Dell Inc.
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Jun-2020
Hardware Availability: Apr-2020
Software Availability: Apr-2020

<table>
<thead>
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<th>Software</th>
<th>Hardware</th>
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<tbody>
<tr>
<td>OS: Red Hat Enterprise Linux 8.1, kernel 4.18.0-147.el8.x86_64</td>
<td>CPU Name: Intel Xeon Silver 4216</td>
</tr>
<tr>
<td>Parallel: No</td>
<td>Enabled: 32 cores, 2 chips, 2 threads/core</td>
</tr>
<tr>
<td>Firmware: Version 2.7.7 released May-2020</td>
<td>Orderable: 1,2 chips</td>
</tr>
<tr>
<td>File System: tmpfs</td>
<td>Cache L1: 32 KB I + 32 KB D on chip per core</td>
</tr>
<tr>
<td>System State: Run level 3 (multi-user)</td>
<td>L2: 1 MB I+D on chip per core</td>
</tr>
<tr>
<td>Base Pointers: 64-bit</td>
<td>L3: 22 MB I+D on chip per chip</td>
</tr>
<tr>
<td>Peak Pointers: 64-bit</td>
<td>Other: None</td>
</tr>
<tr>
<td>Other: jemalloc memory allocator V5.0.1</td>
<td>Power Management: BIOS set to prefer performance at the cost of additional power usage.</td>
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</table>

503.bwaves_r 64 507.cactuBSSN_r 64 508.namd_r 64 510.parest_r 64 511.povray_r 64 519.lbm_r 64 521.wrf_r 32 526.blender_r 64 527.cam4_r 64 538.imagick_r 64 544.nab_r 64 549.fotonik3d_r 64 554.roms_r 32

SPECrate®2017_fp_base = 180
SPECrate®2017_fp_peak = 189
Dell Inc.
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)

SPECrate®2017_fp_base = 180
SPECrate®2017_fp_peak = 189

Results Table

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Compiler Notes
The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler.
The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

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"

Environment Variables Notes
Environment variables set by runcpu before the start of the run:
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu2017-ic19.1u1/lib/intel64:/mnt/ramdisk/cpu2017-ic19.1u1
                      /je5.0.1-64"
MALLOCONF = "retain:true"
**General Notes**

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0

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.

Transparent Huge Pages enabled by default

Prior to runcpu invocation

Filesystem page cache synced and cleared with:

```bash
sync; echo 3 > /proc/sys/vm/drop_caches
```

runcpu command invoked through numactl i.e.:

```bash
numactl --interleave=all runcpu <etc>
```

Benchmark run from a 225 GB ramdisk created with the cmd: "mount -t tmpfs -o size=225G tmpfs /mnt/ramdisk"


**Platform Notes**

BIOS settings:
Sub NUMA Cluster enabled
Virtualization Technology disabled
DCU Streamer Prefetcher disabled
System Profile set to Custom
CPU Performance set to Maximum Performance
C States set to Autonomous
C1E disabled
Uncore Frequency set to Dynamic
Energy Efficiency Policy set to Performance
Memory Patrol Scrub set to standard
Logical Processor enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
UPI Prefetch enabled
LLC Prefetch disabled
Dead Line LLC Alloc enabled
Directory AtoS disabled

Sysinfo program /mnt/ramdisk/cpu2017-ic19.1u1/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edbble66e46a485a011
running on user-pc.spa.lab Mon Jun  8 16:46:43 2020

SUT (System Under Test) info as seen by some common utilities.
For more information on this section, see

(Continued on next page)
Platform Notes (Continued)

From /proc/cpuinfo

model name : Intel(R) Xeon(R) Silver 4216 CPU @ 2.10GHz
  2 "physical id"s (chips)
  64 "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 : 16
siblings : 32
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):              64
On-line CPU(s) list: 0-63
Thread(s) per core:  2
Core(s) per socket:  16
Socket(s):           2
NUMA node(s):        4
Vendor ID:           GenuineIntel
CPU family:          6
Model:               85
Model name:          Intel(R) Xeon(R) Silver 4216 CPU @ 2.10GHz
Stepping:            6
CPU MHz:             2725.111
CPU max MHz:         3200.0000
CPU min MHz:         800.0000
BogoMIPS:            4200.00
Virtualization:      VT-x
L1d cache:           32K
L1i cache:           32K
L2 cache:            1024K
L3 cache:            22528K
NUMA node0 CPU(s):   0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60
NUMA node1 CPU(s):   1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61
NUMA node2 CPU(s):   2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62
NUMA node3 CPU(s):   3,7,11,15,19,23,27,31,35,39,43,47,51,55,59,63
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 art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrhop pdcid 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 cdp_l3

(Continued on next page)
Dell Inc.
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.
Test Date: Jun-2020
Hardware Availability: Apr-2020
Software Availability: Apr-2020

SPECrater®2017_fp_base = 180
SPECrater®2017_fp_peak = 189

Platform Notes (Continued)

invpcid_single intel_pinn ssbd mba ibps ibpbb stibp ibrs_enhanced tpr_shadow vnmi
flexpriority ept vpid fsqgbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mpq rdt_a avx512f avx512dq rsseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsavec xsavecl xsaves cqm_llc cqm_occw_llc cqm_mbm_total
cqm_mbm_local dtherm lda arat pln pts pku ospke avx512_vnni md_clear flush_l1d
arch_capabilities

/proc/cpuinfo cache data
  cache size : 22528 KB

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 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60
    node 0 size: 192048 MB
    node 0 free: 182360 MB
    node 1 cpus: 1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61
    node 1 size: 193532 MB
    node 1 free: 193073 MB
    node 2 cpus: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58 62
    node 2 size: 193532 MB
    node 2 free: 193073 MB
    node 3 cpus: 3 7 11 15 19 23 27 31 35 39 43 47 51 55 59 63
    node 3 size: 193532 MB
    node 3 free: 193299 MB
    node distances:
      node 0 1 2 3
      0: 10 21 11 21
      1: 21 10 21 11
      2: 11 21 10 21
      3: 21 11 21 10

From /proc/meminfo
  MemTotal: 791189588 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
  os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.1 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.1"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.1 (Ootpa)"
    ANSI_COLOR="0;31"

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

redhat-release: Red Hat Enterprise Linux release 8.1 (Ootpa)

system-release: Red Hat Enterprise Linux release 8.1 (Ootpa)

```
uname -a:
    Linux user-pc.spa.lab 4.18.0-147.el8.x86_64 #1 SMP Thu Sep 26 15:52:44 UTC 2019 x86_64
    x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

- **CVE-2018-3620 (L1 Terminal Fault):** Not affected
- **Microarchitectural Data Sampling:** Not affected
- **CVE-2017-5754 (Meltdown):** Not affected
- **CVE-2018-3639 (Speculative Store Bypass):** Mitigation: Speculative Store Bypass disabled via prctl and seccomp
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: usercopy/swapgs barriers and __user pointer sanitization
- **CVE-2017-5715 (Spectre variant 2):** Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

```
rung-level 3 Jun 8 10:38 last=5
```

**SPEC is set to:** /mnt/ramdisk/cpu2017-ic19.1u1

<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>
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<tbody>
<tr>
<td>tmpfs</td>
<td>tmpfs</td>
<td>225G</td>
<td>4.3G</td>
<td>221G</td>
<td>2%</td>
<td>/mnt/ramdisk</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id

- **BIOS:** Dell Inc. 2.7.7 05/04/2020
- **Vendor:** Dell Inc.
- **Product:** PowerEdge R740xd
- **Product Family:** PowerEdge
- **Serial:** F5BMCS2

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.

**Memory:**

- 19x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
- 1x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
- 4x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933

(End of data from sysinfo program)
Dell Inc.
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)

| SPECrate®2017_fp_base = 180 |
| SPECrate®2017_fp_peak = 189 |

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.

**Software Availability:** Apr-2020  
**Hardware Availability:** Apr-2020  
**Test Date:** Jun-2020

---

### Compiler Version Notes

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<tr>
<td>Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1</td>
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| NextGen Build 20200304  
| Copyright (C) 1985-2020 Intel Corporation. All rights reserved. |

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</table>
| NextGen Build 20200304  
| Copyright (C) 1985-2020 Intel Corporation. All rights reserved. |

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| NextGen Build 20200304  
| Copyright (C) 1985-2020 Intel Corporation. All rights reserved. |

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<tr>
<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
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<td>Copyright (C) 1985-2020 Intel Corporation. All rights reserved.</td>
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(Continued on next page)
Dell Inc.
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)

SPEC CPU®2017 Floating Point Rate Result
Copyright 2017-2020 Standard Performance Evaluation Corporation

SPECrate®2017_fp_base = 180
SPECrate®2017_fp_peak = 189

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Jun-2020
Tested by: Dell Inc.
Hardware Availability: Apr-2020
Software Availability: Apr-2020

Compiler Version Notes (Continued)

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---------------------------------------------------------------------
C++, C          | 511.povray_r(peak)
---------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, 
Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
---------------------------------------------------------------------
E--------------------------
C++, C, Fortran | 507.cactuBSSN_r(base, peak)
---------------------------------------------------------------------
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 
64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
---------------------------------------------------------------------
E--------------------------
Fortran         | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base, peak)
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64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
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Fortran, C      | 521.wrf_r(base) 527.cam4_r(base, peak)
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Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 
64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
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E--------------------------
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
---------------------------------------------------------------------
E--------------------------
(Continued on next page)
Dell Inc.  
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)  

SPEC CPU®2017 Floating Point Rate Result  

SPECrates®2017_fp_base = 180  
SPECrates®2017_fp_peak = 189  

Compiler Version Notes (Continued)

Fortran, C | 521.wrf_r(peak)  

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
64, Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.1.1.217 Build 20200306  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  

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

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
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Fortran, C | 521.wrf_r(peak)  

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Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,  
Version 19.1.1.217 Build 20200306  
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Base Compiler Invocation

C benchmarks:  
icc  

C++ benchmarks:  
icpc  

Fortran benchmarks:  
ifort
### Base Compiler Invocation (Continued)

- Benchmarks using both Fortran and C:
  
  ```
  ifort icc
  ```

- Benchmarks using both C and C++:
  
  ```
  icpc icc
  ```

- Benchmarks using Fortran, C, and C++:
  
  ```
  icpc icc ifort
  ```

### 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.lbm_r -DSPEC_LP64
521.wrf_r -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
526.blender_r -DSPEC_LP64 -DSPEC_LP64 -DSPEC_LP64 -DSPEC_CASE_FLAG
527.cam4_r -DSPEC_LP64 -DSPEC_LP64 -DSPEC_LP64 -DSPEC_LP64 -DSPEC_LP64
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**:
- `-m64 -qnextgen -std=c11`
- `-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs`
- `-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse`
- `-funroll-loops -qopt-mem-layout-trans=4`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

**C++ benchmarks**:
- `-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries`
- `-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto`
- `-mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

**Fortran benchmarks**:
- `-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs`

(Continued on next page)
## Dell Inc.

PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)

**SPECrate®2017_fp_base = 180**  
**SPECrate®2017_fp_peak = 189**

<table>
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<th>CPU2017 License</th>
<th>Dell Inc.</th>
<th>Test Sponsor: Dell Inc.</th>
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<td>Test Date:</td>
<td>Jun-2020</td>
<td>Hardware Availability: Apr-2020</td>
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<td>Software Availability: Apr-2020</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-fuse-ld=gold -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benmarks using both Fortran and C:

```
-m64 -gnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benmarks using both C and C++:

```
-m64 -gnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

Benmarks using Fortran, C, and C++:

```
-m64 -gnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-fuse-ld=gold -xCORE-AVX512 -Ofast -ffast-math -flto -mfpmath=sse
-funroll-loops -qopt-mem-layout-trans=4 -O3 -ipo -no-prec-div
-qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
```

### Peak Compiler Invocation

**C benchmarks:**

```
icc
```

**C++ benchmarks:**

```
icpc
```

**Fortran benchmarks:**

```
ifort
```

(Continued on next page)
Dell Inc.
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)

SPECrater®2017_fp_base = 180
SPECrater®2017_fp_peak = 189

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: Jun-2020
Hardware Availability: Apr-2020
Software Availability: Apr-2020

Peak Compiler Invocation (Continued)

Benchmarks using both Fortran and C:
ifort icc

Benchmarks using both C and C++:
icpc icc

Benchmarks using Fortran, C, and C++:
icpc icc ifort

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: basepeak = yes

C++ benchmarks:

508.namd_r: basepeak = yes

510.parest_r: -m64 -qnextgen
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX512 -Ofast
-ffast-math -fito -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc

Fortran benchmarks:

503.bwaves_r: -m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fuse-ld=gold -xCORE-AVX512 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles

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

503.bwaves_r (continued):
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-align array32byte -auto -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

549.fotonik3d_r: basepeak = yes

554.roms_r: Same as 503.bwaves_r

Benchmarks using both Fortran and C:

521.wrf_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -O3
-ipo -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-nostandard-realloc-lhs -align array32byte -auto
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

527.cam4_r: basepeak = yes

Benchmarks using both C and C++:

511.povray_r: -prof-gen(pass 1) -prof-use(pass 2) -xCORE-AVX512 -O3
-ipo -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

526.blender_r: basepeak = yes

Benchmarks using Fortran, C, and C++:

507.cactuBSSN_r: basepeak = yes

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/Intel-ic19.1u1-official-linux64_revA.xml
### SPEC CPU®2017 Floating Point Rate Result

**Dell Inc.**  
PowerEdge R740 (Intel Xeon Silver 4216, 2.10 GHz)  

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base = 180</th>
<th>SPECrate®2017_fp_peak = 189</th>
</tr>
</thead>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  

**Test Date:** Jun-2020  
**Hardware Availability:** Apr-2020  
**Software Availability:** Apr-2020  

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

Tested with SPEC CPU®2017 v1.1.0 on 2020-06-08 17:46:42-0400.  
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