## SPEC® CPU2017 Integer Rate Result

**Acer Incorporated**

**Altos R380 F4 (Intel Xeon Silver 4110)**

**SPECrate2017_int_base = 73.4**

**SPECrate2017_int_peak = Not Run**

### CPU2017 License: 97

**Test Date:** Sep-2018

**Test Sponsor:** Acer Incorporated

**Hardware Availability:** Oct-2017

**Tested by:** Acer Incorporated

**Software Availability:** Mar-2018

### Hardware

- **CPU Name:** Intel Xeon Silver 4110
- **Max MHz.:** 3000
- **Enabled:** 16 cores, 2 chips, 2 threads/core
- **Orderable:** 1,2 chips
- **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:** 768 GB (24 x 32 GB 2Rx4 PC4-2666V-R, running at 2400)
- **Storage:** 1 x 1000 GB SATA, 7200 RPM
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 12 SP3 (x86_64) 4.4.120-94.17-default
- **Compiler:** C/C++: Version 18.0.2.199 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.2.199 of Intel Fortran Compiler for Linux
- **Parallel:** No
- **Firmware:** Version 00.01.0013 released Mar-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** Not Applicable
- **Other:** jemalloc memory allocator V5.0.1

### Test Results

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>SPECrate2017_int_base (73.4)</th>
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<tbody>
<tr>
<td>500.perlbench_r</td>
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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:

Binaries compiled on a system with 1x Intel Core i7-6700K CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.5
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>
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.

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

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**General Notes (Continued)**

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.


**Platform Notes**

BIOS Configuration:
- CPU Power and Performance Policy set to Performance
- IMC set to 1-way interleaving
- Sub_NUMA Cluster set to enabled
- Set Fan Profile set to Performance
- Sysinfo program /home/speccpu/cpu2017/bin/sysinfo
- Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
- running on linux-65s1 Wed Sep 19 10:53:14 2018

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 4110 CPU @ 2.10GHz
  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 4110 CPU @ 2.10GHz

(Continued on next page)
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**Tested by:** Acer Incorporated  
**Hardware Availability:** Oct-2017  
**Software Availability:** Mar-2018

#### Platform Notes (Continued)

- **Stepping:** 4  
- **CPU MHz:** 1016.966  
- **CPU max MHz:** 3000.0000  
- **CPU min MHz:** 800.0000  
- **BogoMIPS:** 4190.19  
- **Virtualization:** VT-x  
- **L1d cache:** 32K  
- **L1i cache:** 32K  
- **L2 cache:** 1024K  
- **L3 cache:** 11264K  
- **NUMA node0 CPU(s):** 0-7,16-23  
- **NUMA node1 CPU(s):** 8-15,24-31  
- **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 rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc aperfmperf eagerfpu npt Ralph_mmx pc3d qdts64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrp pdcm pdid dca sse4_1 sse4_2 x2apic movbe seqnt popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb invpcid_single pln pts dtherm hwp_act_window hwp_epp hwp_prgm req intel_pt rsb_cxsw spec_tctrl stibp xsaveopt aequip eax xle avx2 smep bmi2 6ms invpcid rtm cmq mxp avx512f avx512fd avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsavecth xgetbv1 cmq_l1c cmq_occup_l1c pku ospke

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

- **available:** 2 nodes (0-1)  
- **node 0 cpus:** 0 1 2 3 4 5 6 7 16 17 18 19 20 21 22 23  
- **node 0 size:** 385604 MB  
- **node 0 free:** 384944 MB  
- **node 1 cpus:** 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31  
- **node 1 size:** 386923 MB  
- **node 1 free:** 386414 MB  
- **node distances:**
  - **node 0:** 0 1  
  - **node 1:** 10 21

From `/proc/meminfo`

- **MemTotal:** 791068792 kB  
- **HugePages_Total:** 0  
- **Hugepagesize:** 2048 kB

From `/etc/*release*/ etc/*version*  
(Continued on next page)
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SuSE-release:
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-65s1 4.4.120-94.17-default #1 SMP Wed Mar 14 17:23:00 UTC 2018 (cf3a7bb)
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 Sep 19 10:36

SPEC is set to: /home/speccpu/cpu2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 929G 269G 661G 29% /

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 Intel Corporation SE5C620.86B.00.01.0013.030920180427 03/09/2018
Memory:
24x Samsung M393A4K40BB2-CTD 32 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) 525.x264_r(base)
557.xz_r(base)

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Compiler Version Notes (Continued)

icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

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

icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

FC 548.exchange2_r(base)

ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 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

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
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541.leela_r: -DSPEC_LP64
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### Base Optimization Flags

#### C benchmarks:
- -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
- -qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

#### C++ benchmarks:
- -Wl,-z,muldefs -xCORE-AVX512 -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-AVX512 -ipo -O3 -no-prec-div
- -qopt-mem-layout-trans=3 -nostandard-realloc-lhs -L/usr/local/je5.0.1-64/lib -ljemalloc

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/Acer-Platform-Settings-V1.3-revC.xml](http://www.spec.org/cpu2017/flags/Acer-Platform-Settings-V1.3-revC.xml)

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

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