## SPEC CPU®2017 Floating Point Speed Result

**Dell Inc.**

PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_fp_base = 100</th>
<th>SPECspeed®2017_fp_peak = 102</th>
</tr>
</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>644.nab_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Silver 4316  
  - **Max MHz:** 3400  
  - **Nominal:** 2300  
  - **Enabled:** 20 cores, 1 chip  
  - **Orderable:** 1 chip  
  - **Cache L1:** 32 KB I + 48 KB D on chip per core  
  - **L2:** 1.25 MB I+D on chip per core  
  - **L3:** 30 MB I+D on chip per chip  
  - **Other:** None  
- **Memory:** 512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R, running at 2666)  
- **Storage:** 1 x 240 GB M.2 SATA SSD  
- **Other:** None

### Software

- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)  
  - 4.18.0-240.15.1.el8_3.x86_64  
- **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:** Yes  
- **Firmware:** Version 0.9.0 released May-2021  
- **File System:** xfs  
- **System State:** Run level 5 (graphical 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.
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</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>603.bwaves_s</td>
<td>20</td>
<td>184</td>
<td>320</td>
<td>187</td>
<td>316</td>
<td>185</td>
<td>320</td>
<td>187</td>
<td>316</td>
<td>185</td>
<td>320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>20</td>
<td>126</td>
<td>132</td>
<td>126</td>
<td>132</td>
<td>126</td>
<td>132</td>
<td>126</td>
<td>132</td>
<td>126</td>
<td>132</td>
<td></td>
<td></td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>20</td>
<td>77.3</td>
<td>67.8</td>
<td>77.2</td>
<td>67.8</td>
<td>77.7</td>
<td>67.4</td>
<td>77.2</td>
<td>67.8</td>
<td>77.7</td>
<td>67.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>20</td>
<td>114</td>
<td>116</td>
<td>114</td>
<td>116</td>
<td>114</td>
<td>116</td>
<td>114</td>
<td>116</td>
<td>114</td>
<td>116</td>
<td></td>
<td></td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>20</td>
<td>138</td>
<td>64.3</td>
<td>138</td>
<td>64.3</td>
<td>138</td>
<td>64.2</td>
<td>138</td>
<td>64.3</td>
<td>138</td>
<td>64.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>628.pop2_s</td>
<td>20</td>
<td>138</td>
<td>86.1</td>
<td>138</td>
<td>85.9</td>
<td>138</td>
<td>85.8</td>
<td>138</td>
<td>85.9</td>
<td>138</td>
<td>85.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>638.imagick_s</td>
<td>20</td>
<td>202</td>
<td>71.4</td>
<td>202</td>
<td>71.4</td>
<td>202</td>
<td>71.5</td>
<td>202</td>
<td>71.4</td>
<td>202</td>
<td>71.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>644.nab_s</td>
<td>20</td>
<td>118</td>
<td>147</td>
<td>118</td>
<td>148</td>
<td>118</td>
<td>148</td>
<td>118</td>
<td>148</td>
<td>118</td>
<td>148</td>
<td></td>
<td></td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>20</td>
<td>147</td>
<td>62.2</td>
<td>147</td>
<td>62.1</td>
<td>147</td>
<td>61.9</td>
<td>147</td>
<td>62.1</td>
<td>147</td>
<td>61.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>654.roms_s</td>
<td>20</td>
<td>187</td>
<td>84.4</td>
<td>184</td>
<td>85.7</td>
<td>186</td>
<td>84.9</td>
<td>184</td>
<td>85.7</td>
<td>186</td>
<td>84.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECspeed®2017_fp_base = 100**

**SPECspeed®2017_fp_peak = 102**

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

### 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:
- `KMP_AFFINITY = "granularity=fine,compact"
- `LD_LIBRARY_PATH = "/home/cpu2017-1.1.5-ic2021.1/lib/intel64:/home/cpu2017-1.1.5-ic2021.1/jemalloc-5.0.1-64"
- `MALLOC_CONF = "retain:true"
- `OMP_STACKSIZE = "192M"

### General Notes

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

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
```

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.

(Continued on next page)
General Notes (Continued)

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 Settings:
Logical Processor : Disabled
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

Sysinfo program /home/cpu2017-1.1.5-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Wed May 19 15:57:09 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) Silver 4316 CPU @ 2.30GHz
  1 "physical id"s (chips)
  20 "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 : 20
  siblings : 20
  physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 20
On-line CPU(s) list: 0-19
Thread(s) per core: 1

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

Dell Inc.

PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

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

SPECspeed®2017_fp_base = 100
SPECspeed®2017_fp_peak = 102

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

Platform Notes (Continued)

Core(s) per socket: 20
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 106
Model name: Intel(R) Xeon(R) Silver 4316 CPU @ 2.30GHz
Stepping: 6
CPU MHz: 2781.928
BogoMIPS: 4600.00
Virtualization: VT-x
L1d cache: 48K
L1i cache: 32K
L2 cache: 1280K
L3 cache: 30720K
NUMA node0 CPU(s): 0-19
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush dtsc acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdelgb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmpref 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 epb cat_l3 invpcid_single intel_pni ssbd mba ibrs ibpb stibp ibrs enhanced fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap avx512ifma clflushopt clwb intel_pt avx512cd sha_hni avx512bw avx512vl xsaveopt xsavec xsaves cqm_llc cqm_occuc_llc cqm_mmb_total cqm_mbb_local split_lock_detect wboinvnd dtmera ida arat pln pts avx512vbmi umip pku ospke avx512vbmi2 gfnf vaes vpcmulqdq avx512_vnni avx512_bitalg tme avx512_vpopcntdq la57 rdpid md_clear pconfig flush_lid
arch_capabilities

/proc/cpuinfo cache data
cache size : 30720 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
available: 1 nodes (0)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
node 0 size: 496139 MB
node 0 free: 492178 MB
node distances:
node 0
0: 10

From /proc/meminfo
MemTotal: 527818112 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

(Continued on next page)
Dell Inc.
PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base = 100</th>
<th>SPECspeed®2017_fp_peak = 102</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2017 License: 55</td>
<td>Test Date: May-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: Feb-2021</td>
</tr>
</tbody>
</table>

Platform Notes (Continued)

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

From /etc/*release* /etc/*version*

<table>
<thead>
<tr>
<th>os-release:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAME=&quot;Red Hat Enterprise Linux&quot;</td>
</tr>
<tr>
<td>VERSION=&quot;8.3 (Ootpa)&quot;</td>
</tr>
<tr>
<td>ID=&quot;rhel&quot;</td>
</tr>
<tr>
<td>ID_LIKE=&quot;fedora&quot;</td>
</tr>
<tr>
<td>VERSION_ID=&quot;8.3&quot;</td>
</tr>
<tr>
<td>PLATFORM_ID=&quot;platform:el8&quot;</td>
</tr>
<tr>
<td>PRETTY_NAME=&quot;Red Hat Enterprise Linux 8.3 (Ootpa)&quot;</td>
</tr>
<tr>
<td>ANSI_COLOR=&quot;0;31&quot;</td>
</tr>
</tbody>
</table>

redhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga

uname -a:
Linux localhost.localdomain 4.18.0-240.15.1.el8_3.x86_64 #1 SMP Wed Feb 3 03:12:15 EST 2021 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/swapps 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 |

run-level 5 May 19 11:39

SPEC is set to: /home/cpu2017-1.1.5-ic2021.1

<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>/devmapper/rhel-home</td>
<td>xfs</td>
<td>168G</td>
<td>15G</td>
<td>154G</td>
<td>9%</td>
<td>/home</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Platform Notes (Continued)

Product: PowerEdge XR12
Product Family: PowerEdge
Serial: 09A000C

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:
4x 002C069D002C 36ASF8G72PZ-3G2B2 64 GB 2 rank 3200, configured at 2666
4x 00AD063200AD HMAA8GR7AJR4N-XN 64 GB 2 rank 3200, configured at 2666

BIOS:
BIOS Vendor: Dell Inc.
BIOS Version: 0.9.0
BIOS Date: 05/10/2021
BIOS Revision: 0.9

(End of data from sysinfo program)

Compiler Version Notes

-----------------------------------------------------
C | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
   644.nab_s(base)
-----------------------------------------------------

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 | 644.nab_s(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 | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
   644.nab_s(base)
-----------------------------------------------------

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.

(Continued on next page)
Dell Inc. PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

SPECspeed®2017_fp_base = 100
SPECspeed®2017_fp_peak = 102

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: May-2021
Hardware Availability: Jul-2021
Tested by: Dell Inc.
Software Availability: Feb-2021

Compiler Version Notes (Continued)

------------------------------------------------------------------------------
------------------------------------------------------------------------------
C                   | 644.nab_s(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, Fortran    | 607.cactuBSSN_s(base, 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.
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            | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
654.roms_s(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         | 621.wrf_s(base, peak) 627.cam4_s(base, peak)
628.pop2_s(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.
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.
------------------------------------------------------------------------------
Dell Inc.

PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

| SPECspeed\textsuperscript{2017\_fp\_base} = 100 |
| SPECspeed\textsuperscript{2017\_fp\_peak} = 102 |

| CPU2017 License: 55 | Test Date: May-2021 |
| Test Sponsor: Dell Inc. | Hardware Availability: Jul-2021 |
| Tested by: Dell Inc. | Software Availability: Feb-2021 |

### Base Compiler Invocation

C benchmarks:
```
icc
```

Fortran benchmarks:
```
ifort
```

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

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

### 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:
```
-m64 -std=c11 -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC\_OPENMP
-mbranches-within-32B-boundaries
```

Fortran benchmarks:
```
-m64 -Wl,-z,muldefs -DSPEC\_OPENMP -xCORE-AVX512 -ipo -O3
-no-prec-div -qopt-prefetch -ffinite-math-only 
-qopt-mem-layout-trans=4 -qopenmp -nostandard-realloc-lhs
-mbranches-within-32B-boundaries -L/usr/local/jemalloc64-5.0.1/lib
-ljemalloc
```

Benchmarks using both Fortran and C:
```
m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
```

(Continued on next page)
Dell Inc.
PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

<table>
<thead>
<tr>
<th>SPECspeed®2017_fp_base = 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed®2017_fp_peak = 102</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** May-2021  
**Hardware Availability:** Jul-2021  
**Software Availability:** Feb-2021

---

### Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):
- `-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp`
- `-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

Benchmarks using Fortran, C, and C++:
- `-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div`
- `-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp`
- `-DSPEC_OPENMP -mbranches-within-32B-boundaries -nostandard-realloc-lhs`
- `-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

### Peak Compiler Invocation

C benchmarks (except as noted below):
- `icc`
- `644.nab_s: icx`

Fortran benchmarks:
- `ifort`

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

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

### Peak Portability Flags

Same as Base Portability Flags

### Peak Optimization Flags

C benchmarks:
- `619.lbm_s: basepeak = yes`
- `638.imagick_s: basepeak = yes`

(Continued on next page)
Dell Inc. PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

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

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

Peak Optimization Flags ( Continued)

644.nab_s: -m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -ffast-math
-flto -mfpmath=sse -funroll-loops -fopenmp
-DSPEC_OPENMP -qopt-mem-layout-trans=4
-fimf-accuracy-bits=14:sqrt
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

Fortran benchmarks:
603.bwaves_s: basepeak = yes
649.fotonik3d_s: basepeak = yes
654.roms_s: basepeak = yes

Benchmarks using both Fortran and C:
621.wrf_s: -m64 -std=c11 -Wl,-z,muldefs -prof-gen(pass 1)
-prof-use(pass 2) -ipo -xCORE-AVX512 -03 -no-prec-div
-qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP -gopenmp -DSPEC_OPENMP
-mbranches-within-32B-boundaries -nostandard-realloc-lhs
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc
627.cam4_s: basepeak = yes
628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:
607.cactuBSSN_s: 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-ic2021-official-linux64_revA.xml
Dell Inc.

PowerEdge XR12 (Intel Xeon Silver 4316, 2.30 GHz)

| SPECspeed®2017_fp_base = 100 |
| SPECspeed®2017_fp_peak = 102 |

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

Test Date: May-2021
Hardware Availability: Jul-2021
Software Availability: Feb-2021

---

SPEC CPU and SPECspeed 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 v1.1.5 on 2021-05-19 16:57:08-0400.
Originally published on 2021-07-06.