free: 128423 MB
node 2 cpus: 28 29 30 31 32 33 34 35 36 37 38 39 40 41 140 141 142 143 144 145 146 147
            148 149 150 151 152 153
node 2 size: 129017 MB
node 2 free: 128549 MB
node 3 cpus: 42 43 44 45 46 47 48 49 50 51 52 53 54 55 154 155 156 157 158 159 160 161
            162 163 164 165 166 167
node 3 size: 129017 MB
node 3 free: 128587 MB
node 4 cpus: 56 57 58 59 60 61 62 63 64 65 66 67 68 69 168 169 170 171 172 173 174 175

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Hardware Availability: Jan-2023
Software Availability: May-2022

Platform Notes (Continued)

176 177 178 179 180 181
node 4 size: 129017 MB
node 4 free: 128623 MB
node 5 cpus: 70 71 72 73 74 75 76 77 78 79 80 81 82 83 182 183 184 185 186 187 188 189
190 191 192 193 194 195
node 5 size: 129017 MB
node 5 free: 128633 MB
node 6 cpus: 84 85 86 87 88 89 90 91 92 93 94 95 96 97 196 197 198 199 200 201 202 203
204 205 206 207 208 209
node 6 size: 129017 MB
node 6 free: 128457 MB
node 7 cpus: 98 99 100 101 102 103 104 105 106 107 108 109 110 111 210 211 212 213 214
215 216 217 218 219 220 221 222 223
node 7 size: 128998 MB
node 7 free: 128626 MB
node distances:
node 0 1 2 3 4 5 6 7
0: 10 20 30 30 30 30 30 30
1: 20 10 30 30 30 30 30 30
2: 30 30 10 20 30 30 30 30
3: 30 30 20 10 30 30 30 30
4: 30 30 30 30 10 20 30 30
5: 30 30 30 30 20 10 30 30
6: 30 30 30 30 30 30 10 20
7: 30 30 30 30 30 30 20 10

From /proc/meminfo
MemTotal: 1056563548 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

/sbin/tuned-adm active
Current active profile: throughput-performance

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="9.0 (Plow)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="9.0"
    PLATFORM_ID="platform:el9"
    PRETTY_NAME="Red Hat Enterprise Linux 9.0 (Plow)"
    ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 9.0 (Plow)
  system-release: Red Hat Enterprise Linux release 9.0 (Plow)
  system-release-cpe: cpe:/o:redhat:enterprise_linux:9::baseos

(Continued on next page)
Platform Notes (Continued)

uname -a:
    Linux localhost.localdomain 5.14.0-70.13.1.el9_0.x86_64 #1 SMP PREEMPT Thu Apr 14
    12:42:38 EDT 2022 x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):                        Not affected
CVE-2018-3620 (L1 Terminal Fault):                     Not affected
Microarchitectural Data Sampling:                      Not affected
CVE-2017-5754 (Meltdown):                             Mitigation: Speculative Store
CVE-2018-3639 (Speculative Store Bypass):              Mitigation: Speculative Store
CVE-2017-5753 (Spectre variant 1):                     Mitigation: Speculative Store
CVE-2017-5715 (Spectre variant 2):                     Mitigation: Enhanced IBRS, IBPB:
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort):                Not affected

run-level 3 Apr 7 05:30

SPEC is set to: /home/cpu2017
    Filesystem Type Size Used Avail Use% Mounted on
    /dev/mapper/rhel-home xfs 819G 218G 601G 27% /home

From /sys/devices/virtual/dmi/id
    Vendor:        HPE
    Product:       ProLiant DL360 Gen11
    Product Family: ProLiant
    Serial:        CNX20800PZ

Additional information from dmidecode 3.3 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.
Memory:
    16x Samsung M321R8GA0BB0-CQKDG 64 GB 2 rank 4800

BIOS:
    BIOS Vendor: HPE
    BIOS Version: 1.20
    BIOS Date:    11/24/2022
    BIOS Revision: 1.20
    Firmware Revision: 1.10

(Continued on next page)
Hewlett Packard Enterprise
(Test Sponsor: HPE)
ProLiant DL360 Gen11
(2.00 GHz, Intel Xeon Platinum 8480+)

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

SPECrate®2017_fp_base = 932
SPECrate®2017_fp_peak = 995

Test Date: Nov-2022
Hardware Availability: Jan-2023
Software Availability: May-2022

Platform Notes (Continued)
(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
| C               | 519.lbm_r(base, peak) 538.imagick_r(base, peak) |
| 544.nab_r(base, peak) |
==============================================================================

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2022.1.0 Build 20220316
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==============================================================================
| C++              | 508.namd_r(base, peak) 510.parest_r(base, peak) |
==============================================================================

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2022.1.0 Build 20220316
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==============================================================================
| C++, C          | 511.povray_r(base, peak) 526.blender_r(base, peak) |
==============================================================================

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Version 2022.1.0 Build 20220316
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Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version
2022.1.0 Build 20220316
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==============================================================================
| C++, C, Fortran | 507.cactuBSSN_r(base, peak) |
==============================================================================

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(Continued on next page)
**Hewlett Packard Enterprise**  
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ProLiant DL360 Gen11  
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**SPEC CPU®2017 Floating Point Rate Result**

<table>
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<th>CPU2017 License: 3</th>
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<td>Software Availability: May-2022</td>
</tr>
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</table>

**SPECrates**  
- **SPECrate®2017_fp_base = 932**  
- **SPECrate®2017_fp_peak = 995**

---

**Compiler Version Notes (Continued)**

```plaintext
Fortran         | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak)  
                | 554.roms_r(base, peak)  

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version  
2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
```

```plaintext
Fortran, C      | 521.wrf_r(base, peak) 527.cam4_r(base, peak)  

Intel(R) Fortran Compiler for applications running on Intel(R) 64, Version  
2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
```

```plaintext
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2022.1.0 Build 20220316  
Copyright (C) 1985-2022 Intel Corporation. All rights reserved.
```

---

**Base Compiler Invocation**

- **C benchmarks:**
  - icx

- **C++ benchmarks:**
  - icpx

- **Fortran benchmarks:**
  - ifx

- **Benchmarks using both Fortran and C:**
  - ifx icx

- **Benchmarks using both C and C++:**
  - icpx icx

- **Benchmarks using Fortran, C, and C++:**
  - icpx icx ifx

---

**Base Portability Flags**

- `503.bwaves_r: -DSPEC_LP64`

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

Hewlett Packard Enterprise
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ProLiant DL360 Gen11
(2.00 GHz, Intel Xeon Platinum 8480+)

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<td>Software Availability: May-2022</td>
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Base Portability Flags (Continued)

507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
510.parest_r: -DSPEC_LP64
511.povray_r: -DSPEC_LP64
519.lbm_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:
-w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math -flto
-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both Fortran and C:
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both C and C++:
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using Fortran, C, and C++:
-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math

(Continued on next page)
SPEC CPU®2017 Floating Point Rate Result
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CPU2017 License: 3
Test Sponsor: HPE
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Test Date: Nov-2022
Hardware Availability: Jan-2023
Software Availability: May-2022

Base Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):
-ffloat-o3 -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Peak Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifx

Benchmarks using both Fortran and C:
ifx icx

Benchmarks using both C and C++:
icpx icx

Benchmarks using Fortran, C, and C++:
icpx icx ifx

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
519.lbm_r: basepeak = yes
538.imagick_r: basepeak = yes
544.nab_r: -w -std=c11 -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -qopt-zmm-usage=high -ljemalloc

(Continued on next page)
Peak Optimization Flags (Continued)

544.nab_r (continued):
-L/usr/local/jemalloc64-5.0.1/lib

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:

503.bwaves_r: basepeak = yes

549.fotonik3d_r: basepeak = yes

554.roms_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both Fortran and C:

521.wrf_r: -w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

527.cam4_r: basepeak = yes

Benchmarks using both C and C++:

511.povray_r: basepeak = yes

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

-w -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib
## SPEC CPU®2017 Floating Point Rate Result

**Hewlett Packard Enterprise**  
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ProLiant DL360 Gen11  
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**CPU2017 License:** 3  
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**Test Sponsor:** HPE  
**Hardware Availability:** Jan-2023  
**Tested by:** HPE  
**Software Availability:** May-2022

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/HPE-Platform-Flags-Intel-SPR-rev1.1.xml](http://www.spec.org/cpu2017/flags/HPE-Platform-Flags-Intel-SPR-rev1.1.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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