### SPEC CPU®2017 Integer Speed Result

**Dell Inc.**  
PowerEdge R750 (Intel Xeon Platinum 8352S, 2.20 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>11.8</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Test Date:</th>
<th>Hardware Availability:</th>
<th>Software Availability:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr-2021</td>
<td>May-2021</td>
<td>Feb-2021</td>
</tr>
</tbody>
</table>

#### Thread Performance

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed®2017_int_base</th>
<th>SPECspeed®2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>64</td>
<td>11.6</td>
<td>11.8</td>
</tr>
</tbody>
</table>

#### Software

- **OS:** Red Hat Enterprise Linux 8.3 (Ootpa)  
- **Compiler:**  
  - 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  
- **Parallel:** Yes  
- **Firmware:** Version 1.1.2 released Apr-2021  
- **File System:** tmpfs  
- **System State:** Run level 5 (graphical multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** None  
- **Power Management:** BIOS and OS set to prefer performance at the cost of additional power usage.

#### Hardware

- **CPU Name:** Intel Xeon Platinum 8352S  
- **Max MHz:** 3400  
- **Nominal:** 2200  
- **Enabled:** 64 cores, 2 chips  
- **Orderable:** 1.2 chips  
- **Cache L1:** 32 KB I + 48 KB D on chip per core  
- **L2:** 1.25 MB I+D on chip per core  
- **L3:** 48 MB I+D on chip per chip  
- **Other:** None  
- **Memory:** 512 GB (16 x 32 GB 2Rx8 PC4-3200AA-R)  
- **Storage:** 225 GB on tmpfs  
- **Other:** None

---

**jemalloc memory allocator V5.0.1**
### Results Table

<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>Base</th>
<th>Threads</th>
<th>Seconds</th>
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<th>Threads</th>
<th>Seconds</th>
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<tr>
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</tr>
</tbody>
</table>

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

### 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/ramdisk2/cpu2017-1.1.5-ic2021.1/lib/intel64:/mnt/ramdisk2/cpu2017-1.1.5-ic2021.1/je5.0.1-64"
- MALLOC_CONF = "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.

(Continued on next page)
Dell Inc.

PowerEdge R750 (Intel Xeon Platinum 8352S, 2.20 GHz)

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

Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

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/ramdisk2/cpu2017-1.1.5-ic2021.1/bin/sysinfo
Rev: r6538 of 2020-09-24 e8664e66d2d7080afeaa89d4b38e2f1c
running on localhost.localdomain Thu Apr 29 10:06:25 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) Platinum 8352S CPU @ 2.20GHz
  2 "physical id"s (chips)
  64 "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 : 32
siblings : 32
physical 0: cores 0 1 2 3 4 5 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
         28 29 30 31
physical 1: cores 0 1 2 3 4 5 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
         28 29 30 31

From lscpu:
Architecture: x86_64
Dell Inc.
PowerEdge R750 (Intel Xeon Platinum 8352S, 2.20 GHz)

| SPECspeed®2017_int_base = 11.6 |
| SPECspeed®2017_int_peak = 11.8 |

### Platform Notes (Continued)

- **CPU op-mode(s):** 32-bit, 64-bit
- **Byte Order:** Little Endian
- **CPU(s):** 64
- **CPU MHz:** 1014.584
- **L1d cache:** 48K
- **L1i cache:** 32K
- **L2 cache:** 1280K
- **L3 cache:** 49152K
- **Vendor ID:** GenuineIntel

**CPU family:** 6
**Model:** 106
**Model name:** Intel(R) Xeon(R) Platinum 8352S CPU @ 2.20GHz

**Stepping:** 6
**Thread(s) per core:** 1
**Core(s) per socket:** 32
**Socket(s):** 2
**NUMA node(s):** 2
**Thread(s) per core:** 1
**Core(s) per socket:** 32
**Socket(s):** 2
**NUMA node(s):** 2
**Socket(s):** 2
**NUMA node(s):** 2

**Virtualization:** VT-x
**CPU op-mode(s):** 32-bit, 64-bit

**Byte Order:** Little Endian
**CPU(s):** 64
**On-line CPU(s) list:** 0-63
**Thread(s) per core:** 1
**Core(s) per socket:** 32
**Socket(s):** 2
**NUMA node(s):** 2
**Vendor ID:** GenuineIntel
**CPU family:** 6
**Model:** 106
**Model name:** Intel(R) Xeon(R) Platinum 8352S CPU @ 2.20GHz

**Stepping:** 6
**CPU MHz:** 1014.584
**L1d cache:** 48K
**L1i cache:** 32K
**L2 cache:** 1280K
**L3 cache:** 49152K
**NUMA node0 CPU(s):**

| 0,2,4,6,8,10,12,14,16,18,20,22,24,26,28,30,32,34,36,38,40,42,44,46,48,50,52,54,56,58 |
| 60,62 |
**NUMA node1 CPU(s):**

| 1,3,5,7,9,11,13,15,17,19,21,23,25,27,29,31,33,35,37,39,41,43,45,47,49,51,53,55,57,59 |
| 61,63 |

**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 pdemsg 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 xtrm pcid dca SSE4_1 SSE4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave f16c rdrand lahf_lm abm 3nowprefetch cpuid_fault epb cat_l3 invpcid_single intel_ppn ssbd mba ibrs ibpb stibp ibrs_enhanced fsbg_base tsc_adjust bmi1 hle avx2 smep bmi2 ersed vmpc qcm rdtil aoxv5l2f avx5l2dq人才队伍 adx smap avx5l2ifm clflushopt clwb intel_pt avx5l2cd sha ni avx5l2bw avx5l2vl xsaveopt xsave c2 xgetbv1 xsavec cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local split_lock_detect wbinvd dtm dtm ida arat pls avxv5l2vbm ui mpk pku ospe avx5l2_vbm2 gfni vaes vpcm luidq avx5l2_vni avx5l2_bitalg tme avx5l2_vpopcntdq lq57 rdpid md_clear pconfig flush_1ld arch_capabilities

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a physical chip.

**available nodes:** 2

(Continued on next page)
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PowerEdge R750 (Intel Xeon Platinum 8352S, 2.20 GHz)

SPECspeed®2017_int_base = 11.6
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CPU2017 License: 55
Test Sponsor: Dell Inc.
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Platform Notes (Continued)

52 54 56 58 60 62	node 0 size: 243117 MB	node 0 free: 241689 MB	node 1 cpus: 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51
53 55 57 59 61 63	node 1 size: 245132 MB	node 1 free: 256374 MB	node distances:
node 0 1
0: 10 20
1: 20 10

From /proc/meminfo
MemTotal: 527808648 kB
HugePages_Total: 0
Hugepagesize: 2048 kB
/sbin/tuned-adm active
Current active profile: throughput-performance

From /etc/*release* /etc/*version*
o-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"
redhat-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): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp

(Continued on next page)
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CPU2017 License: 55
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Test Date: Apr-2021
Hardware Availability: May-2021
Software Availability: Feb-2021

Platform Notes (Continued)

CVE-2017-5753 (Spectre variant 1):
Mitigation: usercopy/swapgs barriers and __user pointer sanitation

CVE-2017-5715 (Spectre variant 2):
Mitigation: Enhanced IBRS, IBPB: conditional, RSB filling

CVE-2020-0543 (Special Register Buffer Data Sampling):
Not affected

CVE-2019-11135 (TSX Asynchronous Abort):
Not affected

run-level 5 Apr 29 09:55
SPEC is set to: /mnt/ramdisk2/cpu2017-1.1.5-ic2021.1

Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 225G 6.9G 219G 4% /mnt/ramdisk2

From /sys/devices/virtual/dmi/id
Vendor: Dell Inc.
Product: PowerEdge R750
Product Family: PowerEdge
Serial: 1234567

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:
12x 002C069D002C 18ASF4G72PDZ-3G2E1 32 GB 2 rank 3200
4x 00AD063200AD HMAA4GR7AJR8N-XN 32 GB 2 rank 3200
16x Not Specified Not Specified

BIOS:
BIOS Vendor: Dell Inc.
BIOS Version: 1.1.2
BIOS Date: 04/09/2021
BIOS Revision: 1.1

(End of data from sysinfo program)

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.

(Continued on next page)
## Compiler Version Notes (Continued)

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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.

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Intel(R) Fortran Intel(R) 64 Compiler Classic for applications running on Intel(R) 64, Version 2021.1 Build 20201112_000000
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| Test Sponsor: | Dell Inc. |
| Tested by: | Dell Inc. |
| Test Date: | Apr-2021 |
| Hardware Availability: | May-2021 |
| Software Availability: | Feb-2021 |

### Base Compiler Invocation

- C benchmarks:  
  - icx

- C++ benchmarks:  
  - icpx

- Fortran benchmarks:  
  - ifort

### Base Portability Flags

- perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
- gcc_s: -DSPEC_LP64
- mcf_s: -DSPEC_LP64
- omnetpp_s: -DSPEC_LP64
- xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
- x264_s: -DSPEC_LP64
- deepsjeng_s: -DSPEC_LP64
- leela_s: -DSPEC_LP64
- exchange2_s: -DSPEC_LP64
- xz_s: -DSPEC_LP64

### Base Optimization Flags

- C benchmarks:  
  - DSPEC_OPENMP -std=c11 -m64 -fiopenmp -Wl,-z,muldefs -xCORE-AVX512  
  - O3 -ffast-math -flto -mfpmath=sse -funroll-loops  
  - qopt-mem-layout-trans=4 -mbranches-within-32B-boundsaries  
  - 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-boundsaries  
  - L/opt/intel/oneapi/compiler/2021.1.1/linux/compiler/lib/intel64_lin/  
  - lqkmalloc

- Fortran benchmarks:  
  - m64 -xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4  
  - nostandard-realloc-lhs -align array32byte -auto  
  - mbranches-within-32B-boundsaries
Peak Compiler Invocation

C benchmarks (except as noted below):

  icx

  600.perlbench_s: icc

C++ benchmarks:

  icpx

Fortran benchmarks:

  ifort

Peak Portability Flags

Same as Base Portability Flags

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 -std=c11 -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  
  -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

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Peak Optimization Flags (Continued)

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

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-ic2021-official-linux64_revA.xml