## Dell Inc. PowerEdge C6420 (Intel Xeon Gold 6134, 3.20 GHz)

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

**Test Date:** Dec-2017  
**Hardware Availability:** Sep-2017  
**Software Availability:** Sep-2017

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<th>SPECrate2017_fp_peak</th>
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<tr>
<td>549.fotonik3d_r</td>
<td>32</td>
<td>81.8</td>
<td></td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 6134  
- **Max MHz.:** 3700  
- **Nominal:** 3200  
- **Enabled:** 16 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:** 24.75 MB I+D on chip per chip  
- **Memory:** 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)  
- **Storage:** 480GB SATA SSD  
- **Other:** None

### Software

- **OS:** CentOS Linux release 7.4.1708 (Core)  
- **Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++  
- **Parallel:** No  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** None
SPEC CPU2017 Floating Point Rate Result

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Dell Inc.

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**Results Table**

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</table>

**SPECrate2017_fp_base = 122**

**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:

```
```

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
```

runcpu command invoked through numactl i.e.:

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

No: 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)
Dell Inc. PowerEdge C6420 (Intel Xeon Gold 6134, 3.20 GHz)

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<tbody>
<tr>
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</tbody>
</table>

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

**General Notes (Continued)**

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 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 SPEC OSG Policy document, [http://www.spec.org/osg/policy.html](http://www.spec.org/osg/policy.html)

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 96c45e4568ad54c135fd618bcc091c0f
- running on localhost.localdomain Wed Dec 20 22:02:51 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](https://www.spec.org/cpu2017/Docs/config.html#sysinfo)

From `/proc/cpuinfo`
- model name : Intel(R) Xeon(R) Gold 6134 CPU @ 3.20GHz
  - 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
## Platform Notes (Continued)

```
physical 0: cores 0 1 2 3 10 11 24 27
physical 1: cores 0 1 2 3 10 11 24 27
```

From `lscpu`:
- **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:** 85
- **Model name:** Intel(R) Xeon(R) Gold 6134 CPU @ 3.20GHz
- **Stepping:** 4
- **CPU MHz:** 3200.000
- **BogoMIPS:** 6400.00
- **Virtualization:** VT-x
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 1024K
- **L3 cache:** 2344K
- **NUMA node0 CPU(s):** 0,4,8,12,16,20,24,28
- **NUMA node1 CPU(s):** 1,5,9,13,17,21,25,29
- **NUMA node2 CPU(s):** 2,6,10,14,18,22,26,30
- **NUMA node3 CPU(s):** 3,7,11,15,19,23,27,31
- **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 rdtsscp
  lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc
  aperfmperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 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 epb cat_l3 cdp l3intel pt
  tpr_shadow vmmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
  erms invpcid rtm cqm mpx rdta avx512f avx512dq rdseed adx smap cflshhopt clwb
  avx512cd avx512bw avx512vl xsxvopt xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc
  cqm_mbm_total cqm_mbm_local dtherm ida arat pfn pts
```

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
```

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

**Dell Inc.**

PowerEdge C6420 (Intel Xeon Gold 6134, 3.20 GHz)

**SPECrate2017_fp_base** = 122

**SPECrate2017_fp_peak** = Not Run

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<td>Sep-2017</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Sep-2017</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

node 0 size: 47813 MB
node 0 free: 46455 MB
node 1 cpus: 1 5 9 13 17 21 25 29
node 1 size: 49152 MB
node 1 free: 47727 MB
node 2 cpus: 2 6 10 14 18 22 26 30
node 2 size: 49152 MB
node 2 free: 47831 MB
node 3 cpus: 3 7 11 15 19 23 27 31
node 3 size: 49152 MB
node 3 free: 47836 MB
node distances:

<table>
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<tr>
<th>node</th>
<th>0</th>
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<th>2</th>
<th>3</th>
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</tr>
<tr>
<td>3</td>
<td>21</td>
<td>11</td>
<td>21</td>
<td>10</td>
</tr>
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</table>

From /proc/meminfo

MemTotal: 196689516 kB
HugePages_Total: 128
Hugepagesize: 2048 kB

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

centos-release: CentOS Linux release 7.4.1708 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.4 (Source)
os-release:

NAME="CentOS Linux"
VERSION="7 (Core)"
ID="centos"
ID_LIKE="rhel fedora"
VERSION_ID="7"
PRETTY_NAME="CentOS Linux 7 (Core)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:centos:centos:7"

redhat-release: CentOS Linux release 7.4.1708 (Core)
system-release: CentOS Linux release 7.4.1708 (Core)
system-release-cpe: cpe:/o:centos:centos:7

uname -a:

Linux localhost.localdomain 3.10.0-693.5.2.e17.x86_64 #1 SMP Fri Oct 20 20:32:50 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 20 18:04

SPEC is set to: /root/cpu2017

Filesystem Type Size Used Avail Use% Mounted on

(Continued on next page)
### Dell Inc.

PowerEdge C6420 (Intel Xeon Gold 6134, 3.20 GHz)

| SPECrate2017_fp_base = | 122 |
|-----------------------------------------------
| SPECrate2017_fp_peak = | Not Run |

- **CPU2017 License:** 55
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- **Software Availability:** Sep-2017

#### Platform Notes (Continued)

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. 1.0.8 07/12/2017
- **Memory:**
  - 12x 00CE063200CE M393A2K43BB1-CTD 16 GB 2 rank 2666
  - 4x Not Specified Not Specified

(End of data from sysinfo program)

#### Compiler Version Notes

```
==============================================================================
CC      519.lbm_r(base) 538.imagick_r(base) 544.nab_r(base)□
------------------------------------------------------------------------------
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
CXXC   508.namd_r(base) 510.parest_r(base)□
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
CC      511.povray_r(base) 526.blender_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
iccc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
FC      507.cactuBSSN_r(base)
------------------------------------------------------------------------------
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
iccc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.0 20170811
```

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Dell Inc.  
PowerEdge C6420 (Intel Xeon Gold 6134, 3.20 GHz)

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Compiler Version Notes (Continued)

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FC 503.bwaves_r(base) 549.fotonik3d_r(base) 554.roms_r(base)

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

CC 521.wrf_r(base) 527.cam4_r(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

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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

(Continued on next page)
## Dell Inc.

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### Base Portability Flags (Continued)

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<tr>
<td>510.parest_r</td>
<td>-DSPEC_LP64</td>
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<td>511.povray_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>-DSPEC_LP64</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>-DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>-DSPEC_LP64 -DSPEC_LINUX -funsigned-char</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>-DSPEC_LP64 -DSPEC_CASE_FLAG</td>
</tr>
<tr>
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</tbody>
</table>

### 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 -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 -nostandard-realloc-lhs -align array32byte
```

**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 -nostandard-realloc-lhs -align array32byte
```

### Base Other Flags

**C benchmarks:**
```
-m64 -std=c11
```

(Continued on next page)
Dell Inc.
PowerEdge C6420 (Intel Xeon Gold 6134, 3.20 GHz)

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Base Other Flags (Continued)

C++ benchmarks:
- -m64

Fortran benchmarks:
- -m64

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

Benchmarks using both C 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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Tested with SPEC CPU2017 v1.0.2 on 2017-12-20 23:02:50-0500.
Originally published on 2018-02-27.