### CPU2017 Floating Point Rate Result

**Dell Inc.**

PowerEdge R740xd2 (Intel Xeon Gold 5115, 2.40GHz)

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>115</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

#### CPU2017 License
55

**Test Sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test Date:** Oct-2018

**Hardware Availability:** Dec-2016

**Software Availability:** Apr-2018

#### Hardware

- **CPU Name:** Intel Xeon Gold 5115
- **Max MHz.:** 3200
- **Nominal:** 2400
- **Enabled:** 20 cores, 2 chips, 2 threads/core
- **Orderable:** 1.2 chips
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 1 MB I+D on chip per core
- **L3:** 13.75 MB I+D on chip per chip
- **Other:** None
- **Memory:** 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R, running at 2400)
- **Storage:** 1 x 250 GB M.2 SATA SSD
- **Other:** None

#### Software

- **OS:** SUSE Linux Enterprise Server 12 SP3
- **Compiler:** C/C++: Version 18.0.2.20180210 of Intel C/C++ Compiler for Linux;
  Fortran: Version 18.0.2.20180210 of Intel Fortran Compiler for Linux
- **Parallel:** No
- **Firmware:** Version 1.0.2 released Oct-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** None

#### Software Pointers

| Copies | 0 | 15.0 | 30.0 | 45.0 | 60.0 | 75.0 | 90.0 | 105 | 120 | 135 | 150 | 165 | 180 | 195 | 210 | 225 | 240 | 255 | 270 | 285 | 300 | 315 | 320 |
|--------|---|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 503.bwaves_r | 40 | 90.9 |
| 507.cactuBSSN_r | 40 | 81.0 |
| 508.namd_r | 40 | 70.1 |
| 510.parest_r | 40 | 129 |
| 511.povray_r | 40 | 71.6 |
| 519.lbm_r | 40 | 131 |
| 521.wrf_r | 40 | 117 |
| 526.blender_r | 40 | 102 |
| 527.cam4_r | 40 | 192 |
| 538.imagick_r | 40 | 249 |
| 544.nab_r | 40 | 101 |
| 549.fotonik3d_r | 40 | 58.2 |

---

**Note:** The test results are based on the SPEC CPU2017 benchmark suite.
### SPEC CPU2017 Floating Point Rate Result

Dell Inc.

PowerEdge R740xd2 (Intel Xeon Gold 5115, 2.40GHz)

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Sponsor</th>
<th>Tested by</th>
<th>Test Date</th>
<th>Hardware Availability</th>
<th>Software Availability</th>
</tr>
</thead>
</table>

#### Results Table

| Benchmark      | Copies | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>40</td>
<td>1262</td>
<td>318</td>
<td>1255</td>
<td>320</td>
<td></td>
<td></td>
</tr>
<tr>
<td>507.cactusBSSN_r</td>
<td>40</td>
<td>557</td>
<td>90.9</td>
<td>556</td>
<td>91.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>508.namd_r</td>
<td>40</td>
<td>469</td>
<td>81.0</td>
<td>469</td>
<td>81.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>40</td>
<td>1486</td>
<td>70.4</td>
<td>1492</td>
<td>70.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>40</td>
<td>721</td>
<td>129</td>
<td>723</td>
<td>129</td>
<td></td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>40</td>
<td>577</td>
<td>73.0</td>
<td>589</td>
<td>71.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>40</td>
<td>683</td>
<td>131</td>
<td>684</td>
<td>131</td>
<td></td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>40</td>
<td>522</td>
<td>117</td>
<td>523</td>
<td>117</td>
<td></td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>40</td>
<td>684</td>
<td>102</td>
<td>683</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>40</td>
<td>400</td>
<td>249</td>
<td>392</td>
<td>254</td>
<td></td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>40</td>
<td>370</td>
<td>182</td>
<td>371</td>
<td>182</td>
<td></td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>40</td>
<td>1539</td>
<td>101</td>
<td>1522</td>
<td>102</td>
<td></td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>40</td>
<td>1085</td>
<td>58.6</td>
<td>1093</td>
<td>58.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SPECrate2017_fp_base = 115**

**SPECrate2017_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"

#### General Notes

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

```
LD_LIBRARY_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"
```

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4

Yes: 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

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Dell Inc.
PowerEdge R740xd2 (Intel Xeon Gold 5115, 2.40GHz)  

SPECraten2017_fp_base = 115  
SPECraten2017_fp_peak = Not Run

CPU2017 License: 55  
Test Sponsor: Dell Inc.  
Test Date: Oct-2018  
Tested by: Dell Inc.  
Hardware Availability: Dec-2016  
Software Availability: Apr-2018

General Notes (Continued)

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>

Platform Notes

BIOS settings:
Virtualization Technology 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 Disabled
Logical Processor Enabled
CPU Interconnect Bus Link Power Management Disabled
PCI ASPM L1 Link Power Management Disabled
Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on linux-m8ku Tue Oct 30 14:56:03 2018

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 5115 CPU @ 2.40GHz
2 "physical id"s (chips)
40 "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 : 10
siblings : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 40
On-line CPU(s) list: 0-39
Thread(s) per core: 2
Core(s) per socket: 10

(Continued on next page)
SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Dell Inc.
PowerEdge R740xd2 (Intel Xeon Gold 5115, 2.40GHz)

SPECRate2017_fp_base = 115
SPECRate2017_fp_peak = Not Run

CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.
Hardware Availability: Dec-2016
Software Availability: Apr-2018
Test Date: Oct-2018

Platform Notes (Continued)

- Socket(s): 2
- NUMA node(s): 2
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 85
- Model name: Intel(R) Xeon(R) Gold 5115 CPU @ 2.40GHz
- Stepping: 4
- CPU MHz: 2394.384
- BogoMIPS: 4788.76
- Virtualization: VT-x
- L1d cache: 32K
- L1i cache: 32K
- L2 cache: 1024K
- L3 cache: 14080K
- NUMA node0 CPU(s): 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38
- NUMA node1 CPU(s): 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39
- 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 aperfmperf eagerfpu nni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrunc pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts dtes64e2 intel_pt ssbd tsxms cmov clflushopt xsaveopt xsaveprefetch cflisolated dtherm tsc撞钟 msrlimit rdtscpild tsc_adjust bmi1 hle avx2 smep bmi2 4ms invpcid rtm cqm mpx avx512f rdx rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsaveprecise xsavec xsaveopt 3pwrite monitoring seesave

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
- available: 2 nodes (0-1)
- node 0 cpus: 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38
- node 0 size: 96228 MB
- node 0 free: 95783 MB
- node 1 cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39
- node 1 size: 96748 MB
- node 1 free: 96390 MB
- node distances:
  - node 0 1
  - 0: 10 21
  - 1: 21 10

From /proc/meminfo
- MemTotal: 197608068 kB
- HugePages_Total: 0

(Continued on next page)
<table>
<thead>
<tr>
<th>Dell Inc.</th>
<th>SPECrate2017_fp_base = 115</th>
</tr>
</thead>
<tbody>
<tr>
<td>PowerEdge R740xd2 (Intel Xeon Gold 5115, 2.40GHz)</td>
<td>SPECrate2017_fp_peak = Not Run</td>
</tr>
<tr>
<td>CPU2017 License: 55</td>
<td>Test Date: Oct-2018</td>
</tr>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Dec-2016</td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Apr-2018</td>
</tr>
</tbody>
</table>

Platform Notes (Continued)

```
Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
SUSE Linux Enterprise Server 12 SP3

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 3
  # This file is deprecated and will be removed in a future service pack or release.
  # Please check /etc/os-release for details about this release.
  os-release:
    NAME="SLES"
    VERSION="12-SP3"
    VERSION_ID="12.3"
    PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
    ID="sles"
    ANSI_COLOR="0;32"
    CPE_NAME="cpe:/o:suse:sles:12:sp3"

uname -a:
  Linux linux-m8ku 4.4.114-94.11-default #1 SMP Thu Feb 1 19:28:26 UTC 2018 (4309ff9)
  x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
  CVE-2017-5754 (Meltdown): Mitigation: PTI
  CVE-2017-5753 (Spectre variant 1): Mitigation: Barriers
  CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS+IBPB

run-level 3 Oct 30 11:14 last=5

SPEC is set to: /home/cpu2017
  Filesystem Type Size Used Avail Use% Mounted on
  /dev/sdab4 xfs 182G 4.0G 178G 3% /home

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 Dell Inc. 1.0.2 10/19/2018
  Memory:
    12x 002C04B3002C 18ASF2G72PD2-2G6E1 16 GB 2 rank 2666, configured at 2400
    4x Not Specified Not Specified

(End of data from sysinfo program)
```
Dell Inc.
PowerEdge R740xd2 (Intel Xeon Gold 5115, 2.40GHz)

SPECrate2017_fp_base = 115
SPECrate2017_fp_peak = Not Run

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

Test Date: Oct-2018
Hardware Availability: Dec-2016
Software Availability: Apr-2018

Compiler Version Notes

==============================================================================
CC  519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)
------------------------------------------------------------------------------
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
CXXC 508.namd_r(base) 510.parest_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
CC  511.povray_r(base) 526.blender_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
FC  507.cactuBSSN_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
FC  503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)
------------------------------------------------------------------------------
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

==============================================================================
CC  521.wrf_r(base) 527.cam4_r(base)
------------------------------------------------------------------------------
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210

(Continued on next page)
### 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`

**Benchmarks using Fortran, C, and C++:**
- `icpc -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.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`
**SPEC CPU2017 Floating Point Rate Result**

**Dell Inc.**

**PowerEdge R740xd2 (Intel Xeon Gold 5115, 2.40GHz)**

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>SPECrate2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>115</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55

**Test Sponsor:** Dell Inc.

**Test Date:** Oct-2018

**Tested by:** Dell Inc.

**Hardware Availability:** Dec-2016

**Software Availability:** Apr-2018

**Base Optimization Flags**

C benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

C++ benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

Fortran benchmarks:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

Benchmarks using both C and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -auto -nostandard-realloc-lhs

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:

SPEC is a registered trademark 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 CPU2017 v1.0.5 on 2018-10-30 15:56:03-0400.
Originally published on 2018-11-27.