Dell Inc.
PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

SPECspeed2017_fp_base = 58.1
SPECspeed2017_fp_peak = Not Run

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

Threads

| 603.bwaves_s | 40 | 607.cactuBSSN_s | 40 | 619.lbm_s | 40 | 621.wrf_s | 40 | 627.cam4_s | 40 | 628.pop2_s | 40 | 638.imagick_s | 40 | 644.nab_s | 40 | 649.fotonik3d_s | 40 | 654.roms_s | 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 603.bwaves_s | 40 | 607.cactuBSSN_s | 40 | 619.lbm_s | 40 | 621.wrf_s | 40 | 627.cam4_s | 40 | 628.pop2_s | 40 | 638.imagick_s | 40 | 644.nab_s | 40 | 649.fotonik3d_s | 40 | 654.roms_s | 40 |
| 0 | 10.0 | 20.0 | 30.0 | 40.0 | 50.0 | 60.0 | 70.0 | 80.0 | 90.0 | 100 | 110 | 120 | 130 | 140 | 150 | 160 | 170 | 180 | 190 | 200 | 210 | 220 | 230 |
| 603.bwaves_s | 40 | 607.cactuBSSN_s | 40 | 619.lbm_s | 40 | 621.wrf_s | 40 | 627.cam4_s | 40 | 628.pop2_s | 40 | 638.imagick_s | 40 | 644.nab_s | 40 | 649.fotonik3d_s | 40 | 654.roms_s | 40 |
| 86.1 |

Hardware

CPU Name: Intel Xeon Silver 4114
Max MHz.: 3000
Nominal: 2200
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: 960 GB SATA SSD
Other: None

Software

OS: SUSE Linux Enterprise Server 12 SP2 (x86_64)
4.4.16-56-default
Compiler: C/C++: Version 18.0.0.128 of Intel C/C++
Compiler for Linux;
Fortran: Version 18.0.0.128 of Intel Fortran
Compiler for Linux
Parallel: Yes
Firmware: Version 1.1.3 released Sep-2017
File System: btrfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None
Dell Inc.

PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

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

SPEC speed2017_fp_base = 58.1
SPEC speed2017_fp_peak = Not Run

Hardware Availability: Sep-2017
Software Availability: Sep-2017

Results Table

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<thead>
<tr>
<th>Benchmark</th>
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<th>Seconds</th>
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<th>Seconds</th>
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<th>Seconds</th>
<th>Ratio</th>
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<td>229</td>
<td>265</td>
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<td>225</td>
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<tr>
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<td>86.0</td>
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<td>86.3</td>
<td>194</td>
<td>86.1</td>
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<td>627.cam4_s</td>
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<td>49.3</td>
<td>181</td>
<td>49.1</td>
<td>179</td>
<td>49.4</td>
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<tr>
<td>628.pop2_s</td>
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<td>649.fotonik3d_s</td>
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<tr>
<td>654.roms_s</td>
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</tr>
</tbody>
</table>

SPEC speed2017_fp_base = 58.1
SPEC speed2017_fp_peak = Not Run

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"

General Notes

Environment variables set by runcpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
OMP_STACKSIZE = "192M"

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

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: 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.
No: 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.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly

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

Dell Inc.
PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

SPECspeed2017_fp_base = 58.1
SPECspeed2017_fp_peak = Not Run

General Notes (Continued)

generally available. At the time of this publication, it may
not be shipping, and/or may not be supported, and/or may fail
to meet other tests of General Availability described in the

This measured result may not be representative of the result
that would be measured were this benchmark run with hardware
and software available as of the publication date.

Platform Notes

BIOS settings:
Virtualization Technology disabled
System Profile set to Custom
CPU Power Management set to Maximum Performance
Memory Frequency set to Maximum Performance
Turbo Boost enabled
C States disabled
Memory Patrol Scrub disabled
PCI ASPM L1 Link Power Management disabled
Sysinfo program /root/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bccc091c0f
running on linux-u8yg Wed Nov  8 09:44:30 2017

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 4114 CPU @ 2.20GHz
  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

(Continued on next page)
Dell Inc.

PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

SPECspeed2017_fp_base = 58.1
SPECspeed2017_fp_peak = Not Run

Platform Notes (Continued)

Core(s) per socket: 10
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Silver 4114 CPU @ 2.20GHz
Stepping: 4
CPU MHz: 2200.102
BogoMIPS: 4400.20
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 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 pge mca cmov
flags

/proc/cpuinfo cache data
  cache size : 14080 KB

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: 96285 MB
  node 0 free: 95027 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: 96736 MB
  node 1 free: 93151 MB
  node distances:
    node  0  1
      0: 10 21
      1: 21 10

From /proc/meminfo
  MemTotal: 197654292 kB
  HugePages_Total: 0

(Continued on next page)
Dell Inc.
PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

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### SPEC CPU2017 Floating Point Speed Result

**SPECspeed2017_fp_base = 58.1**

**SPECspeed2017_fp_peak = Not Run**

#### Platform Notes (Continued)

- **Hugepagesize:** 2048 kB
- **From /etc/*release*/etc/*version*/
  - **SuSE-release:**
    - SUSE Linux Enterprise Server 12 (x86_64)
    - VERSION = 12
    - PATCHLEVEL = 2
    # 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-SP2"
    - VERSION_ID="12.2"
    - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
    - ID="sles"
    - ANSI_COLOR="0;32"
    - CPE_NAME="cpe:/o:suse:sles:12:sp2"
- **uname -a:**
  - Linux linux-u8yg 4.4.16-56-default #1 SMP Mon Aug 8 14:24:26 UTC 2016 (5b281a8) x86_64
  - x86_64 x86_64 GNU/Linux
- **run-level 3 Nov 8 06:33**
- **SPEC is set to:** /root/cpu2017
- **Filesystem** | **Type** | **Size** | **Used** | **Avail** | **Use%** | Mounted on
|-----------------|---------|---------|---------|----------|---------|----------------|
| /dev/sda1 | btrfs | 921G | 38G | 882G | 5% | /

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. 1.1.3 09/21/2017**
- **Memory:**
  - 3x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666, configured at 2400
  - 9x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666, configured at 2400
  - 4x Not Specified Not Specified

(End of data from sysinfo program)

### Compiler Version Notes

```
==============================================================================
<table>
<thead>
<tr>
<th>CC</th>
<th>619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)</th>
</tr>
</thead>
<tbody>
<tr>
<td>icc (ICC)</td>
<td>18.0.0 20170811</td>
</tr>
</tbody>
</table>
```

(Continued on next page)
Dell Inc.

PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

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**SPEC CPU2017 Floating Point Speed Result**

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<tbody>
<tr>
<td>58.1</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**Compiler Version Notes (Continued)**

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---

FC 607.cactusBSSN_s(base)

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

---

FC 603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base)

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

---

CC 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

---

**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
SPEC CPU2017 Floating Point Speed Result

Dell Inc.

PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

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CPU2017 License: 55
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Tested by: Dell Inc.

Test Date: Nov-2017
Hardware Availability: Sep-2017
Software Availability: Sep-2017

---

**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
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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP

Fortran benchmarks:
-DSPEC_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp
-nostandard-realloc-lhs -align array32byte

Benchmarks using both Fortran and C:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte

Benchmarks using Fortran, C, and C++:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -align array32byte

---

**Base Other Flags**

C benchmarks:
-m64 -std=c11

Fortran benchmarks:
-m64

*(Continued on next page)*
SPEC CPU2017 Floating Point Speed Result

Dell Inc.

PowerEdge FC640 (Intel Xeon Silver 4114, 2.20 GHz)

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Software Availability: Sep-2017

Base Other Flags (Continued)

Benchmarks using both Fortran and C:
- m64 -std=c11

Benchmarks using Fortran, C, and C++:
- m64 -std=c11

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:

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

Tested with SPEC CPU2017 v1.0.2 on 2017-11-08 10:44:29-0500.
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