### Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Mar-2018</th>
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</thead>
<tbody>
<tr>
<td>Hardware Availability:</td>
<td>Sep-2017</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Feb-2018</td>
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</tbody>
</table>

#### SPECspeed2017_int_peak = 9.07

#### SPECspeed2017_int_base = 8.82

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**Threads**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>7.36</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>9.23</td>
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<tr>
<td>605.mcf_s</td>
<td>9.52</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>6.39</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>9.47</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>11.7</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>5.05</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>4.33</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>13.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>22.3</td>
</tr>
</tbody>
</table>

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**Hardware**

- **CPU Name:** Intel Xeon Gold 6154
- **Max MHz.:** 3700
- **Nominal:** 3000
- **Enabled:** 36 cores, 2 chips
- **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:** 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)
- **Storage:** 480 GB SATA SSD
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 12 SP2
- **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 1.3.7 released Feb-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other:** jemalloc memory allocator library V5.0.1
SPEC CPU2017 Integer Speed Result

Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

SPECspeed2017_int_base = 8.82
SPECspeed2017_int_peak = 9.07

Results Table

<table>
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<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>Base: Seconds</th>
<th>Ratio</th>
<th>Peak: Seconds</th>
<th>Ratio</th>
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<td>36</td>
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<td>631.deepsjeng_s</td>
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<td>648.exchange2_s</td>
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<td>277</td>
<td>22.3</td>
</tr>
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SPECspeed2017_int_base = 8.82
SPECspeed2017_int_peak = 9.07

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
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.
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
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
**SPEC CPU2017 Integer Speed Result**

**Dell Inc.**

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

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**CPU2017 License:** 55  
**Test Date:** Mar-2018  
**Test Sponsor:** Dell Inc.  
**Hardware Availability:** Sep-2017  
**Tested by:** Dell Inc.  
**Software Availability:** Feb-2018

**Platform Notes**

BIOS settings:
- Sub NUMA Cluster disabled
- 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 disabled
- CPU Interconnect Bus Link Power Management disabled
- PCI ASPM L1 Link Power Management disabled

Sysinfo program /home/cpu2017rev5/cpu2017/bin/sysinfo  
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-bgfp Wed Mar 21 11:16:16 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 6154 CPU @ 3.00GHz  
  - 2 "physical id"s (chips)  
  - 36 "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: 18  
  - 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

From lscpu:  
- Architecture: x86_64  
- CPU op-mode(s): 32-bit, 64-bit  
- Byte Order: Little Endian  
- CPU(s): 36  
- On-line CPU(s) list: 0-35  
- Thread(s) per core: 1  
- 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 6154 CPU @ 3.00GHz  
- Stepping: 4

(Continued on next page)
SPEC CPU2017 Integer Speed Result

Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)

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CPU2017 License: 55
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Test Date: Mar-2018
Hardware Availability: Sep-2017
Software Availability: Feb-2018

Platform Notes (Continued)

CPU MHz: 2992.989
BogoMIPS: 5985.97
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34
NUMA node1 CPU(s): 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35
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
aperfperf perftime perfstat perf_event ioeventfd xtrace x86_pm events
From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

From /proc/cpuinfo cache data
  cache size : 25344 KB

/proc/cpuinfo cache data
  cache size : 25344 KB

From /proc/meminfo
  MemTotal: 394757388 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
  SuSE-release:

(Continued on next page)
**SPEC CPU2017 Integer Speed Result**

**Dell Inc.**

**PowerEdge R740xd (Intel Xeon Gold 6154, 3.00GHz)**

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

**Platform Notes (Continued)**

```
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-bgfp 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

run-level 3 Mar 21 11:15

SPEC is set to: /home/cpu2017rev5/cpu2017
```

**Compiler Version Notes**

```
CC 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base, peak) 657.xz_s(base)

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

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### SPEC CPU2017 Integer Speed Result

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#### Compiler Version Notes (Continued)

**CC** 600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)

---

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.

---

CXXC 620.omnetpp_s(peak) 623.xalancbmk_s(peak) 631.deepsjeng_s(peak) 641.leela_s(peak)

---

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

---

FC 648.exchange2_s(base, peak)

---

ifort (IFORT) 18.0.0 20170811  
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---

### Base Compiler Invocation

**C benchmarks:** icc

**C++ benchmarks:** icpc

**Fortran benchmarks:** ifort

---

### Base Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64

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### Base Portability Flags (Continued)

- 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
Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Peak 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: -D_FILE_OFFSET_BITS=64  -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

Peak Optimization Flags

C benchmarks:
600.perlbench_s: -Wl,-z,muldefs  -prof-gen(pass 1)  -prof-use(pass 2) -O2
-xCORE-AVX512 -qopt-mem-layout-trans=3  -ipo  -O3
-no-prec-div  -DSPEC_SUPPRESS_OPENMP  -qopenmp
-DSPEC_OPENMP  -fno-strict-overflow
-L/usr/local/je5.0.1-64/lib  -ljemalloc

602.gcc_s: -Wl,-z,muldefs  -prof-gen(pass 1)  -prof-use(pass 2) -O2
-xCORE-AVX512 -qopt-mem-layout-trans=3  -ipo  -O3
-no-prec-div  -DSPEC_SUPPRESS_OPENMP  -qopenmp
-DSPEC_OPENMP  -L/usr/local/je5.0.1-64/lib  -ljemalloc

605.mcf_s: -Wl,-z,muldefs  -prof-gen(pass 1)  -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3  -no-prec-div  -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP  -qopenmp  -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib  -ljemalloc

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CPU2017 License: 55  
Test Sponsor: Dell Inc.  
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### Peak Optimization Flags (Continued)

- 625.x264_s: -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

- 657.xz_s: Same as 602.gcc_s

C++ benchmarks:

- 620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
- xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3  
- DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP  
- L/usr/local/je5.0.1-64/lib -ljemalloc

- 623.xalancbmk_s: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32  
- Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
- xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3  
- DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP  
- L/usr/local/je5.0.1-32/lib -ljemalloc

- 631.deepsjeng_s: Same as 620.omnetpp_s

- 641.leela_s: Same as 620.omnetpp_s

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

### Peak Other Flags

C benchmarks:

- m64 -std=c11

C++ benchmarks (except as noted below):

- m64

- 623.xalancbmk_s: -m32

Fortran benchmarks:

- m64
## SPEC CPU2017 Integer Speed Result

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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 2018-03-21 12:16:15-0400.  
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