## SPEC CPU®2017 Integer Rate Result

**M Computers s.r.o.**

**HPC S2600WFT**

(2.10 GHz, Intel Xeon Silver 4110)

**SPEC CPU®2017 Integer Rate Result**

<table>
<thead>
<tr>
<th>Benchmark</th>
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<tr>
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<td>520.omnetpp_r</td>
<td>50.4</td>
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<tr>
<td>523.xalancbmk_r</td>
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<tr>
<td>525.x264_r</td>
<td>64.6</td>
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<td>531.deepsjeng_r</td>
<td>57.5</td>
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<td>541.leela_r</td>
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<td>548.exchange2_r</td>
<td>136</td>
</tr>
<tr>
<td>557.xz_r</td>
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</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Silver 4110
- **Max MHz:** 3000
- **Nominal:** 2100
- **Enabled:** 16 cores, 2 chips, 2 threads/core
- **Orderable:** 1, 2 chip(s)
- **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:** 384 GB (24 x 16 GB 2Rx8 PC4-2400V-R)
- **Storage:** 1 x 960 GB SATA SSD
- **Other:** None

### Software

- **OS:** SUSE Linux Enterprise Server 12 SP2 4.4.21-69-default
- **Compiler:** C/C++; Version 18.0.1 of Intel C/C++ Compiler for Linux;
  Fortran: Version 18.0.1 of Intel Fortran Compiler for Linux
- **Firmware:** Intel Version SE5C620.86B.00.01.0009.101920170742 released Oct-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 from jemalloc.net or releases

**CPU2017 License:** 4204

**Test Sponsor:** M Computers s.r.o.

**Tested by:** M Computers s.r.o.

**Test Date:** Dec-2017

**Hardware Availability:** Oct-2017

**Software Availability:** Sep-2017
Results Table

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</tbody>
</table>

SPECrate®2017_int_base = 73.4
SPECrate®2017_int_peak = Not Run

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"
Prior to runcpu invocation
Filesystem page cache synced and cleared with:
  sync; echo 3> /proc/sys/vm/drop_caches
runcspec command invoked through numactl i.e.:
  numactl --interleave=all runcspec <etc>

General Notes

Environment variables set by runcpu before the start of the run:
  LD_LIBRARY_PATH = "$/opt/intel/compilers_and_libraries/linux/lib/ia32_lin
  $/opt/intel/compilers_and_libraries/linux/lib/intel64_lin"
Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM
memory using Redhat Enterprise Linux 7.4
No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: 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.
No: 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.
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Test Date: Dec-2017
Hardware Availability: Oct-2017
Software Availability: Sep-2017

General Notes (Continued)

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, http://www.spec.org/osg/policy.html

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

Platform Notes

BIOS Configuration:
Patrol Scrub=Disabled
CPU and Power Performance Policy=Performance
Set Fan Profile=Performance
Sysinfo program /spec2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f running on taborlin3 Fri Dec 29 15:31:27 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 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

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

- 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
- Stepping: 4
- CPU MHz: 1100.000
- CPU max MHz: 2101.0000
- CPU min MHz: 800.0000
- BogoMIPS: 4190.18
- 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 acpl 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 aperffor perf 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 tsc_changes_freq
- /proc/cpuinfo cache data
  - cache size: 11264 KB

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: 193000 MB
  - node 0 free: 192277 MB
  - node 1 cpus: 8 9 10 11 12 13 14 15 24 25 26 27 28 29 30 31
  - node 1 size: 193368 MB
  - node 1 free: 192613 MB
  - node distances:
    - node 0 1
    - 0: 10 21
    - 1: 21 10

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Platform Notes (Continued)

From /proc/meminfo
 MemTotal: 395641196 kB
 HugePages_Total: 0
 Hugepagesize: 2048 kB

/usr/bin/lsb_release -d
 SUSE Linux Enterprise Server 12 SP2

From /etc/*release* /etc/*version*
 SuSE-release:
   SUSE Linux Enterprise Server 12 (x86_64)
   VERSION = 12
   PATCHLEVEL = 2
   # 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-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 taborlin3 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 Dec 29 15:29

SPEC is set to: /spec2017
 Filesystem Type Size Used Avail Use% Mounted on
 /dev/sda1 xfs 660G 65G 596G 10% /

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.00.01.0009.101920170742 10/19/2017
 Memory:
  24x Samsung M393A2G40EB1-CRC 16 GB 2 rank 2400

(End of data from sysinfo program)
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Compiler Version Notes

==============================================================================
<table>
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<tr>
<th>C</th>
<th>500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base) 525.x264_r(base) 557.xz_r(base)</th>
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<td>Copyright (C) 1985-2017 Intel Corporation. All rights reserved.</td>
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<tr>
<td>C++</td>
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Base Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

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

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Base Portability Flags (Continued)

541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

Base Optimization Flags

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

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 CPU®2017 v1.0.2 on 2017-12-29 09:31:26-0500.