### Hardware

- **CPU Name:** Intel Pentium Gold G5500
- **Max MHz.:** 3800
- **Nominal:** 3800
- **Enabled:** 2 cores, 1 chip, 2 threads/core
- **Orderable:** 1 chip
- **Cache L1:** 32 KB I + 32 KB D on chip per core
- **L2:** 256 KB I+D on chip per core
- **L3:** 4 MB I+D on chip per core
- **Other:** None
- **Memory:** 64 GB (4 x 16 GB 2Rx8 PC4-2666V-R, running at 2400)
- **Storage:** 1 x 960 GB SATA SSD
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 12 SP3
- **Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++ Compiler for Linux;
- **Fortran:** Version 18.0.0.128 of Intel Fortran Compiler for Linux
- **Parallel:** No
- **Firmware:** Version 1.0.1 released Oct-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 32/64-bit
- **Other:** jemalloc: jemalloc memory allocator library V5.0.1;
SPEC CPU2017 Integer Rate Result

Dell Inc.
PowerEdge T140 (Intel Pentium Gold G5500)

SPECr2017_int_base = 12.7
SPECr2017_int_peak = 13.7

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>
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<tbody>
<tr>
<td>500.perlbench_r</td>
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<td>551</td>
<td>11.6</td>
<td>557</td>
<td>11.4</td>
</tr>
<tr>
<td>502.gcc_r</td>
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<td>15.2</td>
<td>427</td>
<td>15.2</td>
<td>432</td>
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<tr>
<td>525.x264_r</td>
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<tr>
<td>531.deepsjeng_r</td>
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<td>378</td>
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<td>377</td>
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<td>377</td>
<td>12.1</td>
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<tr>
<td>548.exchange2_r</td>
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<td>508</td>
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<td>508</td>
<td>8.50</td>
<td>507</td>
<td>8.51</td>
</tr>
</tbody>
</table>

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/ia32:/home/cpu2017/lib/intel64:/home/cpu2017/je5.0.1-32:/home/cpu2017/je5.0.1-64"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4

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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

(Continued on next page)
## Dell Inc.

### PowerEdge T140 (Intel Pentium Gold G5500)

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### General Notes (Continued)

jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets; jemalloc: sources available via jemalloc.net

### Platform Notes

- BIOS settings:
  - 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 disabled
  - CPU Interconnect Bus Link Power Management disabled
  - PCI ASPM L1 Link Power Management disabled
  - Sysinfo program: /home/cpu2017/bin/sysinfo
  - Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
  - running on linux-gdas Mon Mar 25 09:46:17 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](https://www.spec.org/cpu2017/Docs/config.html#sysinfo)

- From /proc/cpuinfo:
  - model name: Intel(R) Pentium(R) Gold G5500 CPU @ 3.80GHz
    - 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: 2
    - siblings: 4
    - physical 0: cores 0 1

- From lscpu:
  - Architecture: x86_64
  - CPU op-mode(s): 32-bit, 64-bit
  - Byte Order: Little Endian
  - CPU(s): 4
  - On-line CPU(s) list: 0-3
  - Thread(s) per core: 2
  - Core(s) per socket: 2
  - Socket(s): 1
  - NUMA node(s): 1
  - Vendor ID: GenuineIntel


(Continued on next page)
Dell Inc. 
PowerEdge T140 (Intel Pentium Gold G5500)

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CPU2017 License: 55
Test Sponsor: Dell Inc.
Tested by: Dell Inc.
Test Date: Mar-2019
Hardware Availability: Dec-2018
Software Availability: Oct-2018

Platform Notes (Continued)

CPU family: 6
Model: 158
Model name: Intel(R) Pentium(R) Gold G5500 CPU @ 3.80GHz
Stepping: 11
CPU MHz: 3800.000
CPU max MHz: 3800.0000
CPU min MHz: 800.0000
BogoMIPS: 7583.98
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 256K
L3 cache: 4096K
NUMA node0 CPU(s): 0-3

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
aperfmrperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx est tm2 ssse3 sdbg cx16
xtrm mon pmc pdcm pcid sse4_1 sse4_2 x2apic movctپ popcnt tsc_deadline_timer aes xsave rdrand
lahf_lm abm 3dnowprefetch arat epb invpcid_single mtrnr mtrrd dtherm hwp hwp_act_window
hwp_notify hard tsc tsc_adjust smep vsmp erms invpd xsaveopt xsavec xgetbv1

/proc/cpuinfo cache data
  cache size : 4096 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
  node 0 size: 64278 MB
  node 0 free: 63797 MB
  node distances:
    node 0
      0: 10

From /proc/meminfo
  MemTotal: 65820840 kB
  HugePages_Total: 0
  Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
  SUSE Linux Enterprise Server 12 SP3

From /etc/*release* /etc/*version*
  SuSE-release:

(Continued on next page)
### Dell Inc. PowerEdge T140 (Intel Pentium Gold G5500)

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**Software Availability:** Oct-2018

---

### Platform Notes (Continued)

```
SUSE Linux Enterprise Server 12 (x86_64)
VERSION = 12
PATCHLEVEL = 3

# This file is deprecated and will be removed in a future service pack or release.
# Please check /etc/os-release for details about this release.

os-release:
NAME="SLES"
VERSION="12-SP3"
VERSION_ID="12.3"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP3"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp3"
```

```
uname -a:
Linux linux-gdas 4.4.126-94.22-default #1 SMP Wed Apr 11 07:45:03 UTC 2018 (9649989)
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

- **CVE-2017-5754 (Meltdown):** Mitigation: PTI
- **CVE-2017-5753 (Spectre variant 1):** Mitigation: __user pointer sanitization
- **CVE-2017-5715 (Spectre variant 2):** Mitigation: IBRS+IBPB

```
run-level 3 Mar 25 09:46 last=5
```

**SPEC is set to:** /home/cpu2017

```
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda3      xfs   605G   16G  589G   3% /
```

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.

- BIOS Dell Inc. 1.0.1 10/19/2018
- Memory:
  - 3x 00AD00000A02 HMA82GU7CJR8N-VK 16 GB 2 rank 2666, configured at 2400
  - 1x 00AD00000A06 HMA82GU7CJR8N-VK 16 GB 2 rank 2666, configured at 2400

(End of data from sysinfo program)

---

### Compiler Version Notes

```
CC  500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak) 525.x264_r(base, peak) 557.xz_r(base, peak)
```

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### Dell Inc.  
PowerEdge T140 (Intel Pentium Gold G5500)

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#### Compiler Version Notes (Continued)

```plaintext
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

CC 500.perlbench_r(peak) 502.gcc_r(peak)

icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
541.leela_r(base)

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

CXXC 520.omnetpp_r(peak) 523.xalancbmk_r(peak) 531.deepsjeng_r(peak)
541.leela_r(peak)

icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

FC 548.exchange2_r(base, peak)

ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

### Base Compiler Invocation

- **C benchmarks:**
  - icc

- **C++ benchmarks:**
  - icpc

- **Fortran benchmarks:**
  - ifort
SPEC CPU2017 Integer Rate Result

Dell Inc. PowerEdge T140 (Intel Pentium Gold G5500)

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

Test Date: Mar-2019
Hardware Availability: Dec-2018
Software Availability: Oct-2018

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

Base Optimization Flags

C benchmarks:
-Wl,-z,muldefs -xsse4.2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:
-Wl,-z,muldefs -xsse4.2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xsse4.2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
-L/usr/local/je5.0.1-64/lib -ljemalloc

Base Other Flags

C benchmarks:
-m64 -std=c11

C++ benchmarks:
-m64

Fortran benchmarks:
-m64
Dell Inc.

PowerEdge T140 (Intel Pentium Gold G5500)

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**Test Sponsor:** Dell Inc.  
**Tested by:** Dell Inc.

**Test Date:** Mar-2019  
**Hardware Availability:** Dec-2018  
**Software Availability:** Oct-2018

### Peak Compiler Invocation

- **C benchmarks:**  
  - icc

- **C++ benchmarks:**  
  - icpc

- **Fortran benchmarks:**  
  - ifort

### 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
- 531.deepsjeng_r: -DSPEC_LP64
- 541.leela_r: -DSPEC_LP64
- 548.exchange2_r: -DSPEC_LP64
- 557.xz_r: -DSPEC_LP64

(Continued on next page)
SPEC CPU2017 Integer Rate Result
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Dell Inc.
PowerEdge T140 (Intel Pentium Gold G5500)

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CPU2017 License: 55
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Peak Optimization Flags (Continued)

525.x264_r: -Wl,-z,muldefs -xSSE4.2 -ipo -O3 -no-prec-div
-qopt-prefetch -qopt-mem-layout-trans=3 -fno-alias
-L/usr/local/je5.0.1-64/lib -ljemalloc

557.xz_r: Same as 505.mcf_r

C++ benchmarks:

520.omnetpp_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xSSE4.2 -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib
-ljemalloc

523.xalancbmk_r: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xSSE4.2 -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-32/lib
-ljemalloc

531.deepsjeng_r: Same as 520.omnetpp_r

541.leela_r: Same as 520.omnetpp_r

Fortran benchmarks:
-Wl,-z,muldefs -xSSE4.2 -ipo -O3 -no-prec-div -qopt-prefetch
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
-L/usr/local/je5.0.1-64/lib -ljemalloc

Peak Other Flags

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

502.gcc_r: -m32 -std=c11

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

523.xalancbmk_r: -m32

Fortran benchmarks:
-m64
### SPEC CPU2017 Integer Rate Result

**Dell Inc.**  
PowerEdge T140 (Intel Pentium Gold G5500)

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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:


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