**CPU Name:** Intel Xeon Platinum 8268

**Max MHz:** 3900

**Nominal:** 2900

**Enabled:** 48 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:** 35.75 MB I+D on chip per chip

**Other:** None

**Memory:** 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)

**Storage:** 1 x 1.5 TB NVMe SSD

**Other:** None

**OS:** Ubuntu 18.04.2 LTS

**kernel 4.15.0-45-generic**

**Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++

**Compiler Build 20181018 for Linux;**

**Fortran: Version 19.0.1.144 of Intel Fortran**

**Compiler Build 20181018 for Linux**

**Parallel:** No

**Firmware:** Version 2.1.6 released Mar-2019

**File System:** ext4

**System State:** Run level 5 (multi user) (multi-user)

**Base Pointers:** 64-bit

**Peak Pointers:** 32/64-bit

**Other:** jemalloc memory allocator V5.0.1
Dell Inc.

PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)

SPECrate2017_int_base = 299
SPECrate2017_int_peak = 312

Results Table

<table>
<thead>
<tr>
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<tbody>
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<td>500.perlbench_r</td>
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<td>96</td>
<td>518</td>
<td>200</td>
<td>518</td>
<td>200</td>
</tr>
</tbody>
</table>

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 i9-7900X CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5
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.
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>

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Dell Inc.
PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)

SPECrate2017_int_base = 299
SPECrate2017_int_peak = 312

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Mar-2019
Tested by: Dell Inc.
Hardware Availability: Apr-2019
Software Availability: Feb-2019

General Notes (Continued)

jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5

Platform Notes

BIOS settings:
ADDDC setting disabled
Sub NUMA Cluster enabled
Virtualization Technology disabled
DCU Streamer Prefetcher 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 intel-sut Tue Mar 26 16:32:48 2019

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) Platinum 8268 CPU @ 2.90GHz
  2 "physical id"s (chips)
    96 "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 : 24
siblings : 48
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 25 26 27 28 29
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 16 17 18 19 20 21 24 26 27 28 29

From lscpu:

Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Dell Inc.
PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)

CPU2017 License: 55  Test Date:  Mar-2019
Test Sponsor: Dell Inc.  Hardware Availability: Apr-2019
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SPECrate2017_int_base = 299
SPECrate2017_int_peak = 312

Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Platinum 8268 CPU @ 2.90GHz
Stepping: 6
CPU MHz: 3132.398
BogoMIPS: 5800.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 36608K
NUMA node0 CPU(s):
0,4,8,12,16,20,24,28,32,36,40,44,48,52,56,60,64,68,72,76,80,84,88,92
NUMA node1 CPU(s):
1,5,9,13,17,21,25,29,33,37,41,45,49,53,57,61,65,69,73,77,81,85,89,93
NUMA node2 CPU(s):
2,6,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66,70,74,78,82,86,90,94
NUMA node3 CPU(s):
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 cpuid
aperfmperf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16
xtrunc pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand
lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single ssbd mba ibrs
ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust
bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rd:t_a avx512f avx512dq rdseed adx
smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves xsavec xgetbv1
xsave cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts pku
ospke avx512_vnni flush_l1d arch_capabilities

/platform/cpuinfo_caches_data
  cache size: 36608 KB

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 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92
    node 0 size: 95145 MB
    node 0 free: 94799 MB
    node 1 cpus: 1 5 9 13 17 21 25 29 33 37 41 45 49 53 57 61 65 69 73 77 81 85 89 93
    node 1 size: 96763 MB

(Continued on next page)
## Dell Inc.

**PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)**

**SPEC CPU2017 Integer Rate Result**

<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date: Mar-2019</th>
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<td>Software Availability: Feb-2019</td>
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</table>

**SPECrate2017_int_peak = 312**

**SPECrate2017_int_base = 299**

---

**Platform Notes (Continued)**

node 1 free: 96316 MB
node 2 cpus: 2 6 10 14 18 22 26 30 34 38 42 46 50 54 58 62 66 70 74 78 82 86 90 94
node 2 size: 96763 MB
node 2 free: 96478 MB
node 3 cpus: 3 7 11 15 19 23 27 31 35 39 43 47 51 55 59 63 67 71 75 79 83 87 91 95
node 3 size: 96762 MB
node 3 free: 96426 MB
node distances:
node 0 1 2 3
0: 10 21 11 21
1: 21 10 21 11
2: 11 21 10 21
3: 21 11 21 10

From `/proc/meminfo`

- MemTotal: 394685396 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From `/usr/bin/lsb_release -d`

- Ubuntu 18.04.2 LTS

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

- debian_version: buster/sid
- os-release:
  - NAME="Ubuntu"
  - VERSION="18.04.2 LTS (Bionic Beaver)"
  - ID=ubuntu
  - ID_LIKE=debian
  - PRETTY_NAME="Ubuntu 18.04.2 LTS"
  - VERSION_ID="18.04"
  - HOME_URL="https://www.ubuntu.com/"
  - SUPPORT_URL="https://help.ubuntu.com/"

`uname -a`:

- Linux intel-sut 4.15.0-45-generic #48-Ubuntu SMP Tue Jan 29 16:28:13 UTC 2019 x86_64
- x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

- CVE-2017-5754 (Meltdown): Not affected
- CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
- CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB

run-level 5 Mar 26 16:24

SPEC is set to: /home/cpu2017

(Continued on next page)
Dell Inc.  
PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)  

**SPEC CPU2017 Integer Rate Result**  
Dell Inc.  
PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)  

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**Test Date:** Mar-2019  
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**Software Availability:** Feb-2019  

---  
**Platform Notes (Continued)**  

```
Filesystem Type Size Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4 439G 19G 398G 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. 2.1.6 03/03/2019  
- **Memory:**  
  - 12x 002C069D002C 36ASF4G72PZ-2G9E2 32 GB 2 rank 2933  
  - 12x Not Specified Not Specified  

(End of data from sysinfo program)  

---  
**Compiler Version Notes**  

```
intel(R) C Intel(R) 64 Compiler for applications running on IA-32, Version 19.0.1.144 Build 20181018  
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

(Continued on next page)
Dell Inc.

PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)

**SPEC CPU2017 Integer Rate Result**

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**CPU2017 License:** 55

**Test Sponsor:** Dell Inc.

**Test Date:** Mar-2019

**Tested by:** Dell Inc.

**Hardware Availability:** Apr-2019

**Software Availability:** Feb-2019

---

**Compiler Version Notes (Continued)**

Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.

------------------------------------------------------------------------------

CXXC 520.omnetpp_r(base, peak) 523.xalancbmk_r(base) 531.deepsjeng_r(base, 
peak) 541.leela_r(base, peak)

------------------------------------------------------------------------------

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018

Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.

------------------------------------------------------------------------------

FC 548.exchange2_r(base, peak)

------------------------------------------------------------------------------

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 
64, Version 19.0.1.144 Build 20181018

Copyright (C) 1985-2018 Intel Corporation.  All rights reserved.

---

**Base Compiler Invocation**

C benchmarks:

```
icc -m64 -std=c11
```

C++ benchmarks:

```
icp -m64
```

Fortran benchmarks:

```
ifort -m64
```

---

**Base Portability Flags**

```
500.perlbench_r: -DSPEC_LP64  -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64  -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64
```
Dell Inc.

PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)

SPECrate2017_int_base = 299
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CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Mar-2019
Tested by: Dell Inc.
Hardware Availability: Apr-2019
Software Availability: Feb-2019

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc

Peak Compiler Invocation

C benchmarks (except as noted below):
icc -m64 -std=c11


C++ benchmarks (except as noted below):
icpc -m64

523.xalancbmk_r: icpc -m32 -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/ia32_lin

Fortran benchmarks:
ifort -m64

Peak Portability Flags

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64

(Continued on next page)
Dell Inc.  
PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)  

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Hardware Availability: Apr-2019  
Tested by: Dell Inc.  
Software Availability: Feb-2019

**Peak Portability Flags (Continued)**

531.deepsjeng_r: -DSPEC_LP64  
541.leela_r: -DSPEC_LP64  
548.exchange2_r: -DSPEC_LP64  
557.xz_r: -DSPEC_LP64

**Peak Optimization Flags**

**C benchmarks:**

500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4  
-fno-strict-overflow  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
-lqkmalloc

502.gcc_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4  
-L/usr/local/je5.0.1-32/lib -ljemalloc

505.mcf_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
-lqkmalloc

525.x264_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4 -fno-alias  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
-lqkmalloc

557.xz_r: Same as 505.mcf_r

**C++ benchmarks:**

520.omnetpp_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4  
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64  
-lqkmalloc

523.xalancbmk_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo  
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=4  
-L/usr/local/je5.0.1-32/lib -ljemalloc

531.deepsjeng_r: Same as 520.omnetpp_r

(Continued on next page)
SPEC CPU2017 Integer Rate Result

Dell Inc.
PowerEdge R640 (Intel Xeon Platinum 8268, 2.90GHz)

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Peak Optimization Flags (Continued)

541.leela_r: Same as 520.omnetpp_r

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64
-lqkmalloc

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 v1.0.5 on 2019-03-26 12:32:47-0400.