### Dell Inc.

**PowerEdge C6420 (Intel Xeon Gold 6140, 2.30 GHz)**

**SPECspeed2017_int_base = 8.82**  
**SPECspeed2017_int_peak = Not Run**

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>55</th>
<th>Test Date:</th>
<th>Nov-2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Dell Inc.</td>
<td>Hardware Availability:</td>
<td>Sep-2017</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
<td>Software Availability:</td>
<td>Sep-2017</td>
</tr>
</tbody>
</table>

#### Threads

| Spec Test | Threads | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|------------|---------|---|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 600.perlbench_s | 72     | 6.15 | 9.44 | 11.0 | 11.7 | 13.3 |
| 602.gcc_s       | 72     | 5.05 | 11.1 | 4.32 | 5.05 | 13.3 |
| 605.mcf_s       | 72     | 6.61 | 3.99 | 7.15 | 14.25 | 13.3 |
| 620.omnetpp_s   | 72     | 6.11 | 4.32 | 8.65 | 14.25 | 13.3 |
| 623.xalancbmk_s | 72     | 9.39 | 11.0 | 11.7 | 22.8 | 13.3 |
| 625.x264_s      | 72     | 6.11 | 9.39 | 11.7 | 13.3 | 13.3 |
| 631.deepsjeng_s | 72     | 6.15 | 9.44 | 11.0 | 11.7 | 13.3 |
| 641.leela_s     | 72     | 5.05 | 11.1 | 4.32 | 5.05 | 13.3 |
| 648.exchange2_s | 72     | 6.11 | 4.32 | 8.65 | 14.25 | 13.3 |
| 657.xz_s        | 72     | 9.39 | 11.0 | 11.7 | 22.8 | 13.3 |

#### Hardware

- **CPU Name:** Intel Xeon Gold 6140  
  - Max MHz.: 3700  
  - Nominal: 2300  
  - Enabled: 36 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  
  - Other: None  
- **Memory:** 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R)  
- **Storage:** 480 GB SATA SSD  
- **Other:** None

#### Software

- **OS:** CentOS Linux release 7.4.1708 (Core)  
  3.10.0-693.5.2.el7.x86_64  
- **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 1.0.8 released Jul-2017  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other:** jemalloc: jemalloc memory allocator library V5.0.1;
SPEC CPU2017 Integer Speed Result

Dell Inc. PowerEdge C6420 (Intel Xeon Gold 6140, 2.30 GHz)

SPECspeed2017_int_base = 8.82
SPECspeed2017_int_peak = Not Run

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>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>72</td>
<td>290</td>
<td>6.13</td>
<td>287</td>
<td>6.18</td>
<td>288</td>
<td>6.15</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>72</td>
<td>434</td>
<td>9.17</td>
<td>422</td>
<td>9.44</td>
<td>421</td>
<td>9.46</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>72</td>
<td>430</td>
<td>11.0</td>
<td>431</td>
<td>11.0</td>
<td>432</td>
<td>11.0</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>72</td>
<td>267</td>
<td>6.11</td>
<td>279</td>
<td>5.84</td>
<td>265</td>
<td>5.84</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>72</td>
<td>151</td>
<td>3.93</td>
<td>151</td>
<td>3.94</td>
<td>151</td>
<td>3.94</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>72</td>
<td>151</td>
<td>11.7</td>
<td>151</td>
<td>11.7</td>
<td>151</td>
<td>11.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>72</td>
<td>284</td>
<td>5.05</td>
<td>284</td>
<td>5.05</td>
<td>284</td>
<td>5.05</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>72</td>
<td>394</td>
<td>4.33</td>
<td>394</td>
<td>4.32</td>
<td>395</td>
<td>4.32</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>72</td>
<td>220</td>
<td>13.3</td>
<td>220</td>
<td>13.3</td>
<td>220</td>
<td>13.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>72</td>
<td>271</td>
<td>22.8</td>
<td>270</td>
<td>22.9</td>
<td>272</td>
<td>22.7</td>
</tr>
</tbody>
</table>

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,scatter"
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

jemalloc: configured and built at default for
32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4,
and the system compiler gcc 4.8.5;
jemalloc: sources available via jemalloc.net

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)

(Continued on next page)
Dell Inc. PowerEdge C6420 (Intel Xeon Gold 6140, 2.30 GHz)  SPECspeed2017_int_base = 8.82

<table>
<thead>
<tr>
<th>SPECspeed2017_int_peak = Not Run</th>
</tr>
</thead>
</table>

General Notes (Continued)

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

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 96c45e45468ad45c135fd618bccc091c0f
running on localhost.localdomain Thu Nov 30 18:09:07 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) Gold 6140 CPU @ 2.30GHz
          2  "physical id"s (chips)
          72 "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 : 18
    siblings : 36
    physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
    physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27

(Continued on next page)
Dell Inc.  
PowerEdge C6420 (Intel Xeon Gold 6140, 2.30 GHz)  

| SPECspeed2017_int_base = 8.82 |
| SPECspeed2017_int_peak = Not Run |

| CPU2017 License: 55 | Test Date: Nov-2017 |
| Test Sponsor: Dell Inc. | Hardware Availability: Sep-2017 |
| Tested by: Dell Inc. | Software Availability: Sep-2017 |

### Platform Notes (Continued)

From `lscpu`:
- **Architecture:** x86_64
- **CPU op-mode(s):** 32-bit, 64-bit
- **Byte Order:** Little Endian
- **CPU(s):** 72
- **On-line CPU(s) list:** 0-71
- **Thread(s) per core:** 2
- **Core(s) per socket:** 18
- **Socket(s):** 2
- **NUMA node(s):** 2
- **Vendor ID:** GenuineIntel
- **CPU family:** 6
- **Model:** 85
- **Model name:** Intel(R) Xeon(R) Gold 6140 CPU @ 2.30GHz
- **Stepping:** 4
- **CPU MHz:** 2300.000
- **BogoMIPS:** 4600.00
- **Virtualization:** VT-x
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 1024K
- **L3 cache:** 25344K

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 40 42 44 46 48 50 52 54 56 58 60 62 64 66 68 70

(Continued on next page)
### Platform Notes (Continued)

- **node 0** size: 96965 MB
- **node 0** free: 94176 MB
- **node 1** cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71
- **node 1** size: 98304 MB
- **node 1** free: 95420 MB
- **node distances:**
  - node 0: 10 21
  - node 1: 21 10

From `/proc/meminfo`
- MemTotal: 196690028 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

```bash
centos-release --about
```
- uname -a:
  ```bash
  Linux localhost.localdomain 3.10.0-693.5.2.el7.x86_64 #1 SMP Fri Oct 20 20:32:50 UTC 2017 x86_64 x86_64 x86_64 GNU/Linux
  ```
- run-level 3 Nov 30 18:08
- SPEC is set to: /root/cpu2017

```bash
dmidecode -v
```
- 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.

```bash
BIOS Dell Inc. 1.0.8 07/12/2017
```

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Dell Inc.
PowerEdge C6420 (Intel Xeon Gold 6140, 2.30 GHz)

SPECspeed2017_int_base = 8.82
SPECspeed2017_int_peak = Not Run

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

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

Platform Notes (Continued)

Memory:
3x 002C00B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666
9x 00AD00B300AD HMA82GR7AFR8N-VK 16 GB 2 rank 2666
4 Not Specified Not Specified

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base)
657.xz_s(base)
==============================================================================
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
641.leela_s(base)
==============================================================================
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
==============================================================================
FC 648.exchange2_s(base)
==============================================================================
ifort (IFORT) 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
### SPEC CPU2017 Integer Speed Result

**Dell Inc.**  
PowerEdge C6420 (Intel Xeon Gold 6140, 2.30 GHz)

<table>
<thead>
<tr>
<th>SPEC speed2017_int_base</th>
<th>8.82</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPEC speed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Nov-2017  
**Hardware Availability:** Sep-2017  
**Software Availability:** Sep-2017

#### Base Portability Flags

- `600.perlbench_s`: -DSPEC_LP64 -DSPEC_LINUX_X64
- `602.gcc_s`: -DSPEC_LP64
- `605.mcf_s`: -DSPEC_LP64
- `620.omnetpp_s`: -DSPEC_LP64
- `623.xalancbmk_s`: -DSPEC_LP64 -DSPEC_LINUX
- `625.x264_s`: -DSPEC_LP64
- `631.deepsjeng_s`: -DSPEC_LP64
- `641.leela_s`: -DSPEC_LP64
- `648.exchange2_s`: -DSPEC_LP64
- `657.xz_s`: -DSPEC_LP64

#### Base Optimization Flags

- **C benchmarks:**
  - `-Wl,-z,muldefs` -xCORE-AVX512 -ipo -O3 -no-prec-div
  - `-qopt-mem-layout-trans=3` `-qopenmp` -DSPEC_OPENMP
  - `-L/usr/local/je5.0.1-64/lib` `-ljemalloc`

- **C++ benchmarks:**
  - `-Wl,-z,muldefs` -xCORE-AVX512 -ipo -O3 -no-prec-div
  - `-qopt-mem-layout-trans=3` `-L/usr/local/je5.0.1-64/lib` `-ljemalloc`

- **Fortran benchmarks:**
  - `-Wl,-z,muldefs` -xCORE-AVX512 -ipo -O3 -no-prec-div
  - `-qopt-mem-layout-trans=3` `-nostandard-realloc-lhs` `-align array32byte`
  - `-L/usr/local/je5.0.1-64/lib` `-ljemalloc`

#### Base Other Flags

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

- **C++ benchmarks:**
  - `-m64`

- **Fortran benchmarks:**
  - `-m64`
## SPEC CPU2017 Integer Speed Result

### Dell Inc.

**PowerEdge C6420 (Intel Xeon Gold 6140, 2.30 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 8.82</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Nov-2017  
**Hardware Availability:** Sep-2017  
**Software Availability:** Sep-2017

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 v1.0.2 on 2017-11-30 19:09:07-0500.  
Originally published on 2018-02-27.