



# SPEC CPU®2017 Integer Rate Result

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## Uniwide

(Test Sponsor: Telecommunications Technology Association)

### Uniwide RC124

(2.20 GHz, Intel Xeon Silver 4210)

SPECrate®2017\_int\_base = 109

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 83

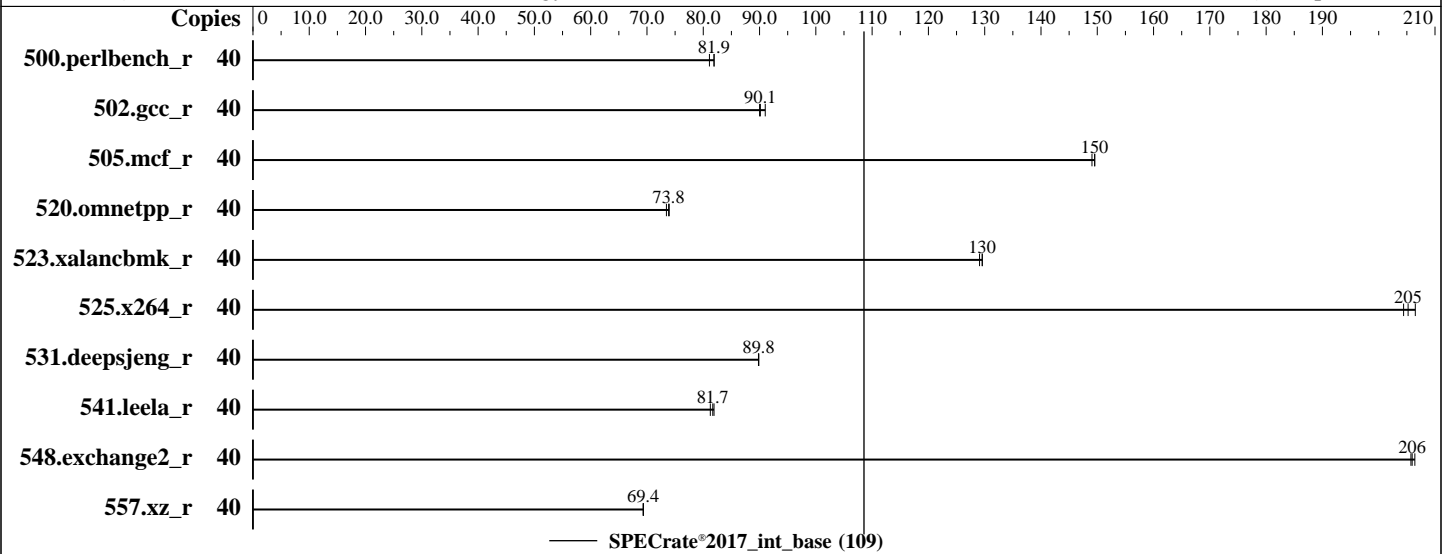
Test Sponsor: Telecommunications Technology Association

Tested by: Telecommunications Technology Association

Test Date: Apr-2021

Hardware Availability: Sep-2020

Software Availability: Apr-2021



### Hardware

CPU Name: Intel Xeon Silver 4210  
 Max MHz: 3200  
 Nominal: 2200  
 Enabled: 20 cores, 2 chips, 2 threads/core  
 Orderable: 2 chip  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 13.75 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 2475 GB SATA SSD  
 Other: None

### Software

OS: CentOS Linux release 7.9.2009 (Core)  
 3.10.0-1160.el7.x86\_64  
 Compiler: C/C++: Version 19.0.4.243 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 19.0.4.243 of Intel Fortran Compiler for Linux  
 Parallel: No  
 Firmware: Version RS700-E9-RS4 released Sep-2020  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None  
 Power Management: BIOS set to prefer performance at the cost of additional power usage



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## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	40	<u>777</u>	<u>81.9</u>	777	81.9	785	81.1							
502.gcc_r	40	<u>628</u>	<u>90.1</u>	622	91.0	629	90.0							
505.mcf_r	40	432	150	434	149	<u>432</u>	<u>150</u>							
520.omnetpp_r	40	710	74.0	<u>711</u>	<u>73.8</u>	714	73.5							
523.xalancbmk_r	40	327	129	<u>326</u>	<u>130</u>	326	130							
525.x264_r	40	339	207	343	204	<u>341</u>	<u>205</u>							
531.deepsjeng_r	40	510	89.8	<u>510</u>	<u>89.8</u>	510	89.9							
541.leela_r	40	809	81.9	<u>811</u>	<u>81.7</u>	815	81.3							
548.exchange2_r	40	509	206	<u>509</u>	<u>206</u>	508	206							
557.xz_r	40	<u>623</u>	<u>69.4</u>	623	69.3	623	69.4							

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Submit Notes

The config file option 'submit' was used.

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:

LD\_LIBRARY\_PATH =

"/home/spec/speccpu/cpu2017-1.1.0/ia32:/home/spec/speccpu/cpu2017-1.1.0/intel64:/home/spec/speccpu/cpu2017-1.1.0/je5.0.1-32:/home/spec/speccpu/cpu2017-1.1.0/je5.0.1-64"

## General Notes

Environment variables set by runcpu before the start of the run:

LD\_LIBRARY\_PATH = "/home/spec/speccpu/cpu2017-1.1.0/ia32

:/home/spec/speccpu/cpu2017-1.1.0/intel64

NA: 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.

Intel VT for Directed I/O(VT-d) -> Disabled

Core Optimizer -> Engine Boost Options -> Level3(Max)

LLC dead line alloc -> Disabled

SR-IOV Support -> Disabled

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## General Notes (Continued)

CSM Support -> Disabled

## Platform Notes

Sysinfo program /home/spec/speccpu/cpu2017-1.1.0/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
running on localhost.localdomain Wed Apr 28 02:43:42 2021

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 4210 CPU @ 2.20GHz
 2 "physical id"s (chips)
 40 "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 : 10
siblings  : 20
physical 0: cores 0 1 2 3 4 8 9 10 11 12
physical 1: cores 0 1 2 3 4 8 9 10 11 12
```

From lscpu:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                40
On-line CPU(s) list:   0-39
Thread(s) per core:    2
Core(s) per socket:    10
Socket(s):             2
NUMA node(s):         2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Silver 4210 CPU @ 2.20GHz
Stepping:              7
CPU MHz:               2660.974
CPU max MHz:           3200.0000
CPU min MHz:           1000.0000
BogoMIPS:              4400.00
Virtualization:        VT-x
L1d cache:             32K
L1i cache:             32K
```

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## Platform Notes (Continued)

```

L2 cache:                1024K
L3 cache:                14080K
NUMA node0 CPU(s):      0-9,20-29
NUMA node1 CPU(s):      10-19,30-39
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
aperfmpperf 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 epb cat_l3 cdp_l3 invpcid_single
intel_ppin intel_pt ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi
flexpriority ept vpid fsgsbase tsc_adjust bmil hle avx2 smep bmi2 erms invpcid rtm
cqm mpx rdt_a avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw
avx512vl xsaveopt xsavec xgetbv1 cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
dtherm ida arat pln pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni
md_clear spec_ctrl intel_stibp flush_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 14080 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 8 9 20 21 22 23 24 25 26 27 28 29
node 0 size: 385380 MB
node 0 free: 374102 MB
node 1 cpus: 10 11 12 13 14 15 16 17 18 19 30 31 32 33 34 35 36 37 38 39
node 1 size: 387051 MB
node 1 free: 375955 MB
node distances:
node    0    1
 0:    10    21
 1:    21    10

```

```

From /proc/meminfo
MemTotal:      790970736 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 7.9.2009 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.8 (Source)
os-release:
NAME="CentOS Linux"
VERSION="7 (Core)"
ID="centos"
ID_LIKE="rhel fedora"

```

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## Platform Notes (Continued)

```

VERSION_ID="7"
PRETTY_NAME="CentOS Linux 7 (Core)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:centos:centos:7"
redhat-release: CentOS Linux release 7.9.2009 (Core)
system-release: CentOS Linux release 7.9.2009 (Core)
system-release-cpe: cpe:/o:centos:centos:7

```

uname -a:

```

Linux localhost.localdomain 3.10.0-1160.el7.x86_64 #1 SMP Mon Oct 19 16:18:59 UTC 2020
x86_64 x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

itlb_multihit: No status reported
CVE-2018-3620 (L1 Terminal Fault): No status reported
Microarchitectural Data Sampling: No status reported
CVE-2017-5754 (Meltdown): No status reported
CVE-2018-3639 (Speculative Store Bypass): No status reported
CVE-2017-5753 (Spectre variant 1): No status reported
CVE-2017-5715 (Spectre variant 2): No status reported
srbds: No status reported
tsx_async_abort: No status reported

```

run-level 3 2021-04-28 02:41

SPEC is set to: /home/spec/speccpu/cpu2017-1.1.0

```

Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/mapper/centos-home xfs  838G  25G  814G   3% /home

```

From /sys/devices/virtual/dmi/id

```

BIOS: American Megatrends Inc. 6602 09/02/2020
Vendor: ASUSTeK COMPUTER INC.
Product: RS700-E9-RS4

```

Cannot run dmidecode; consider saying (as root)

chmod +s /usr/sbin/dmidecode

(End of data from sysinfo program)

## Compiler Version Notes

```

=====
C      | 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) 19.0.4.243 20190416

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=====  
C++ | 520.omnetpp\_r(base) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base)  
| 541.leela\_r(base)  
=====

icpc (ICC) 19.0.4.243 20190416

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=====  
Fortran | 548.exchange2\_r(base)  
=====

ifort (IFORT) 19.0.4.243 20190416

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## 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

531.deepsjeng\_r: -DSPEC\_LP64

541.leela\_r: -DSPEC\_LP64

548.exchange2\_r: -DSPEC\_LP64

557.xz\_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=4 -L/opt/intel/lib/intel64 -lqkmalloc
```

C++ benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4 -L/opt/intel/lib/intel64 -lqkmalloc
```

Fortran benchmarks:

```
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=4 -nostandard-realloc-lhs -align array32byte  
-L/opt/intel/lib/intel64 -lqkmalloc
```

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

[http://www.spec.org/cpu2017/flags/UNIWIDE\\_Technologies\\_Inc.-Platform-Flags-Version-SVR-RC1.html](http://www.spec.org/cpu2017/flags/UNIWIDE_Technologies_Inc.-Platform-Flags-Version-SVR-RC1.html)

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2021-05-25.html>

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

[http://www.spec.org/cpu2017/flags/UNIWIDE\\_Technologies\\_Inc.-Platform-Flags-Version-SVR-RC1.xml](http://www.spec.org/cpu2017/flags/UNIWIDE_Technologies_Inc.-Platform-Flags-Version-SVR-RC1.xml)

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2021-05-25.xml>

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For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.0 on 2021-04-28 02:43:42-0400.

Report generated on 2021-05-25 16:47:45 by CPU2017 PDF formatter v6442.

Originally published on 2021-05-25.