Dell Inc.

PowerEdge T440 (Intel Xeon Silver 4109T, 2.00 GHz)

SPECrater2017_int_base = 70.1
SPECrater2017_int_peak = Not Run

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

Test Date: Oct-2017
Hardware Availability: Sep-2017
Software Availability: Sep-2017

Hardware
CPU Name: Intel Xeon Silver 4109T
Max MHz.: 3000
Nominal: 2000
Enabled: 16 cores, 2 chips, 2 threads/core
Orderable: 1,2 chip
Cache L1: 32 KB I + 32 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 11 MB I+D on chip per chip
Other: None
Memory: 192 GB (12 x 16 GB 2Rx8 PC4-2666V-R, running at 2400)
Storage: 480 GB SATA SSD
Other: None

Software
OS: SUSE Linux Enterprise Server 12 SP2
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 1.3.0 released Sep-2017
File System: xfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
Other: jemalloc: jemalloc memory allocator library V5.0.1;
jemalloc: configured and built at default for 32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5;
jemalloc: sources available via jemalloc.net
Dell Inc.  
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Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tbody>
<tr>
<td>500.perfbench_r</td>
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<td>951</td>
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<td>64.2</td>
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<td>64.1</td>
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<tr>
<td>520.omnetpp_r</td>
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<td>525.x264_r</td>
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<td>531.deepsjeng_r</td>
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<td>541.leela_r</td>
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<tr>
<td>548.exchange2_r</td>
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<tr>
<td>557.xz_r</td>
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<td>52.4</td>
<td>719</td>
<td>48.0</td>
<td>719</td>
<td>48.1</td>
</tr>
</tbody>
</table>

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:

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4
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 numaclt i.e.:
numactl --interleave=all runcpu <etc>

Platform Notes

BIOS settings:
Logical Processor Enabled

(Continued on next page)
**SPEC CPU2017 Integer Rate Result**

**Dell Inc.**

PowerEdge T440 (Intel Xeon Silver 4109T, 2.00 GHz)

**SPECrate2017_int_base = 70.1**

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**Platform Notes (Continued)**

Virtualization Technology Disabled
Sub NUMA Cluster Enabled
System Profile set to Custom
CPU Performance set to Maximum Performance
C1E Disabled
C States set to Autonomous
Uncore Frequency set to Dynamic
Memory Patrol Scrub Disabled
Energy Efficiency Policy set to Performance
CPU Interconnect Bus Link Power Management Disabled
PCI ASPM L1 Link Power Management Disabled
Sysinfo program /root/cpu2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bce091c0f
running on linux-hy8w Tue Oct 24 13:44:46 2017

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) Silver 4109T CPU @ 2.00GHz
 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.)
cpu cores : 8
siblings : 16
physical 0: cores 0 1 2 3 4 5 6 7
physical 1: cores 0 1 2 3 4 5 6 7
```

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:    2
Core(s) per socket:    8
Socket(s):             2
NUMA node(s):          2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Silver 4109T CPU @ 2.00GHz
Stepping:              4
CPU MHz:               1995.407
BogoMIPS:              3990.81
```

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

```
Virtualization:        VT-x
L1d cache:             32K
L1i cache:             32K
L2 cache:              1024K
L3 cache:              11264K
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 rdtsdp
                       lm constant_tsc art arch_perfmon pebs btc rep_good nopl xtopology nonstop_tsc
                       aperfmperf eagerfpu 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 ida arat epb pln pts dtherm intel_pt
                       tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2
                       erms invpcid rtm cqm mpx avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd
                       avx512bw avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc
```
Platform Notes (Continued)

# 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.

```bash
os-release:
  NAME="SLES"
  VERSION="12-SP2"
  VERSION_ID="12.2"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp2"

uname -a:
Linux linux-hy8w 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67)
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Oct 24 13:43 last=5
```

SPEC is set to: /root/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda2 xfs 260G 68G 193G 27% /

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. 1.2.9 10/06/2017
  Memory:
     8x 002C04B3002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666, configured at 2400
     4x 002C0632002C 18ASF2G72PDZ-2G6D1 16 GB 2 rank 2666, configured at 2400
     4x Not Specified Not Specified

(End of data from sysinfo program)

---

Compiler Version Notes

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

(Continued on next page)
# SPEC CPU2017 Integer Rate Result

## Dell Inc.

**PowerEdge T440 (Intel Xeon Silver 4109T, 2.00 GHz)**

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**Software Availability:** Sep-2017

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## Compiler Version Notes (Continued)

<table>
<thead>
<tr>
<th>icpc (ICC) 18.0.0 20170811</th>
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<table>
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<tr>
<th>FC 548.exchange2_r(base)</th>
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## Base Compiler Invocation

**C benchmarks:**
- icc

**C++ benchmarks:**
- icpc

**Fortran benchmarks:**
- ifort

## Base Portability Flags

<table>
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<tr>
<th>500.perlbench_r: -DSPEC_LP64  -DSPEC_LINUX_X64</th>
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## Base Optimization Flags

**C benchmarks:**
- -W1, -z,muldefs  -xCORE-AVX2  -ipo -O3 -no-prec-div  
- -qopt-mem-layout-trans=3  -L/usr/local/je5.0.1-64/lib -ljemalloc

(Continued on next page)
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### SPECrate2017_int_base = 70.1

### SPECrate2017_int_peak = Not Run

**Base Optimization Flags (Continued)**

**C++ benchmarks:**
- `-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div`
- `-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc`

**Fortran benchmarks:**
- `-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div`
- `-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`

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

Tested with SPEC CPU2017 v1.0.2 on 2017-10-24 01:44:45-0400.
Originally published on 2017-12-26.