# SPEC CPU®2017 Integer Speed Result

## Dell Inc.

**PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.6</td>
<td>11.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License</th>
<th>Test Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td>Jun-2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Sponsor</th>
<th>Hardware Availability</th>
<th>Software Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td>Jul-2020</td>
<td>Apr-2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tested by</th>
<th>Software Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Inc.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU Name</th>
<th>OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel Xeon Gold 6246R</td>
<td>Red Hat Enterprise Linux 8.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Max MHz</th>
<th>Compiler</th>
</tr>
</thead>
<tbody>
<tr>
<td>4100</td>
<td>C/C++: Version 19.1.1.217 of Intel C/C++ Compiler for Linux; Fortran: Version 19.1.1.217 of Intel Fortran Compiler for Linux</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nominal</th>
<th>Parallel</th>
</tr>
</thead>
<tbody>
<tr>
<td>3400</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enabled</th>
<th>Firmware</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 cores, 2 chips</td>
<td>Version 2.7.7 released May-2020</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orderable</th>
<th>File System</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 chips</td>
<td>tmpfs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cache L1</th>
<th>System State</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 KB I + 32 KB D on chip per core</td>
<td>Run level 3 (multi-user)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L2:</th>
<th>Base Pointers:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 MB I+D on chip per core</td>
<td>64-bit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>L3:</th>
<th>Peak Pointers:</th>
</tr>
</thead>
<tbody>
<tr>
<td>35.75 MB I+D on chip per chip</td>
<td>64-bit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Power Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>BIOS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Memory</th>
<th>Other:</th>
</tr>
</thead>
<tbody>
<tr>
<td>768 GB (24 x 32 GB 2Rx4 PC4-2933V-R, running at 2933)</td>
<td>jemalloc memory allocator V5.0.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Storage</th>
<th>Power Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 1.92 TB SATA SSD</td>
<td>BIOS set to prefer performance at the cost of additional power usage</td>
</tr>
</tbody>
</table>

---

**Threads**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>perlbench_s</td>
<td>32</td>
<td>8.02</td>
<td>10.8</td>
</tr>
<tr>
<td>gcc_s</td>
<td>32</td>
<td>11.1</td>
<td>19.1</td>
</tr>
<tr>
<td>mcf_s</td>
<td>32</td>
<td>10.7</td>
<td>14.3</td>
</tr>
<tr>
<td>omnetpp_s</td>
<td>32</td>
<td>14.3</td>
<td>16.6</td>
</tr>
<tr>
<td>xalancbmk_s</td>
<td>32</td>
<td>6.05</td>
<td>17.3</td>
</tr>
<tr>
<td>x264_s</td>
<td>32</td>
<td>5.03</td>
<td>23.7</td>
</tr>
</tbody>
</table>
Dell Inc.
PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz)

**SPEC CPU®2017 Integer Speed Result**

<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>
<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>32</td>
<td>254</td>
<td>6.98</td>
<td><strong>254</strong></td>
<td><strong>7.00</strong></td>
<td>253</td>
<td>7.01</td>
<td>32</td>
<td>222</td>
<td>8.00</td>
<td><strong>221</strong></td>
<td><strong>8.02</strong></td>
<td>220</td>
<td>8.06</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>32</td>
<td>367</td>
<td>10.8</td>
<td>365</td>
<td>10.9</td>
<td>374</td>
<td>10.7</td>
<td>32</td>
<td>358</td>
<td>11.1</td>
<td><strong>359</strong></td>
<td><strong>11.1</strong></td>
<td>360</td>
<td>11.1</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>32</td>
<td>247</td>
<td>19.1</td>
<td>248</td>
<td>19.0</td>
<td>247</td>
<td>19.1</td>
<td>32</td>
<td>247</td>
<td>19.1</td>
<td>248</td>
<td>19.0</td>
<td><strong>247</strong></td>
<td><strong>19.1</strong></td>
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<tr>
<td>620.omnetpp_s</td>
<td>32</td>
<td>156</td>
<td>10.4</td>
<td><strong>152</strong></td>
<td><strong>10.7</strong></td>
<td>149</td>
<td>10.9</td>
<td>32</td>
<td>156</td>
<td>10.4</td>
<td><strong>152</strong></td>
<td><strong>10.7</strong></td>
<td>149</td>
<td>10.9</td>
</tr>
<tr>
<td>623.xalanchmk_s</td>
<td>32</td>
<td>99.4</td>
<td>14.3</td>
<td>99.5</td>
<td>14.2</td>
<td>99.3</td>
<td>14.3</td>
<td>32</td>
<td><strong>99.4</strong></td>
<td><strong>14.3</strong></td>
<td>99.5</td>
<td>14.2</td>
<td>99.3</td>
<td>14.3</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>32</td>
<td>106</td>
<td>16.6</td>
<td>106</td>
<td>16.7</td>
<td><strong>106</strong></td>
<td><strong>16.6</strong></td>
<td>32</td>
<td>102</td>
<td>17.2</td>
<td><strong>102</strong></td>
<td><strong>17.2</strong></td>
<td>103</td>
<td>17.2</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>32</td>
<td>237</td>
<td>6.06</td>
<td>237</td>
<td>6.05</td>
<td><strong>237</strong></td>
<td><strong>6.05</strong></td>
<td>32</td>
<td>237</td>
<td>6.06</td>
<td>237</td>
<td>6.05</td>
<td><strong>237</strong></td>
<td><strong>6.05</strong></td>
</tr>
<tr>
<td>641.leelal_s</td>
<td>32</td>
<td>339</td>
<td>5.03</td>
<td>339</td>
<td>5.03</td>
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<td>32</td>
<td>339</td>
<td>5.03</td>
<td>339</td>
<td>5.03</td>
<td><strong>339</strong></td>
<td><strong>5.03</strong></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>32</td>
<td>170</td>
<td>17.3</td>
<td><strong>169</strong></td>
<td><strong>17.3</strong></td>
<td>169</td>
<td>17.3</td>
<td>32</td>
<td>170</td>
<td>17.3</td>
<td><strong>169</strong></td>
<td><strong>17.3</strong></td>
<td>169</td>
<td>17.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>32</td>
<td>261</td>
<td>23.7</td>
<td><strong>261</strong></td>
<td><strong>23.7</strong></td>
<td>261</td>
<td>23.7</td>
<td>32</td>
<td>261</td>
<td>23.7</td>
<td><strong>261</strong></td>
<td><strong>23.7</strong></td>
<td>261</td>
<td>23.7</td>
</tr>
</tbody>
</table>

**Results Table**

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

**Compiler Notes**

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler.
The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

**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:
KMP_AFFINITY = "granularity=fine,scatter"
LD_LIBRARY_PATH = 
"/mnt/ramdisk/cpu2017-ic19.1u1/lib/intel64:/mnt/ramdisk/cpu2017-ic19.1u1/je5.0.1-64"
MALLOCONF = "retain:true"
OMP_STACKSIZE = "192M"

**General Notes**

Binaries compiled on a system with 1x Intel Core i9-7980XE 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)
**SPEC CPU®2017 Integer Speed Result**

**Dell Inc.**
PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz)

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<td>SPECspeed®2017_int_peak</td>
<td>11.9</td>
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<table>
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<tr>
<th>CPU2017 License:</th>
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<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Dell Inc.</td>
</tr>
<tr>
<td>Test Date:</td>
<td>Jun-2020</td>
</tr>
<tr>
<td>Hardware Availability:</td>
<td>Jul-2020</td>
</tr>
<tr>
<td>Software Availability:</td>
<td>Apr-2020</td>
</tr>
</tbody>
</table>

**General Notes (Continued)**

- 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

Filesystm page cache synced and cleared with:

```
sync; echo 3> /proc/sys/vm/drop_caches
```

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 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 set to standard
- Logical Processor disabled
- CPU Interconnect Bus Link Power Management disabled
- PCI ASPM L1 Link Power Management disabled
- UPI Prefetch disabled
- LLC Prefetch disabled
- Dead Line LLC Alloc enabled
- Directory AtoS disabled

Sysinfo program /mnt/ramdisk/cpu2017-ic19.1u1/bin/sysinfo

Rev: r6365 of 2019-08-21 295195f888a3d7ed61e6e46a495a0011

running on user-pc.spa.lab Wed Jun 3 05:47:54 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 6246R CPU @ 3.40GHz
  2 "physical id"s (chips)
  32 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The following excerpts from /proc/cpuinfo might not be reliable. Use with caution.)
```

(Continued on next page)
Dell Inc.  

PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz) 

SPEC CPU®2017 Integer Speed Result  

Copyright 2017-2020 Standard Performance Evaluation Corporation  

SPECspeed®2017_int_base = 11.6  

SPECspeed®2017_int_peak = 11.9  

Dell Inc.  

PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz) 

SPEC2017 License: 55  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.  
Test Date: Jun-2020  
Hardware Availability: Jul-2020  
Software Availability: Apr-2020  

SPECspeed®2017_int_base = 11.6  
SPECspeed®2017_int_peak = 11.9  

Platform Notes (Continued)  

cpu cores: 16  
siblings: 16  
physical 0: cores 0 1 2 3 4 5 6 13 16 17 18 19 21 24 28 29  
physical 1: cores 0 1 2 6 12 13 16 17 18 19 21 25 26 27 28 29  

From lscpu:  
Architecture: x86_64  
CPU op-mode(s): 32-bit, 64-bit  
Byte Order: Little Endian  
CPU(s): 32  
On-line CPU(s) list: 0-31  
Thread(s) per core: 1  
Core(s) per socket: 16  
Socket(s): 2  
NUMA node(s): 2  
Vendor ID: GenuineIntel  
CPU family: 6  
Model: 85  
Model name: Intel(R) Xeon(R) Gold 6246R CPU @ 3.40GHz  
Stepping: 7  
CPU MHz: 2889.417  
CPU max MHz: 4100.0000  
CPU min MHz: 1200.0000  
BogoMIPS: 6800.00  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K  
L3 cache: 36608K  
NUMA node0 CPU(s): 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30  
NUMA node1 CPU(s): 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31  
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 tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abrdn abtm 3dnowprefetch cpuid_fault epb cat_l3 cdp_c3 cdp_c6 cdp_c7 invpcid_single intel_pni 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 rdrcr ndx adx smap clflushopt clwb intel_pt avx512cd avx512bw avx512vL avx512vl xsaveopt xsavec xsaveprec xsaveopt xsave xsavec qm qm_mmx qm牝p qm牝p_local dtherm ida arat pln pts pku ospke avx512_vnni md_clear flush_lld arch_capabilities  

/proc/cpuinfo cache data  
cache size: 36608 KB  

(Continued on next page)
SPEC CPU®2017 Integer Speed Result

Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz)

SPECspeed®2017_int_base = 11.6
SPECspeed®2017_int_peak = 11.9

CPU2017 License: 55
Test Date: Jun-2020
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Software Availability: Apr-2020

Platform Notes (Continued)

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
  node 0 size: 385583 MB
  node 0 free: 384757 MB
  node 1 cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31
  node 1 size: 387067 MB
  node 1 free: 377219 MB
  node distances:
    node  0   1
    0:  10  21
    1:  21  10

From /proc/meminfo
  MemTotal:       791195012 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"
    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 user-pc.spa.lab 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/swapgs barriers and __user
  pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS, IBPB: conditional,

(Continued on next page)
SPEC CPU®2017 Integer Speed Result

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SPEC®2017_int_base = 11.6  
SPEC®2017_int_peak = 11.9

Dell Inc.

CPU2017 License: 55  
Test Sponsor: Dell Inc.

Test Date: Jun-2020  
Tested by: Dell Inc.

Hardware Availability: Jul-2020  
Software Availability: Apr-2020

Platform Notes (Continued)

RSB filling

run-level 3 Jun 3 05:44 last=5

SPEC is set to: /mnt/ramdisk/cpu2017-ic19.1ul

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>tmpfs</td>
<td>tmpfs</td>
<td>225G</td>
<td>4.2G</td>
<td>221G</td>
<td>2%</td>
<td>/mnt/ramdisk</td>
</tr>
</tbody>
</table>

From /sys/devices/virtual/dmi/id
BIOS: Dell Inc. 2.7.7 05/04/2020
Vendor: Dell Inc.
Product: PowerEdge R740xd
Product Family: PowerEdge
Serial: F5BMCS2

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:
19x 00AD00B300AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
1x 00AD063200AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933
4x 00AD069D00AD HMA84GR7CJR4N-WM 32 GB 2 rank 2933

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
<table>
<thead>
<tr>
<th>C</th>
<th>600.perlbench_s(base) 602.gcc_s(base, peak) 605.mcf_s(base, peak)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>625.x264_s(base, peak) 657.xz_s(base, peak)</td>
</tr>
</tbody>
</table>
==============================================================================

Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

==============================================================================
<table>
<thead>
<tr>
<th>C</th>
<th>600.perlbench_s(peak)</th>
</tr>
</thead>
</table>

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.1.1.1217 Build 20200306
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

(Continued on next page)
Dell Inc.

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Compiler Version Notes (Continued)

C

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

Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
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C

| 600.perlbench_s(peak) |

Intel(R) C Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306
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C++

| 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak) 641.leela_s(base, peak) |

Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1
NextGen Build 20200304
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Fortran

| 648.exchange2_s(base, peak) |

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.1.1.217 Build 20200306
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Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:	ifort
Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz)

<table>
<thead>
<tr>
<th>CPU2017 License: 55</th>
<th>Test Date:</th>
<th>Jun-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Dell Inc.</td>
<td>Hardware Availability: Jul-2020</td>
<td></td>
</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Apr-2020</td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed®2017_int_base = 11.6
SPECspeed®2017_int_peak = 11.9

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:
-m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs
-xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops
-fuse-ld=gold -qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

C++ benchmarks:
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse
-funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4
-L/usr/local/IntelCompiler19/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin
-lqkmalloc

Fortran benchmarks:
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -xCORE-AVX512
-O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte
-mbranches-within-32B-boundaries

Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

(Continued on next page)
Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz)

SPECSpeed®2017_int_base = 11.6
SPECSpeed®2017_int_peak = 11.9

CPU2017 License: 55
Test Sponsor: Dell Inc.
Test Date: Jun-2020
Tested by: Dell Inc.
Hardware Availability: Jul-2020
Software Availability: Apr-2020

Peak Compiler Invocation (Continued)

Fortran benchmarks:
ifort

Peak Portability Flags

600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64(*) -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

(*) Indicates a portability flag that was found in a non-portability variable.

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -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
-mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

602.gcc_s: -m64 -qnextgen -std=c11 -fuse-ld=gold
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -fprofile-generate(pass 1)
-fprofile-use=default.profdatal=pass 2) -xCORE-AVX512 -flto
-Ofast(pass 1) -O3 -ffast-math -qopt-mem-layout-trans=4
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

605.mcf_s: basepeak = yes

625.x264_s: -m64 -qnextgen -std=c11
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries
-Wl,-z,muldefs -xCORE-AVX512 -flto -O3 -ffast-math
-fuse-ld=gold -qopt-mem-layout-trans=4 -fno-alias
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

(Continued on next page)
Dell Inc.

PowerEdge R740xd (Intel Xeon Gold 6246R, 3.40 GHz)

**SPECspeed®2017_int_base = 11.6**

**SPECspeed®2017_int_peak = 11.9**

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**CPU2017 License:** 55  
**Test Date:** Jun-2020  
**HARDWARE AVAILABILITY:** Jul-2020  
**Test Sponsor:** Dell Inc.  
**Software Availability:** Apr-2020  
**Tested by:** Dell Inc.

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**Peak Optimization Flags (Continued)**

657.xz_s: basepeak = yes

C++ benchmarks:
620.omnetpp_s: basepeak = yes
623.xalancbmk_s: basepeak = yes
631.deepsjeng_s: basepeak = yes
641.leela_s: basepeak = yes

Fortran benchmarks:
648.exchange2_s: basepeak = yes

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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:

http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revA.xml


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For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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