Dell Inc.

PowerEdge T340 (Intel Core i3-9100, 3.60 GHz)

SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017_int_base = 9.04

SPECspeed®2017_int_peak = 9.19

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Dell Inc. PowerEdge T340 (Intel Core i3-9100, 3.60 GHz)

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Results Table

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<th>Base Seconds</th>
<th>Ratio</th>
<th>Base Seconds</th>
<th>Ratio</th>
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<td>180</td>
<td>16.3</td>
<td>180</td>
<td>16.3</td>
</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 = "/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-64"
OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
Yes: 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
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
Dell Inc.  
PowerEdge T340 (Intel Core i3-9100, 3.60 GHz)  

SPEC CPU®2017 Integer Speed Result

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SPECspeed®2017_int_base = 9.04
SPECspeed®2017_int_peak = 9.19

CPU2017 License: 55  
Test Date: Jan-2020  
Test Sponsor: Dell Inc.  
Tested by: Dell Inc.  
Hardware Availability: Dec-2019  
Software Availability: Jun-2019

Platform Notes

BIOS settings:
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
CPU Interconnect Bus Link Power Management enabled
PCI ASPM L1 Link Power Management enabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7ed1b16e46a485a0011
running on linux-g3ob Wed Jan 15 11:25:12 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) Core(TM) i3-9100 CPU @ 3.60GHz
1 "physical id"s (chips)
4 "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 : 4
siblings : 4
physical 0: cores 0 1 2 3

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
Address sizes: 39 bits physical, 48 bits virtual
CPU(s): 4
On-line CPU(s) list: 0-3
Thread(s) per core: 1
Core(s) per socket: 4
Socket(s): 1
NUMA node(s): 1
Vendor ID: GenuineIntel
CPU family: 6
Model: 158
Model name: Intel(R) Core(TM) i3-9100 CPU @ 3.60GHz
Stepping: 11

(Continued on next page)
Dell Inc.

PowerEdge T340 (Intel Core i3-9100, 3.60 GHz)

**SPEC CPU®2017 Integer Speed Result**

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---

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

---

**Platform Notes (Continued)**

- **CPU MHz:** 3600.000  
- **BogoMIPS:** 7200.00  
- **Virtualization:** VT-x  
- **L1d cache:** 32K  
- **L1i cache:** 32K  
- **L2 cache:** 256K  
- **L3 cache:** 6144K  
- **NUMA node0 CPU(s):** 0-3

---

**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  
node 0 size: 64259 MB  
node 0 free: 62343 MB  
node distances:  
node 0
```

---

**From /proc/meminfo**

```
MemTotal: 65801564 kB  
HugePages_Total: 0  
Hugepagesize: 2048 kB
```

---

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

```
os-release:  
NAME="SLES"  
VERSION="15-SP1"  
VERSION_ID="15.1"  
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"  
ID="sles"  
ID_LIKE="suse"  
ANSI_COLOR="0;32"  
CPE_NAME="cpe:/o:suse:sles:15:sp1"
```
Dell Inc. PowerEdge T340 (Intel Core i3-9100, 3.60 GHz)

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CPU2017 License: 55
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Platform Notes (Continued)

uname -a:
    Linux linux-g3ob 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-3620 (L1 Terminal Fault): Mitigation: PTE Inversion
Microarchitectural Data Sampling: Mitigation: Clear CPU buffers; SMT disabled
CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Indirect Branch Restricted Speculation, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling

run-level 3 Jan 15 11:24 last=5

SPEC is set to: /home/cpu2017

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda2      xfs   440G   31G  410G   7% /

From /sys/devices/virtual/dmi/id
    BIOS: Dell Inc. 2.1.6 09/27/2018
    Vendor: Dell Inc.
    Product: PowerEdge T340
    Product Family: PowerEdge

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:
    2x 00AD00000A02 HMA82GU7CJR8N-VK 16 GB 2 rank 2666
    2x 00AD00000A06 HMA82GU7CJR8N-VK 16 GB 2 rank 2666

(End of data from sysinfo program)

Compiler Version Notes

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

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416

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Dell Inc.  
PowerEdge T340 (Intel Core i3-9100, 3.60 GHz)

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| SPECspeed\textsuperscript{2017\_int\_peak} | 9.19 |
| SPECspeed\textsuperscript{2017\_int\_base} | 9.04 |

**Compiler Version Notes (Continued)**

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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++ 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.

---

Fortran

648.exchange2\_s(base, peak)

---

Intel(R) Fortran 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**

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

Test Date: Jan-2020
Hardware Availability: Dec-2019
Software Availability: Jun-2019

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-Wl,-z,muldefs -xCORE-AVX2 -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:
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

C++ benchmarks:
icpc -m64

Fortran benchmarks:
ifort -m64

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) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -fno-strict-overflow
-L/usr/local/je5.0.1-64/lib -ljemalloc

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# SPEC CPU®2017 Integer Speed Result

## Dell Inc.

PowerEdge T340 (Intel Core i3-9100, 3.60 GHz)

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## Peak Optimization Flags (Continued)

602.gcc_s: -Wl, -z, muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

605.mcf_s: -Wl, -z, muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

625.x264_s: -Wl, -z, muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

657.xz_s: -Wl, -z, muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2
-xCORE-AVX2 -qopt-mem-layout-trans=4 -ipo -O3
-no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -L/usr/local/je5.0.1-64/lib -ljemalloc

### C++ benchmarks:

620.omnetpp_s: -Wl, -z, muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=4
-DSPEC_SUPPRESS_OPENMP
-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.4.227/linux/compiler/lib/intel64
-lqkmalloc

623.xalancbmk_s: -Wl, -z, muldefs -xCORE-AVX2 -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

631.deepsjeng_s: Same as 623.xalancbmk_s

641.leela_s: Same as 623.xalancbmk_s

### Fortran benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4
-nostandard-realloc-lhs

---

The flags files that were used to format this result can be browsed at

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| Test Date | Jan-2020 |
| Hardware Availability | Dec-2019 |
| Software Availability | Jun-2019 |

You can also download the XML flags sources by saving the following links:


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