### Dell Inc.

**PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)**

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base = 182</th>
<th>SPECrate2017_fp_peak = 186</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2017 License: 55</td>
<td>Test Date: Sep-2021</td>
</tr>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Jul-2021</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Dec-2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate2017_fp_base (182)</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r 32</td>
<td>223</td>
</tr>
<tr>
<td>507.cactuBSSN_r 32</td>
<td>108</td>
</tr>
<tr>
<td>508.namd_r 32</td>
<td>110</td>
</tr>
<tr>
<td>510.parest_r 32</td>
<td>115</td>
</tr>
<tr>
<td>511.povray_r 32</td>
<td>163</td>
</tr>
<tr>
<td>519.lbm_r 32</td>
<td>177</td>
</tr>
<tr>
<td>521.wrf_r 32</td>
<td>179</td>
</tr>
<tr>
<td>526.blender_r 32</td>
<td>150</td>
</tr>
<tr>
<td>527.cam4_r 32</td>
<td>162</td>
</tr>
<tr>
<td>538.imagick_r 32</td>
<td>386</td>
</tr>
<tr>
<td>544.nab_r 32</td>
<td>250</td>
</tr>
<tr>
<td>549.fotonik3d_r 32</td>
<td>253</td>
</tr>
<tr>
<td>554.roms_r 32</td>
<td>90,2</td>
</tr>
<tr>
<td>Other: None</td>
<td>96.4</td>
</tr>
</tbody>
</table>

### Hardware

| CPU Name: Intel Xeon Gold 6334 |
| CPU2017 License: 55 |
| Test Date: Sep-2021 |
| Test Sponsor: Dell Inc. |
| Tested by: Dell Inc. |
| Hardware Availability: Jul-2021 |
| Software Availability: Dec-2020 |

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrate2017_fp_peak (186)</th>
</tr>
</thead>
</table>

### Software

| OS: Red Hat Enterprise Linux 8.3 (Ootpa) |
| Compiler: C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ |
| Compiler Build 20201113 for Linux; Fortran: Version 2021.1 of Intel Fortran Compiler |
| Classic Build 20201112 for Linux; |
| C/C++: Version 2021.1 of Intel C/C++ Compiler |
| Classic Build 20201112 for Linux |
| Parallel: No |
| File System: tmpfs |
| 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. |

---

**CPU Name:** Intel Xeon Gold 6334  
**Max MHz:** 3700  
**Nominal:** 3600  
**Enabled:** 16 cores, 2 chips, 2 threads/core  
**Orderable:** 1,2 chips  
**Cache L1:** 32 KB I + 48 KB D on chip per core  
**Cache L2:** 1.25 MB I+D on chip per core  
**Cache L3:** 18 MB I+D on chip per core  
**Other:** None  
**Memory:** 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)  
**Storage:** 225 GB on tmpfs  
**Other:** None
## 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>
<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>32</td>
<td>631</td>
<td>508</td>
<td>630</td>
<td>509</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>32</td>
<td>181</td>
<td>223</td>
<td>179</td>
<td>227</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>32</td>
<td>762</td>
<td>110</td>
<td>761</td>
<td>110</td>
<td>16</td>
<td>362</td>
<td>115</td>
<td>362</td>
<td>362</td>
<td>116</td>
<td>362</td>
<td>116</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>32</td>
<td>458</td>
<td>163</td>
<td>458</td>
<td>163</td>
<td>32</td>
<td>398</td>
<td>188</td>
<td>398</td>
<td>398</td>
<td>188</td>
<td>398</td>
<td>188</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>32</td>
<td>190</td>
<td>177</td>
<td>189</td>
<td>178</td>
<td>32</td>
<td>190</td>
<td>177</td>
<td>189</td>
<td>189</td>
<td>178</td>
<td>189</td>
<td>178</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>32</td>
<td>398</td>
<td>180</td>
<td>401</td>
<td>179</td>
<td>32</td>
<td>398</td>
<td>180</td>
<td>401</td>
<td>401</td>
<td>179</td>
<td>401</td>
<td>179</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>32</td>
<td>324</td>
<td>150</td>
<td>325</td>
<td>150</td>
<td>32</td>
<td>324</td>
<td>150</td>
<td>325</td>
<td>325</td>
<td>150</td>
<td>325</td>
<td>150</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>32</td>
<td>345</td>
<td>162</td>
<td>344</td>
<td>162</td>
<td>32</td>
<td>345</td>
<td>162</td>
<td>344</td>
<td>344</td>
<td>162</td>
<td>344</td>
<td>162</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>32</td>
<td>206</td>
<td>386</td>
<td>206</td>
<td>386</td>
<td>32</td>
<td>206</td>
<td>386</td>
<td>206</td>
<td>206</td>
<td>386</td>
<td>206</td>
<td>386</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>32</td>
<td>214</td>
<td>251</td>
<td>215</td>
<td>250</td>
<td>32</td>
<td>213</td>
<td>253</td>
<td>212</td>
<td>212</td>
<td>254</td>
<td>212</td>
<td>254</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>32</td>
<td>759</td>
<td>164</td>
<td>760</td>
<td>164</td>
<td>32</td>
<td>759</td>
<td>164</td>
<td>760</td>
<td>760</td>
<td>164</td>
<td>760</td>
<td>164</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>32</td>
<td>563</td>
<td>90.4</td>
<td>563</td>
<td>90.2</td>
<td>16</td>
<td>263</td>
<td>96.7</td>
<td>264</td>
<td>264</td>
<td>96.4</td>
<td>264</td>
<td>96.4</td>
</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"

## Environment Variables Notes

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

```
LD_LIBRARY_PATH =
    "/mnt/ramdisk/cpu2017-1.1.8-ic2021.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.8-ic2021.1/je5.0.1-64"
MALLOC_CONF = "retain:true"
```

## General Notes

Binaries compiled on a system with 1x Intel Core i9-7980XE CPU + 64GB RAM memory using Red Hat Enterprise Linux 8.1

Transparent Huge Pages enabled by default

(Continued on next page)
Dell Inc.

PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

**SPEC CPU®2017 Floating Point Rate Result**

<table>
<thead>
<tr>
<th>SPECrate®2017_fp_base</th>
<th>182</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_fp_peak</td>
<td>186</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Date:** Sep-2021

**Test Sponsor:** Dell Inc.  
**Hardware Availability:** Jul-2021

**Tested by:** Dell Inc.  
**Software Availability:** Dec-2020

---

**General Notes (Continued)**

Prior to runcpu invocation  
Filesystem page cache synced and cleared with:  
`sync; echo 3> /proc/sys/vm/drop_caches`  
runcpu command invoked through numacl i.e.:  
`numactl --interleave=all runcpu <etc>`  
jemalloc, a general purpose malloc implementation  
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5  

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.

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 : 2-Way Clustering  
- Virtualization Technology : Disabled

- System Profile : Custom  
- CPU Power Management : Maximum Performance  
- C1E : Disabled  
- C States : Autonomous  
- Memory Patrol Scrub : Disabled  
- Energy Efficiency Policy : Performance  
- CPU Interconnect Bus Link  
- Power Management : Disabled

- PCI ASPM L1 Link  
- Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.8-ic2021.1/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acac64d  
running on r650xs.9yn9cd3.inside.dell.com Thu Sep 16 01:34:16 2021

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 6334 CPU @ 3.60GHz

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

Dell Inc.
PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

SPECrates®2017_fp_base = 182
SPECrates®2017_fp_peak = 186

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

Test Date: Sep-2021
Hardware Availability: Jul-2021
Software Availability: Dec-2020

Platform Notes (Continued)

2 "physical id"s (chips)
32 "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 : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7

From lscpu from util-linux 2.32.1:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 32
On-line CPU(s) list: 0-31
Thread(s) per core: 2
Core(s) per socket: 8
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Gold 6334 CPU @ 3.60GHz
Stepping: 6
CPU MHz: 2506.537
BogoMIPS: 7200.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 18432K
NUMA node0 CPU(s): 0,4,8,12,16,20,24,28
NUMA node1 CPU(s): 2,6,10,14,18,22,26,30
NUMA node2 CPU(s): 1,5,9,13,17,21,25,29
NUMA node3 CPU(s): 3,7,11,15,19,23,27,31
Flags: fpu vme de pse tsc msr pae mce cmov 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 art arch_perfmon pebs bts rep_good nopl xtopology nonstop-tsc cpuid
a perfmrperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtr 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 cat_l3 invpcid_single
intel_ppn ssbd mba ibrs ibpb stibp ibrs_enhanced fsgsbase tsc_adjust bmi1 hle avx2
smep bmi2 erms invpcid cmq rdt_a avx512f avx512dq rdseed adx smap avx512ifma
clfushopt clwb intel_pt avx512cd sha ni avx512bw avx512vl xsaveopt xsaves xgetbv1
xsaveopt avx512_lcz cqm_occip_lcz cqm_mbb_total cqm_mbb_local split_lock_detect
wbinvvd dtherm ida arat pln pts avx512v bmi umip pku ospke avx512_vbm1 gfn1 vaes
vpclmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear
pconfig flush_l1d

(Continued on next page)
Dell Inc. PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

SPECrate®2017_fp_base = 182
SPECrate®2017_fp_peak = 186

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Sep-2021
Tested by: Dell Inc.
Hardware Availability: Jul-2021
Software Availability: Dec-2020

Platform Notes (Continued)

```
arch_capabilities

/cacheinfo cache data
  cache size : 18432 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
  node 0 size: 127228 MB
  node 0 free: 120156 MB
  node 1 cpus: 2 6 10 14 18 22 26 30
  node 1 size: 127966 MB
  node 1 free: 125373 MB
  node 2 cpus: 1 5 9 13 17 21 25 29
  node 2 size: 128103 MB
  node 2 free: 116460 MB
  node 3 cpus: 3 7 11 15 19 23 27 31
  node 3 size: 127967 MB
  node 3 free: 125570 MB

node distances:
  node   0   1   2   3
  0:  10  11  20  20
  1:  11  10  20  20
  2:  20  20  10  11
  3:  20  20  11  10

From /proc/meminfo
  MemTotal:       527550568 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="8.3 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.3"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
    ANSI_COLOR="0;31"
  redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
  system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)

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

**Dell Inc.**

PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

**SPECrate®2017_fp_base = 182**

**SPECrate®2017_fp_peak = 186**

---

**Platform Notes (Continued)**

```
unlcmd -a:
    Linux r650xs.9yn9cd3.inside.dell.com 4.18.0-240.el8.x86_64 #1 SMP Wed Sep 23 05:13:10 EDT 2020 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): 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
- CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
- CVE-2019-11135 (TSX Asynchronous Abort): Not affected

```
runt-level 3 Sep 15 21:08
```

```
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.8-ic2021.1
```

**Filesystem**

```
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 225G 22G 204G 10% /mnt/ramdisk
```

**From /sys/devices/virtual/dmi/id**

```
Vendor: Dell Inc.
Product: PowerEdge R650xs
Product Family: PowerEdge
Serial: 9YN9CD3
```

Additional information from dmidecode 3.2 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 00AD063200AD HMA84GR7D4N-XN 32 GB 2 rank 3200
```

**BIOS**

```
BIOS Vendor: Dell Inc.
BIOS Version: 1.2.1
BIOS Date: 05/28/2021
BIOS Revision: 1.2
```

(Continued on next page)
Dell Inc.

PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

**SPECrate®2017_fp_base = 182**

**SPECrate®2017_fp_peak = 186**

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

**Test Date:** Sep-2021
**Hardware Availability:** Jul-2021
**Software Availability:** Dec-2020

Platform Notes (Continued)

(End of data from sysinfo program)

---

**Compiler Version Notes**

```
C
| 519.ibm_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 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
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 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
C++, C
| 511.povray_r(peak)
==============================================================================
Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on
Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)
64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
C++, C
| 511.povray_r(base) 526.blender_r(base, peak)
==============================================================================
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
```

```
C++, C
| 511.povray_r(peak)
```

(Continued on next page)
Dell Inc.

PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

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

SPECrater®2017_fp_base = 182
SPECrater®2017_fp_peak = 186

Test Date: Sep-2021
Hardware Availability: Jul-2021
Software Availability: Dec-2020

Compiler Version Notes (Continued)

Intel(R) C++ Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

C++, C  | 511.povray_r(base) 526.blender_r(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

C++, C, Fortran  | 507.cactusBSSN_r(base, peak)

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Fortran  | 503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak)

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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

Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on

(Continued on next page)
Dell Inc. 

PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

SPEC®2017 fp_base = 182
SPEC®2017 fp_peak = 186

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

Compiler Version Notes (Continued)

Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,
Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icx

C++ benchmarks:
icpx

Fortran benchmarks:
ifort

Benchmarks using both Fortran and C:
ifort icx

Benchmarks using both C and C++:
icpx icx

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

Base Portability Flags

503.bwaves_r: -DSPEC_LP64
507.cactuBSSN_r: -DSPEC_LP64
508.namd_r: -DSPEC_LP64
509.parest_r: -DSPEC_LP64
510.povray_r: -DSPEC_LP64
511.dpf_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.fotoni3d_r: -DSPEC_LP64
554.roms_r: -DSPEC_LP64
Dell Inc. PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

SPEC CPU®2017 Floating Point Rate Result

SPECrate®2017_fp_base = 182
SPECrate®2017_fp_peak = 186

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

Test Date: Sep-2021
Hardware Availability: Jul-2021
Software Availability: Dec-2020

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
-mbranches-within-32B-boundaries -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
-mbranches-within-32B-boundaries -ljemalloc
-L/usr/local/jemalloc64-5.0.1/lib

Fortran benchmarks:
-w -m64 -Wl,-z,muldefs -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 -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 -O3 -ipo
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -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
-mbranches-within-32B-boundaries -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
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-multiple-gather-scatter-by-shuffles
-mbranches-within-32B-boundaries -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:
- ifort

Benchmarks using both Fortran and C:
- ifort icx

Benchmarks using both C and C++:
- 511.povray_r: icpx icc
- 526.blender_r: icpx icx

Benchmarks using Fortran, C, and C++:
- icpx icx ifort

**Peak Portability Flags**

Same as Base Portability Flags

**Peak Optimization Flags**

C benchmarks:
- 519.lbm_r: basepeak = yes
- 538.imagick_r: basepeak = yes

C++ benchmarks:
SPEC CPU®2017 Floating Point Rate Result

Dell Inc.
PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)

SPECratem2017_fp_base = 182
SPECratem2017_fp_peak = 186

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

Test Date: Sep-2021
Hardware Availability: Jul-2021
Software Availability: Dec-2020

Peak Optimization Flags (Continued)

508.namd_r: basepeak = yes

510.parest_r: -w -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-fito -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-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 -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
-ljemalloc -L/usr/local/jemalloc64-5.0.1/lib

Benchmarks using both Fortran and C:

521.wrf_r: basepeak = yes

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

Dell Inc.  
PowerEdge R650xs (Intel Xeon Gold 6334, 3.60 GHz)  

SPECrate®2017_fp_base = 182  
SPECrate®2017_fp_peak = 186

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

Test Date: Sep-2021  
Hardware Availability: Jul-2021  
Software Availability: Dec-2020

You can also download the XML flags sources by saving the following links:
http://www.spec.org/cpu2017/flags/Intel-ic2021-official-linux64_revA.xml
http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-Intel-ICX-rev1.4.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 v1.1.8 on 2021-09-16 02:34:15-0400.  
Report generated on 2021-11-10 10:12:12 by CPU2017 PDF formatter v6442.  
Originally published on 2021-11-09.