**SPEC CPU®2017 Integer Rate Result**

**Dell Inc.**

PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Sponsor</th>
<th>Tested by</th>
<th>SPECrate®2017_int_base</th>
<th>Test Date</th>
<th>Hardware Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Dell Inc.</td>
<td>Dell Inc.</td>
<td>345</td>
<td>Apr-2020</td>
<td>Feb-2020</td>
</tr>
</tbody>
</table>

SPECrate®2017_int_peak = 360

---

**Software**

- **OS:** Red Hat Enterprise Linux 8.1
- **kernel:** 4.18.0-147.el8.x86_64
- **Compiler:** C/C++: Version 19.0.5.281 of Intel C/C++ Compiler for Linux;
- **Fortran:** Version 19.0.5.281 of Intel Fortran Compiler for Linux
- **Parallel:** No
- **Firmware:** Version 2.5.4 released Jan-2020
- **File System:** tmpfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other:** jemalloc memory allocator V5.0.1
- **Power Management:** BIOS set to prefer performance at the cost of additional power usage

**Hardware**

- **CPU Name:** Intel Xeon Gold 6258R
- **Max MHz:** 4000
- **Nominal:** 2700
- **Enabled:** 56 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:** 38.5 MB I+D on chip per chip
- **Other:** None
- **Memory:** 384 GB (24 x 16 GB 2Rx8 PC4-2933V-R, running at 2933)
- **Storage:** 1 x 1.92 TB SATA SSD
- **Other:** None

---

**500.perlbench_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>257</td>
</tr>
</tbody>
</table>

**502.gcc_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>327</td>
</tr>
</tbody>
</table>

**505.mcf_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>426</td>
</tr>
</tbody>
</table>

**520.omnetpp_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>211</td>
</tr>
</tbody>
</table>

**523.xalancbmk_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>392</td>
</tr>
</tbody>
</table>

**525.x264_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>764</td>
</tr>
</tbody>
</table>

**531.deepsjeng_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>309</td>
</tr>
</tbody>
</table>

**541.leela_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>276</td>
</tr>
</tbody>
</table>

**548.exchange2_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>693</td>
</tr>
</tbody>
</table>

**557.xz_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_base</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>525</td>
</tr>
</tbody>
</table>

---

**500.perlbench_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>262</td>
</tr>
</tbody>
</table>

**502.gcc_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>259</td>
</tr>
</tbody>
</table>

**505.mcf_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>327</td>
</tr>
</tbody>
</table>

**520.omnetpp_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>426</td>
</tr>
</tbody>
</table>

**523.xalancbmk_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>392</td>
</tr>
</tbody>
</table>

**525.x264_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>764</td>
</tr>
</tbody>
</table>

**531.deepsjeng_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>309</td>
</tr>
</tbody>
</table>

**541.leela_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>276</td>
</tr>
</tbody>
</table>

**548.exchange2_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>693</td>
</tr>
</tbody>
</table>

**557.xz_r**

<table>
<thead>
<tr>
<th>Copies</th>
<th>SPECrun®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>112</td>
<td>525</td>
</tr>
</tbody>
</table>
## Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>500.perlbench_r</td>
<td>112</td>
<td>678</td>
<td>263</td>
<td>679</td>
<td>262</td>
<td>112</td>
<td>679</td>
<td>262</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>112</td>
<td>602</td>
<td>263</td>
<td>613</td>
<td>259</td>
<td>112</td>
<td>602</td>
<td>259</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>112</td>
<td>424</td>
<td>427</td>
<td>425</td>
<td>426</td>
<td>112</td>
<td>425</td>
<td>426</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>112</td>
<td>696</td>
<td>211</td>
<td>696</td>
<td>211</td>
<td>112</td>
<td>696</td>
<td>211</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>112</td>
<td>302</td>
<td>392</td>
<td>300</td>
<td>394</td>
<td>112</td>
<td>300</td>
<td>394</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>525.x264_r</td>
<td>112</td>
<td>257</td>
<td>764</td>
<td>253</td>
<td>776</td>
<td>112</td>
<td>253</td>
<td>776</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>112</td>
<td>416</td>
<td>309</td>
<td>416</td>
<td>309</td>
<td>112</td>
<td>416</td>
<td>309</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>112</td>
<td>670</td>
<td>277</td>
<td>672</td>
<td>276</td>
<td>112</td>
<td>670</td>
<td>277</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>112</td>
<td>423</td>
<td>693</td>
<td>423</td>
<td>694</td>
<td>112</td>
<td>423</td>
<td>694</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td>112</td>
<td>545</td>
<td>222</td>
<td>545</td>
<td>222</td>
<td>112</td>
<td>545</td>
<td>222</td>
<td>112</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 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"

### Environment Variables Notes

Environment variables set by runcpu before the start of the run:

```
LD_LIBRARY_PATH = 
MALLOCONF = "retain:true"
```

### General Notes

Binaries compiled on a system with 1x Intel Core i9-9900K CPU + 64GB RAM memory using Redhat Enterprise Linux 8.0

NA: 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.

(Continued on next page)
General Notes (Continued)

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.
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>
```
Benchmark run from a 225 GB ramdisk created with the cmd; "mount -t tmpfs -o size=225G tmpfs /mnt/ramdisk".
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:
Sub NUMA Cluster enabled
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 set to standard
Logical Processor enabled
CPU Interconnect Bus Link Power Management disabled
PCI ASPM L1 Link Power Management disabled
UPI Prefetch enabled
LLC Prefetch disabled
Dead Line LLC Alloc enabled
Directory AtoS disabled
Sysinfo program /mnt/ramdisk/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on rhel-8-1-sut Mon Apr 20 14:35:03 2020

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 6258R CPU @ 2.70GHz
  2 "physical id"s (chips)
  112 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following
```
**SPEC CPU®2017 Integer Rate Result**

**Dell Inc.**

**PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)**

<table>
<thead>
<tr>
<th>SPECrate®2017_int_base</th>
<th>345</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate®2017_int_peak</td>
<td>360</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** Apr-2020  
**Hardware Availability:** Feb-2020  
**Software Availability:** Nov-2019

Platform Notes (Continued)

excerpts from /proc/cpuinfo might not be reliable. Use with caution.)

```plaintext
cpu cores : 28  
siblings : 56  
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30  
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27 28 29 30  

From lscpu:
Architecture: x86_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
CPU(s): 112  
On-line CPU(s) list: 0-111  
Thread(s) per core: 2  
Core(s) per socket: 28  
Socket(s): 2  
NUMA node(s): 4  
Vendor ID: GenuineIntel  
CPU family: 6  
Model: 85  
Model name: Intel(R) Xeon(R) Gold 6258R CPU @ 2.70GHz  
Stepping: 7  
CPU MHz: 3274.241  
CPU max MHz: 4000.000  
CPU min MHz: 1000.000  
BogoMIPS: 5400.00  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K  
L3 cache: 39424K  
NUMA node0 CPU(s): NUMA node1 CPU(s): NUMA node2 CPU(s): 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 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdcp_l3 invpcid_single intel_pni ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi (Continued on next page)```
Dell Inc.

PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)

| SPECrate®2017_int_base = 345 |
| SPECrate®2017_int_peak = 360 |

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

Test Date: Apr-2020
Hardware Availability: Feb-2020
Software Availability: Nov-2019

Platform Notes (Continued)

flexpriority ept vpid fsqsgbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm
cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb intel_pt avx512cd
avx512bw avx512vl xsaveopt xsave xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
cqm_mbm_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_l1d
arch_capabilities

/src/cpulinfo cache data
cache size : 39424 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 96
100 104 108
node 0 size: 95304 MB
node 0 free: 78965 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 97
101 105 109
node 1 size: 96762 MB
node 1 free: 96595 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 98
102 106 110
node 2 size: 96737 MB
node 2 free: 96542 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 99
103 107 111
node 3 size: 96761 MB
node 3 free: 96593 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: 394819084 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux"
VERSION="8.1 (Ootpa)"
ID=rhel
ID_LIKE=fedora
VERSION_ID="8.1"

(Continued on next page)
Dell Inc.  
PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)  

SPEC CPU®2017 Integer Rate Result  

Copyright 2017-2020 Standard Performance Evaluation Corporation  

Dell Inc.  
PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)  

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

SPECrate®2017_int_base = 345  
SPECrate®2017_int_peak = 360  

Test Date: Apr-2020  
Hardware Availability: Feb-2020  
Software Availability: Nov-2019  

Platform Notes (Continued)  

PLATFORM_ID="platform:el8"  
PRETTY_NAME="Red Hat Enterprise Linux 8.1 (Ootpa)"  
ANSI_COLOR="0;31"  
redhat-release: Red Hat Enterprise Linux release 8.1 (Ootpa)  
system-release: Red Hat Enterprise Linux release 8.1 (Ootpa)  
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.1:ga  
uname -a:  
Linux rhel-8-1-sut 4.18.0-147.el8.x86_64 #1 SMP Thu Sep 26 15:52:44 UTC 2019 x86_64  
x86_64 x86_64 GNU/Linux  

Kernel self-reported vulnerability status:  
CVE-2018-3620 (L1 Terminal Fault): Not affected  
Microarchitectural Data Sampling: Not affected  
CVE-2017-5754 (Meltdown): Not affected  
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled  
via prctl and seccomp  
CVE-2017-5753 (Spectre variant 1): Mitigation: usercopy/swappgs barriers and __user  
pointer sanitation  
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional,  
RSB filling  

run-level 3 Apr 20 14:24 last=5  
SPEC is set to: /mnt/ramdisk/cpu2017  
Filesystem Type Size Used Avail Use% Mounted on  
tmpfs tmpfs 225G 7.5G 218G 4% /mnt/ramdisk  

From /sys/devices/virtual/dmi/id  
BIOS: Dell Inc. 2.5.4 01/13/2020  
Vendor: Dell Inc.  
Product: PowerEdge R640  
Product Family: PowerEdge  
Serial: FPFXCH2  

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.  
Memory:  
10x 002C069D002C 18ASF2G72PDZ-2G9E1 16 GB 2 rank 2933  
4x 00AD00B300AD HMA82GR7CJR8N-WM 16 GB 2 rank 2933  
8x 00AD00B300AD HMA82GR7CJR8N-XN 16 GB 2 rank 3200  
2x 00AD063200AD HMA82GR7CJR8N-WM 16 GB 2 rank 2933  

(End of data from sysinfo program)
### Compiler Version Notes

<table>
<thead>
<tr>
<th>Arch</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>502.gcc_r(peak)</td>
</tr>
</tbody>
</table>

Intel(R) C Compiler for applications running on IA-32, Version 19.0.5 NextGen Technology Build 20190729
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

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

<table>
<thead>
<tr>
<th>Arch</th>
<th>Notes</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base)</td>
<td></td>
</tr>
</tbody>
</table>

Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.0.5 NextGen Technology Build 20190729
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

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

<table>
<thead>
<tr>
<th>Arch</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>500.perlbench_r(peak) 557.xz_r(peak)</td>
</tr>
</tbody>
</table>

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.5.281 Build 20190815
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

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

<table>
<thead>
<tr>
<th>Arch</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>502.gcc_r(peak)</td>
</tr>
</tbody>
</table>

Intel(R) C Compiler for applications running on IA-32, Version 19.0.5 NextGen Technology Build 20190729
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

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

<table>
<thead>
<tr>
<th>Arch</th>
<th>Notes</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base)</td>
<td></td>
</tr>
</tbody>
</table>

Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.0.5 NextGen Technology Build 20190729
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

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

<table>
<thead>
<tr>
<th>Arch</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>500.perlbench_r(peak) 557.xz_r(peak)</td>
</tr>
</tbody>
</table>

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.5.281 Build 20190815

(Continued on next page)
## Dell Inc.

**PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)**

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
</tbody>
</table>

**SPECrate®2017_int_base = 345**

**SPECrate®2017_int_peak = 360**

### Compiler Version Notes (Continued)

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

---

**C**  | 502.gcc_r(peak)

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

Intel(R) C Compiler for applications running on IA-32, Version 19.0.5 NextGen Technology Build 20190729

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

---

**C**  | 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base)

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

Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.0.5 NextGen Technology Build 20190729

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

---

**C**  | 500.perlbench_r(peak) 557.xz_r(peak)

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

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.5.281 Build 20190815

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

---

**C++**  | 520.omnetpp_r(base, peak) 523.xalancbmk_r(base, peak) 531.deepsjeng_r(base, peak) 541.leela_r(base, peak)

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

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 19.0.5.281 Build 20190729

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

---

**Fortran**  | 548.exchange2_r(base, peak)

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

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.5.281 Build 20190815

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
SPEC CPU®2017 Integer Rate Result

Dell Inc.

PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)

SPECrate®2017_int_base = 345
SPECrate®2017_int_peak = 360

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

Test Date: Apr-2020
Hardware Availability: Feb-2020
Software Availability: Nov-2019

Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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

Base Optimization Flags

C benchmarks:
-m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -floop-ld=gold
-mfpmath=sse -funroll-loops -qnextgen -fuse-loops -ipo
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc

C++ benchmarks:
-m64 -Wl,-z,muldefs -xCORE-AVX512 -Ofast -floop-ld=gold -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ipo -no-prec-div
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc
Dell Inc.

PowerEdge R640 (Intel Xeon Gold 6258R, 2.70 GHz)

SPEC CPU®2017 Integer Rate Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017_int_base = 345

SPECrate®2017_int_peak = 360

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

Test Date: Apr-2020
Hardware Availability: Feb-2020
Software Availability: Nov-2019

Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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: -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

Peak Optimization Flags

C benchmarks:

500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2)
-xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -fno-strict-overflow
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-ljemalloc

502.gcc_r: -m32
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/ia32_lin
-std=gnu89 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdata(pass 2) -xCORE-AVX512 -flto
-Ofast(pass 1) -O3 -ffast-math -qnextgen -fuse-ld=gold
-qopt-mem-layout-trans=4 -L/usr/local/je5.0.1-32/lib
-ljemalloc

505.mcf_r: basepeak = yes

(Continued on next page)
### Peak Optimization Flags (Continued)

525.x264_r: -m64 -std=c11 -Wl,-z,muldefs -xCORE-AVX512 -flto -03
-ffast-math -qnexptgen -fuse-ld=gold
-qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc

557.xz_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -03 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc

#### C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: basepeak = yes

531.deepsjeng_r: -m64 -Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdatalpass 2 -xCORE-AVX512 -flto
-Ofast(pass 1) -03 -ffast-math -qnexptgen -fuse-ld=gold
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.5.281/linux/compiler/lib/intel64_lin
-lqkmalloc

541.leela_r: basepeak = yes

#### Fortran benchmarks:

548.exchange2_r: basepeak = yes

---

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:

http://www.spec.org/cpu2017/flags/Intel-ic19.0u5-official-linux64_rev0.xml


---

SPEC CPU and SPECrate are registered trademarks 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 CPU®2017 v1.1.0 on 2020-04-20 15:35:02-0400.
Originally published on 2020-05-12.