### Dell Inc.

**PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz)**

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<td>SPECspeed®2017_int_peak = 11.1</td>
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<td>Feb-2021</td>
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#### Test Details

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<td>Dell Inc.</td>
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<td>Dell Inc.</td>
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<tr>
<td>CPU Name:</td>
<td>Intel Xeon Gold 5315Y</td>
</tr>
<tr>
<td>Max MHz:</td>
<td>3600</td>
</tr>
<tr>
<td>Nominal:</td>
<td>3200</td>
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<tr>
<td>Enabled:</td>
<td>8 cores, 1 chip</td>
</tr>
<tr>
<td>Orderable:</td>
<td>1 chip</td>
</tr>
<tr>
<td>Cache L1:</td>
<td>32 KB I + 48 KB D on chip per core</td>
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<tr>
<td>L2:</td>
<td>1.25 MB I+D on chip per core</td>
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<tr>
<td>L3:</td>
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<tr>
<td>Other:</td>
<td>None</td>
</tr>
<tr>
<td>Memory:</td>
<td>512 GB (8 x 64 GB 2Rx4 PC4-3200AA-R, running at 2933)</td>
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<td>Storage:</td>
<td>225 GB on tmpfs</td>
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<td>Other:</td>
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<tr>
<td>OS:</td>
<td>Red Hat Enterprise Linux 8.3 (Ootpa)</td>
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<td>Compiler:</td>
<td>C/C++: Version 2021.1 of Intel oneAPI DPC++/C++ Compiler Build 20201113 for Linux; Fortran: Version 2021.1 of Intel Fortran Compiler Classic Build 20201112 for Linux; C/C++: Version 2021.1 of Intel C/C++ Compiler Classic Build 20201112 for Linux</td>
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<td>Parallel:</td>
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<td>Firmware:</td>
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<td>File System:</td>
<td>tmpfs</td>
</tr>
<tr>
<td>System State:</td>
<td>Run level 5 (graphical multi-user)</td>
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<tr>
<td>Base Pointers:</td>
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<tr>
<td>Peak Pointers:</td>
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<td>Other:</td>
<td>jemalloc memory allocator V5.0.1</td>
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<td>Power Management:</td>
<td>BIOS and OS set to prefer performance at the cost of additional power usage.</td>
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#### SPEC CPU 2017 Integer Speed Result

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>SPECspeed®2017_int_base</th>
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<tr>
<td>perlbench</td>
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<tr>
<td>gcc</td>
<td>10.2</td>
<td>11.1</td>
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<td>mcf</td>
<td>10.6</td>
<td>11.1</td>
</tr>
<tr>
<td>omnetpp</td>
<td>7.88</td>
<td>11.1</td>
</tr>
<tr>
<td>xalancbmk</td>
<td>13.9</td>
<td>11.1</td>
</tr>
<tr>
<td>x264</td>
<td>17.3</td>
<td>11.1</td>
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<tr>
<td>deepsjeng</td>
<td>6.09</td>
<td>11.1</td>
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<tr>
<td>leela</td>
<td>4.99</td>
<td>11.1</td>
</tr>
<tr>
<td>exchange2</td>
<td>19.9</td>
<td>11.1</td>
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<tr>
<td>xz</td>
<td>13.3</td>
<td>11.1</td>
</tr>
</tbody>
</table>

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**Notes:**

- Dell Inc. PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz)
- SPEC CPU 2017 Integer Speed Result
- Copyright 2017-2021 Standard Performance Evaluation Corporation
- Dell Inc. CPU2017 License: 55
- Dell Inc. Test Sponsor: Dell Inc.
- Dell Inc. Tested by: Dell Inc.
- Dell Inc. Hardware Availability: Jul-2021
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- Dell Inc. 602.gcc_s 8
- Dell Inc. 605.mcf_s 8
- Dell Inc. 620.omnetpp_s 8
- Dell Inc. 623.xalancbmk_s 8
- Dell Inc. 625.x264_s 8
- Dell Inc. 631.deepsjeng_s 8
- Dell Inc. 641.leela_s 8
- Dell Inc. 648.exchange2_s 8
- Dell Inc. 657.xz_s 8
- Dell Inc. Threads 0 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 20.6 17.3 18.0 13.9 4.99 6.09 7.88 8.11 10.2 10.6 7.09
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<td>Ratio</td>
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<tr>
<td>648.exchange2_s</td>
<td>8</td>
<td>147</td>
<td>19.9</td>
<td>147</td>
<td>19.9</td>
<td>148</td>
</tr>
</tbody>
</table>

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/cpu2017-1.1.5-ic2021.1/lib/intel64:/mnt/ramdisk/cpu2017-1.1.5-ic2021.1/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
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
jemalloc, a general purpose malloc implementation
built with the Redhat Enterprise 7.5, and the system compiler gcc 4.8.5

NA: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
SPEC CPU®2017 Integer Speed Result

Dell Inc. 
PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz) 

**SPECspeed®2017_int_base = 10.8**

**SPECspeed®2017_int_peak = 11.1**

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<th>Test Date: May-2021</th>
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</tr>
<tr>
<td>Tested by: Dell Inc.</td>
<td>Software Availability: Feb-2021</td>
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General Notes (Continued)

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.

Benchmark run from a 225 GB ramdisk created with the cmd: "mount -t tmpfs -o size=225G tmpfs /mnt/ramdisk"

Platform Notes

BIOS Settings:
- Logical Processor : Disabled
- Virtualization Technology : Disabled

System Profile : Custom
- CPU Power Management : Maximum Performance
- C1E : Disabled
- C States : Autonomous
- Memory Patrol Scrub : Disabled
- Energy Efficiency Policy : Performance
- CPU Interconnect Bus Link
- Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.5-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
runtime on localhost.localdomain Wed May 12 04:19:03 2021

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 5315Y CPU @ 3.20GHz
- 1 "physical id"s (chips)
- 8 "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 : 8
- siblings : 8
- physical 0: cores 0 1 2 3 4 5 6 7

From lsccpu:
- Architecture: x86_64
- CPU op-mode(s): 32-bit, 64-bit
- Byte Order: Little Endian
- CPU(s): 8

(Continued on next page)
Dell Inc.

PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz)

SPEC speed\(^{2017}\)\_int\_base = 10.8
SPEC speed\(^{2017}\)\_int\_peak = 11.1

---

### Platform Notes (Continued)

- On-line CPU(s) list: 0-7
- Thread(s) per core: 1
- Core(s) per socket: 8
- Socket(s): 1
- NUMA node(s): 1
- Vendor ID: GenuineIntel
- CPU family: 6
- Model: 106
- Model name: Intel(R) Xeon(R) Gold 5315Y CPU @ 3.20GHz
- Stepping: 6
- CPU MHz: 3427.425
- BogoMIPS: 6400.00
- Virtualization: VT-x
- L1d cache: 48K
- L1i cache: 32K
- L2 cache: 1280K
- L3 cache: 12288K
- NUMA node0 CPU(s): 0-7
- Flags: fpu vme de pse tsc msr pae mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdpe1gb rdtscp lm constant_tsc 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 invpcid_single intel_ppn_vms bdma ibrs ibpb stibp ibrs enhanced fsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid cmqm rdt_a avx512f avx512dq rdseed adx smap avx512fma clflushopt clwb intel_pt avx512cd sha ni axv512bw avx512vl xsaveopt xsave xsetbv1 xsaveas cmqm llc cmqm_occupa llc cmqm_mbb_total cmqm_mbb_local split_lock Detector wbnoinvd dtlb0 dtherm ida arat pln pts avx512vmbi umip pku ospke avx512_vmbi2 gfni vaes vpclmulqdq avx512_vnni avx512_vbitalg tme avx512_vpopcntdq lal7 rdpid md_clear pconfig flush_l1d arch_capabilities

From /proc/cpuinfo cache data
  cache size: 12288 KB

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.
  available: 1 nodes (0)
  node 0 cpus: 0 1 2 3 4 5 6 7
  node 0 size: 509729 MB
  node 0 free: 498845 MB
  node distances:
  node 0
  0: 10

From /proc/meminfo
  MemTotal: 527820716 KB

---

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

HugePages_Total:       0
Hugepagesize:       2048 kB

/sbin/tuned-adm active
Current active profile: throughput-performance

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

```
os-release:
    NAME="Red Hat Enterprise Linux"
    VERSION="8.3 (Ootpa)"
    ID="rhel"
    ID_LIKE="fedora"
    VERSION_ID="8.3"
    PLATFORM_ID="platform:el8"
    PRETTY_NAME="Red Hat Enterprise Linux 8.3 (Ootpa)"
    ANSI_COLOR="0;31"
```

donhat-release: Red Hat Enterprise Linux release 8.3 (Ootpa)

```
system-release: Red Hat Enterprise Linux release 8.3 (Ootpa)
system-release-cpe: cpe:/o:redhat:enterprise_linux:8.3:ga
```

```
uname -a:
    Linux localhost.localdomain 4.18.0-240.15.1.el8_3.x86_64 #1 SMP Wed Feb 3 03:12:15 EST 2021 x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit): Not affected
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: Not affected
CVE-2017-5754 (Meltdown): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2018-3639 (Speculative Store Bypass): Mitigation: usercopy/swaps and __user pointer sanitization
CVE-2017-5753 (Spectre variant 1): Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling
CVE-2017-5715 (Spectre variant 2): Not affected
CVE-2020-0543 (Special Register Buffer Data Sampling): Not affected
CVE-2019-11135 (TSX Asynchronous Abort): Not affected

run-level 5 May 12 04:09

SPEC is set to: /mnt/ramdisk/cpu2017-1.1.5-ic2021.1

```
Filesystem  Type  Size  Used Avail Use% Mounted on
 tmpfs       tmpfs  225G  6.9G  219G   4% /mnt/ramdisk
```

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

**Dell Inc.**  
PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz)

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<tr>
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<td>SPECspeed®2017_int_peak</td>
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</tr>
</tbody>
</table>

### Platform Notes (Continued)

From /sys/devices/virtual/dmi/id

Vendor: Dell Inc.  
Product: PowerEdge XR12  
Product Family: PowerEdge  
Serial: 09A000C

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:
- 4x 002C069D002C 36ASF8G72PZ-3G2B2 64 GB 2 rank 3200, configured at 2933
- 4x 00AD063200AD HMAA8GR7AJR4N-XN 64 GB 2 rank 3200, configured at 2933

BIOS:
- BIOS Vendor: Dell Inc.  
- BIOS Version: 0.6.3  
- BIOS Date: 05/04/2020  
- BIOS Revision: 0.6  

(End of data from sysinfo program)

BIOS Note: Version 0.6.3 was built with an incorrect date stamp which is reflected in the sysinfo section. The correct release date is reflected in the "Firmware" field of the disclosure.

### Compiler Version Notes

```
C       600.perlbench_s(peak)  
```

Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R)  
64, Version 2021.1 Build 20201112_000000  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64,  
Version 2021.1 Build 20201113  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

```
C       600.perlbench_s(peak)  
```
Dell Inc. PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz)

SPEC CPU®2017 Integer Speed Result

SPECspeed®2017_int_base = 10.8
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CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: May-2021
Hardware Availability: Jul-2021
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Compiler Version Notes (Continued)

Intel(R) C Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
| 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) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
| C++     | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) |
|         | 631.deepsjeng_s(base, peak) 641.leela_s(base, peak) |
------------------------------------------------------------------------------
Intel(R) oneAPI DPC++/C++ Compiler for applications running on Intel(R) 64, Version 2021.1 Build 20201113
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
| Fortran | 648.exchange2_s(base, peak) |
------------------------------------------------------------------------------
Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
  icx

C++ benchmarks:
  icpx

Fortran benchmarks:
  ifort
**SPEC CPU®2017 Integer Speed Result**

**Dell Inc.**

PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz)

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---

### 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:**

-DSPEC_OPENMP -std=c11 -m64 -fopenmp -Wl,-z,muldefs -xCORE-AVX512
-03 -ffast-math -flto -mfpmath=sse -funroll-loops
-qopt-mem-layout-trans=4 -mbranches-within-32B-boundaries
-L/usr/local/jemalloc64-5.0.1/lib -ljemalloc

**C++ benchmarks:**

-DSPEC_OPENMP -m64 -Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math
-flto -mfpmath=sse -funroll-loops -qopt-mem-layout-trans=4
-mbranches-within-32B-boundaries
-L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin/
-1qkmalloc

**Fortran benchmarks:**

-m64 -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs -align array32byte -auto
-mbranches-within-32B-boundaries

### Peak Compiler Invocation

**C benchmarks (except as noted below):**

- icx

- 600.perlbench_s: icc

**C++ benchmarks:**

- icpx

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

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**Tested by:** Dell Inc.  
**Hardware Availability:** Jul-2021

**Software Availability:** Feb-2021

---

### Peak Compiler Invocation (Continued)

**Fortran benchmarks:**

- `ifort`

### Peak Portability Flags

Same as Base Portability Flags

---

### Peak Optimization Flags

**C benchmarks:**

- `600.perlbench_s`: `-Wl,-z,muldefs -prof-gen(pass1) -prof-use(pass2)  
  -xCORE-AVX512 -ipo -O3 -no-pref-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 -std=c11 -Wl,-z,muldefs -fprofile-generate(pass1)  
  -fprofile-use=default.profdata(pass2) -xCORE-AVX512 -flto  
  -Ofast(pass1) -O3 -ffast-math -qopt-mem-layout-trans=4  
  -mbranches-within-32B-boundaries  
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

- `605.mcf_s`: `basepeak = yes`

- `625.x264_s`: `-DSPEC_OPENMP -fiopenmp -std=c11 -m64 -Wl,-z,muldefs  
  -xCORE-AVX512 -flto -O3 -ffast-math  
  -qopt-mem-layout-trans=4 -fno-alias  
  -mbranches-within-32B-boundaries  
  -L/usr/local/jemalloc64-5.0.1/lib -ljemalloc`

- `657.xz_s`: `basepeak = yes`

**C++ benchmarks:**

- `620.omnetpp_s`: `basepeak = yes`

- `623.xalancbmk_s`: `basepeak = yes`

- `631.deepsjeng_s`: `basepeak = yes`

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

**Dell Inc.**

**PowerEdge XR12 (Intel Xeon Gold 5315Y, 3.20 GHz)**

<table>
<thead>
<tr>
<th>SPECspeed®2017 int_peak</th>
<th>SPECspeed®2017 int_base</th>
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<tbody>
<tr>
<td>11.1</td>
<td>10.8</td>
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**CPU2017 License:** 55  
**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.  
**Test Date:** May-2021  
**Hardware Availability:** Jul-2021  
**Software Availability:** Feb-2021

### Peak Optimization Flags (Continued)

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: 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:


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