# SPEC® CPU2017 Integer Rate Result

## Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>Dell Inc.</th>
<th>Test Sponsor: Dell Inc.</th>
<th>CPU2017 License: 55</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_int_peak</td>
<td>Dell Inc.</td>
<td>Tested by: Dell Inc.</td>
<td>Test Date: Jul-2019</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU Name: Intel Xeon Gold 5222</td>
<td>OS: Ubuntu 18.04.2 LTS</td>
</tr>
<tr>
<td>Max MHz.: 3900</td>
<td>kernel 4.15.0-45-generic</td>
</tr>
<tr>
<td>Nominal: 3800</td>
<td>Compiler: C/C++: Version 19.0.4.227 of Intel C/C++</td>
</tr>
<tr>
<td>Enabled: 8 cores, 2 chips, 2 threads/core</td>
<td>Compiler Build 20190416 for Linux;</td>
</tr>
<tr>
<td>Orderable: 1.2 chips</td>
<td>Fortran: Version 19.0.4.227 of Intel Fortran</td>
</tr>
<tr>
<td>Cache L1: 32 KB I+ 32 KB D on chip per core</td>
<td>Compiler Build 20190416 for Linux</td>
</tr>
<tr>
<td>L2: 1 MB I+D on chip per core</td>
<td>Parallel: No</td>
</tr>
<tr>
<td>L3: 16.5 MB I+D on chip per chip</td>
<td>Firmware: Version 2.2.11 released Jun-2019</td>
</tr>
<tr>
<td>Other: None</td>
<td>File System: ext4</td>
</tr>
<tr>
<td>Memory: 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)</td>
<td>System State: Run level 5 (multi-user)</td>
</tr>
<tr>
<td>Storage: 1 x 960 GB SATA SSD</td>
<td>Base Pointers: 64-bit</td>
</tr>
<tr>
<td>Other: None</td>
<td>Peak Pointers: 32/64-bit</td>
</tr>
<tr>
<td></td>
<td>Other: jemalloc memory allocator V5.0.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>0</th>
<th>10</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
<th>120</th>
<th>130</th>
<th>140</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copies</td>
<td>0</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>500.perlbench_r</td>
<td>47.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td></td>
<td>53.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td></td>
<td>60.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td></td>
<td></td>
<td>87.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td></td>
<td></td>
<td></td>
<td>84.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>525.x264_r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>133</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>138</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>127</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>41.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory: 384 GB (12 x 32 GB 2Rx4 PC4-2933Y-R)</td>
<td></td>
</tr>
<tr>
<td>Storage: 1 x 960 GB SATA SSD</td>
<td></td>
</tr>
<tr>
<td>Other: None</td>
<td></td>
</tr>
</tbody>
</table>

SPECrater2017_int_base = 64.8
SPECrater2017_int_peak = 66.6
 SPEC CPU2017 Integer Rate Result

Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)

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

SPECrate2017_int_base = 64.8
SPECrate2017_int_peak = 66.6

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>16</td>
<td>530</td>
<td>48.1</td>
<td>531</td>
<td>47.9</td>
<td>16</td>
<td>466</td>
<td>54.7</td>
<td>467</td>
<td>54.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>502.gcc_r</td>
<td>16</td>
<td>421</td>
<td>53.8</td>
<td>422</td>
<td>53.7</td>
<td>16</td>
<td>377</td>
<td>60.2</td>
<td>377</td>
<td>60.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>505.mcf_r</td>
<td>16</td>
<td>297</td>
<td>87.1</td>
<td>297</td>
<td>87.1</td>
<td>16</td>
<td>297</td>
<td>87.2</td>
<td>297</td>
<td>87.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>520.omnetpp_r</td>
<td>16</td>
<td>524</td>
<td>40.1</td>
<td>526</td>
<td>39.9</td>
<td>16</td>
<td>525</td>
<td>40.0</td>
<td>523</td>
<td>40.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>523.xalancbmk_r</td>
<td>16</td>
<td>199</td>
<td>85.0</td>
<td>200</td>
<td>84.6</td>
<td>16</td>
<td>200</td>
<td>84.5</td>
<td>200</td>
<td>84.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>525.x264_r</td>
<td>16</td>
<td>211</td>
<td>133</td>
<td>210</td>
<td>133</td>
<td>16</td>
<td>203</td>
<td>138</td>
<td>202</td>
<td>138</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>531.deepsjeng_r</td>
<td>16</td>
<td>352</td>
<td>52.1</td>
<td>351</td>
<td>52.2</td>
<td>16</td>
<td>352</td>
<td>52.1</td>
<td>352</td>
<td>52.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>541.leela_r</td>
<td>16</td>
<td>559</td>
<td>47.4</td>
<td>552</td>
<td>48.0</td>
<td>16</td>
<td>559</td>
<td>47.4</td>
<td>560</td>
<td>47.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>548.exchange2_r</td>
<td>16</td>
<td>329</td>
<td>127</td>
<td>314</td>
<td>133</td>
<td>16</td>
<td>328</td>
<td>128</td>
<td>328</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>557.xz_r</td>
<td>16</td>
<td>422</td>
<td>41.0</td>
<td>421</td>
<td>41.1</td>
<td>16</td>
<td>422</td>
<td>41.0</td>
<td>421</td>
<td>41.1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECrate2017_int_base = 64.8
SPECrate2017_int_peak = 66.6

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/intel64:/home/cpu2017/lib/ia32:/home/cpu2017/je5.0.1-32"
Binaries compiled on a system with 1x Intel Core i9-799X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
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.
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.:
umactl --interleave=all runcpu <etc>

(Continued on next page)
## SPEC CPU2017 Integer Rate Result

### Dell Inc.

**PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SPECrate2017_int_base</strong></td>
<td>64.8</td>
</tr>
<tr>
<td><strong>SPECrate2017_int_peak</strong></td>
<td>66.6</td>
</tr>
</tbody>
</table>

**CPU2017 License:** 55  
**Test Date:** Jul-2019  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.

**Hardware Availability:** Jun-2019  
**Software Availability:** May-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 enabled  
PCI ASPM L1 Link Power Management enabled  
Sysinfo program: /home/cpu2017/bin/sysinfo  
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9  
running on intel-sut Tue Jul 16 09:34:43 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) Gold 5222 CPU @ 3.80GHz  
- **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**: 4  
  - **siblings**: 8  
  - **physical 0**: cores 5 8 9 12  
  - **physical 1**: cores 5 8 9 13

From lscpu:

- **Architecture**: x86_64  
- **CPU op-mode(s)**: 32-bit, 64-bit  
- **Byte Order**: Little Endian  
- **CPU(s)**: 16  
- **On-line CPU(s) list**: 0-15

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

- **Thread(s) per core:** 2
- **Core(s) per socket:** 4
- **Socket(s):** 2
- **NUMA node(s):** 4
- **Vendor ID:** GenuineIntel
- **CPU family:** 6
- **Model:** 85
- **Model name:** Intel(R) Xeon(R) Gold 5222 CPU @ 3.80GHz
- **Stepping:** 6
- **CPU MHz:** 2007.024
- **BogoMIPS:** 7600.00
- **Virtualization:** VT-x
- **L1d cache:** 32K
- **L1i cache:** 32K
- **L2 cache:** 1024K
- **L3 cache:** 16896K
- **NUMA node0 CPU(s):** 0,6,8,14
- **NUMA node1 CPU(s):** 1,3,9,11
- **NUMA node2 CPU(s):** 2,4,10,12
- **NUMA node3 CPU(s):** 5,7,13,15
- **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 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 aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3 invpcid_single intel_pni ssbd mba ibrs ibpb ibrsenhanced tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f avx512vdq rdseed adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsaves cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local dtherm ida arat pln pts pkup ospe avx512_vnni flush_l1d arch_capabilities

```
//proc/cpuinfo cache data
  cache size : 16896 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 6 8 14
- **node 0 size:** 95149 MB
- **node 0 free:** 94908 MB
- **node 1 cpus:** 1 3 9 11
- **node 1 size:** 96766 MB
- **node 1 free:** 96573 MB
- **node 2 cpus:** 2 4 10 12
- **node 2 size:** 96767 MB
- **node 2 free:** 96586 MB

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

**Dell Inc.**

PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>SPECrate2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.8</td>
<td>66.6</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

- node 3 cpus: 5 7 13 15
- node 3 size: 96745 MB
- node 3 free: 96551 MB
- node distances:
  - node 0: 10 21 11 21
  - node 1: 21 10 21 11
  - node 2: 11 21 10 21
  - node 3: 21 11 21 10

From `/proc/meminfo`
- MemTotal: 394679776 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

/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 Jul 16 09:32

SPEC is set to: /home/cpu2017
- Filesystem Type  Size Used Avail Use% Mounted on
  - /dev/sda2 ext4 439G 66G 351G 16% /

Additional information from dmidecode follows. WARNING: Use caution when you interpret

(Continued on next page)
Dell Inc.  
PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)

**SPEC CPU2017 Integer Rate Result**

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>SPECrate2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>64.8</td>
<td>66.6</td>
</tr>
</tbody>
</table>

**CPU2017 License**: 55  
**Test Date**: Jul-2019  
**Test Sponsor**: Dell Inc.  
**Tested by**: Dell Inc.

**Hardware Availability**: Jun-2019  
**Software Availability**: May-2019

**Platform Notes (Continued)**

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. 2.2.11 06/13/2019

Memory:
- 12x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
- 12x Not Specified Not Specified

(End of data from sysinfo program)

**Compiler Version Notes**

```
CC   502.gcc_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on IA-32, Version
19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
   525.x264_r(base, peak) 557.xz_r(base, peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

CC   500.perlbench_r(peak)
------------------------------------------------------------------------------
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------

CXXC 523.xalancbmk_r(peak)
------------------------------------------------------------------------------
Intel(R) C++ Intel(R) 64 Compiler for applications running on IA-32, Version
19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
```

(Continued on next page)
## Dell Inc.

**PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)**

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>64.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_int_peak</td>
<td>66.6</td>
</tr>
</tbody>
</table>

### Compiler Version Notes (Continued)

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

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Base Compiler Invocation

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

**C++ benchmarks:**
- `icpc -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 R740xd (Intel Xeon Gold 5222, 3.80GHz)

<table>
<thead>
<tr>
<th>SPECrate2017_int_base</th>
<th>64.8</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_int_peak</td>
<td>66.6</td>
</tr>
</tbody>
</table>

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

**Test Date:** Jul-2019  
**Hardware Availability:** Jun-2019  
**Software Availability:** May-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_2019.4.227/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_2019.4.227/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_2019.4.227/linux/compiler/lib/intel64`  
- `-lqkmalloc`

## Peak Compiler Invocation

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

502.gcc_r `icc -m32 -std=c11 -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/ia32_lin`

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

523.xalancbmk_r `icpc -m32 -L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/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)
SPEC CPU2017 Integer Rate Result

Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)

SPECrate2017_int_base = 64.8
SPECrate2017_int_peak = 66.6

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Jul-2019
Tested by: Dell Inc.
Hardware Availability: Jun-2019
Software Availability: May-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 -03 -no-prec-div -qopt-mem-layout-trans=4
-fno-strict-overflow
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

502.gcc_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -03 -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 -03 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

525.x264_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -03 -no-prec-div
-qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -03 -no-prec-div
-qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

523.xalancbmk_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -03 -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)
Dell Inc.
PowerEdge R740xd (Intel Xeon Gold 5222, 3.80GHz)

SPECrate2017_int_base = 64.8
SPECrate2017_int_peak = 66.6

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Jul-2019
Tested by: Dell Inc.
Hardware Availability: Jun-2019
Software Availability: May-2019

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_2019.4.227/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:

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.