



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Huawei

(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

## Huawei 1288H V5 (Intel Xeon Gold 6238R)

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 6177

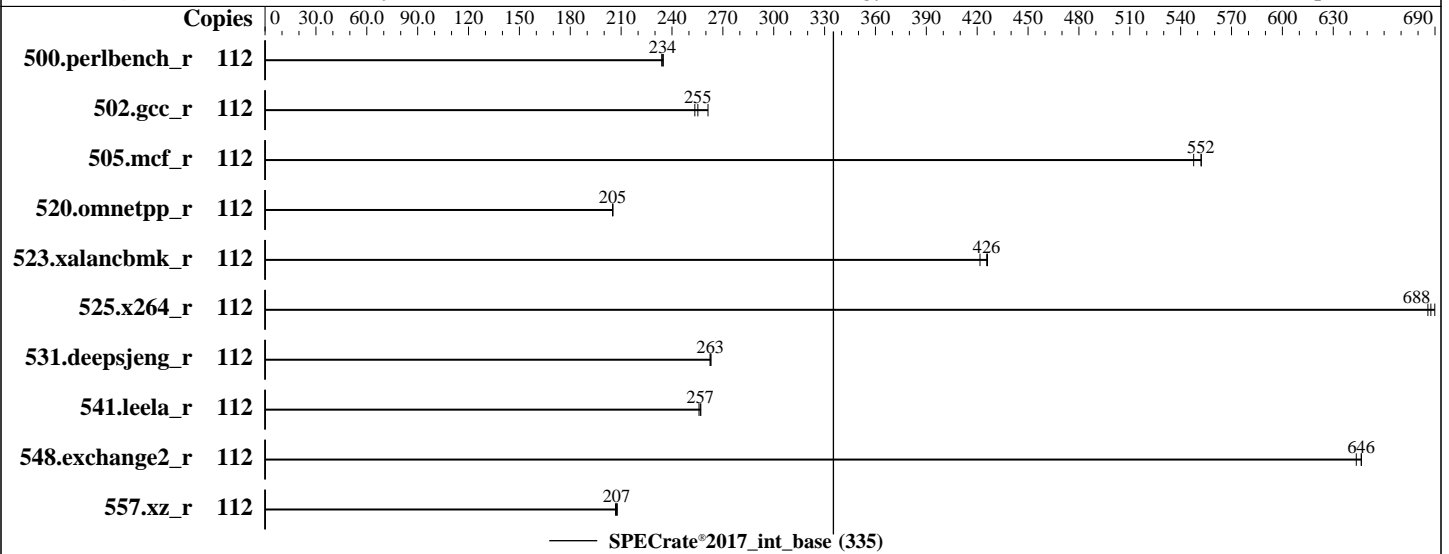
Test Date: Jan-2021

Test Sponsor: China Academy of Information and Communications Technology

Hardware Availability: Feb-2020

Tested by: China Academy of Information and Communications Technology

Software Availability: Apr-2020



### Hardware

CPU Name: Intel Xeon Gold 6238R  
 Max MHz: 4000  
 Nominal: 2200  
 Enabled: 56 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: 38.5 MB I+D on chip per chip  
 Other: None  
 Memory: 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)  
 Storage: 1 x 960 GB SAS SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 12 SP4 (x86\_64)  
 Kernel 4.12.14-94.41-default  
 Compiler: C/C++: Version 19.1.1.217 of Intel C/C++ Compiler for Linux;  
 Fortran: Version 19.1.1.217 of Intel Fortran Compiler for Linux  
 Parallel: No  
 Firmware: Version 6.83 released Jun-2019  
 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.



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Huawei**  
(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

**Huawei 1288H V5 (Intel Xeon Gold 6238R)**

SPECrate®2017\_int\_peak = Not Run

CPU2017 License: 6177

Test Date: Jan-2021

Test Sponsor: China Academy of Information and Communications Technology

Hardware Availability: Feb-2020

Tested by: China Academy of Information and Communications Technology

Software Availability: Apr-2020

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	112	<b>760</b>	<b>234</b>	762	234	759	235							
502.gcc_r	112	626	253	<b>621</b>	<b>255</b>	607	261							
505.mcf_r	112	330	548	<b>328</b>	<b>552</b>	328	552							
520.omnetpp_r	112	<b>717</b>	<b>205</b>	717	205	716	205							
523.xalancbmk_r	112	281	422	<b>278</b>	<b>426</b>	278	426							
525.x264_r	112	286	686	<b>285</b>	<b>688</b>	284	690							
531.deepsjeng_r	112	489	263	<b>489</b>	<b>263</b>	488	263							
541.leela_r	112	725	256	<b>722</b>	<b>257</b>	722	257							
548.exchange2_r	112	454	647	<b>454</b>	<b>646</b>	456	644							
557.xz_r	112	582	208	<b>584</b>	<b>207</b>	585	207							

SPECrate®2017\_int\_base = 335

SPECrate®2017\_int\_peak = Not Run

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

## Compiler Notes

The inconsistent Compiler version information under Compiler Version section is due to a discrepancy in Intel Compiler. The correct version of C/C++ compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux  
The correct version of Fortran compiler is: Version 19.1.1.217 Build 20200306 Compiler for Linux

## 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"

## Environment Variables Notes

Environment variables set by runcpu before the start of the run:  
LD\_LIBRARY\_PATH =  
  "/opt/intel/compilers\_and\_libraries\_2020.1.217/linux/compiler/lib/intel64:  
  4:/opt/intel/compilers\_and\_libraries\_2020.1.217/linux/compiler/lib/ia32:  
  /usr/local/jemalloc32-5.0.1"  
MALLOC\_CONF = "retain:true"



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Huawei**  
(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

**Huawei 1288H V5 (Intel Xeon Gold 6238R)**

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 6177

**Test Date:** Jan-2021

**Test Sponsor:** China Academy of Information and Communications Technology

**Hardware Availability:** Feb-2020

**Tested by:** China Academy of Information and Communications Technology

**Software Availability:** Apr-2020

## General Notes

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>`  
 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.

## Platform Notes

BIOS configuration:  
 Power Policy Set to Performance  
 SNC Set to Enabled  
 IMC Interleaving Set to 1-way Interleave  
 XPT Prefetch Set to Enabled

Sysinfo program /spec2017/bin/sysinfo  
 Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
 running on linux-j3dr Mon Jan 4 11:54:38 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) Gold 6238R CPU @ 2.20GHz  
 2 "physical id"s (chips)  
 112 "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 : 28  
 siblings : 56  
 physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27  
 28 29 30  
 physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14 16 17 18 19 20 21 22 24 25 26 27  
 28 29 30

From lscpu:  
 Architecture: x86\_64  
 CPU op-mode(s): 32-bit, 64-bit  
 Byte Order: Little Endian

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Huawei**

(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

**Huawei 1288H V5 (Intel Xeon Gold 6238R)**

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 6177

**Test Sponsor:** China Academy of Information and Communications Technology

**Tested by:** China Academy of Information and Communications Technology

**Test Date:** Jan-2021

**Hardware Availability:** Feb-2020

**Software Availability:** Apr-2020

## Platform Notes (Continued)

```

CPU(s): 112
On-line CPU(s) list: 0-111
Thread(s) per core: 2
Core(s) per socket: 28
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6238R CPU @ 2.20GHz
Stepping: 7
CPU MHz: 2200.000
CPU max MHz: 4000.0000
CPU min MHz: 1000.0000
BogoMIPS: 4400.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 39424K
NUMA node0 CPU(s): 0-3,7-9,14-17,21-23,56-59,63-65,70-73,77-79
NUMA node1 CPU(s): 4-6,10-13,18-20,24-27,60-62,66-69,74-76,80-83
NUMA node2 CPU(s): 28-31,35-37,42-45,49-51,84-87,91-93,98-101,105-107
NUMA node3 CPU(s): 32-34,38-41,46-48,52-55,88-90,94-97,102-104,108-111
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 cpuid
aperfmpperf pni pclmulqdq dtes64 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 cpuid_fault epb cat_l3 cdp_l3 invpcid_single ssbd
mba ibrs ibpb stibp tpr_shadow vnmi flexpriority ept vpid fsgsbase tsc_adjust bml
hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a avx512f avx512dq rdseed adx smap
clflushopt clwb intel_pt avx512cd avx512bw avx512vl xsaveopt xsavec xgetbv1 xsaves
cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln pts pku ospke
avx512_vnni flush_l1d arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 39424 KB

```

```

From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
available: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 7 8 9 14 15 16 17 21 22 23 56 57 58 59 63 64 65 70 71 72 73 77 78
79
node 0 size: 192044 MB
node 0 free: 191690 MB
node 1 cpus: 4 5 6 10 11 12 13 18 19 20 24 25 26 27 60 61 62 66 67 68 69 74 75 76 80 81

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Huawei**  
(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

**Huawei 1288H V5 (Intel Xeon Gold 6238R)**

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 6177

**Test Date:** Jan-2021

**Test Sponsor:** China Academy of Information and Communications Technology

**Hardware Availability:** Feb-2020

**Tested by:** China Academy of Information and Communications Technology

**Software Availability:** Apr-2020

## Platform Notes (Continued)

```

82 83
node 1 size: 193530 MB
node 1 free: 192933 MB
node 2 cpus: 28 29 30 31 35 36 37 42 43 44 45 49 50 51 84 85 86 87 91 92 93 98 99 100
101 105 106 107
node 2 size: 193530 MB
node 2 free: 193155 MB
node 3 cpus: 32 33 34 38 39 40 41 46 47 48 52 53 54 55 88 89 90 94 95 96 97 102 103 104
108 109 110 111
node 3 size: 193500 MB
node 3 free: 193205 MB
node distances:
node  0  1  2  3
  0:  10  11  21  21
  1:  11  10  21  21
  2:  21  21  10  11
  3:  21  21  11  10

```

```

From /proc/meminfo
MemTotal:      791148524 kB
HugePages_Total:      0
Hugepagesize:    2048 kB

```

```

From /etc/*release* /etc/*version*
SuSE-release:
  SUSE Linux Enterprise Server 12 (x86_64)
  VERSION = 12
  PATCHLEVEL = 4
  # 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-SP4"
  VERSION_ID="12.4"
  PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
  ID="sles"
  ANSI_COLOR="0;32"
  CPE_NAME="cpe:/o:suse:sles:12:sp4"

```

```

uname -a:
Linux linux-j3dr 4.12.14-94.41-default #1 SMP Wed Oct 31 12:25:04 UTC 2018 (3090901)
x86_64 x86_64 x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2018-3620 (L1 Terminal Fault):      Not affected
Microarchitectural Data Sampling:      No status reported

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Huawei**  
(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

**Huawei 1288H V5 (Intel Xeon Gold 6238R)**

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 6177

**Test Date:** Jan-2021

**Test Sponsor:** China Academy of Information and Communications Technology

**Hardware Availability:** Feb-2020

**Tested by:** China Academy of Information and Communications Technology

**Software Availability:** Apr-2020

## Platform Notes (Continued)

CVE-2017-5754 (Meltdown): Not affected  
 CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled via prctl and seccomp  
 CVE-2017-5753 (Spectre variant 1): Mitigation: \_\_user pointer sanitization  
 CVE-2017-5715 (Spectre variant 2): Mitigation: Indirect Branch Restricted Speculation, IBPB, IBRS\_FW

run-level 3 Jan 4 11:53

SPEC is set to: /spec2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda3	xfs	734G	46G	689G	7%	/

```
From /sys/devices/virtual/dmi/id
BIOS:      INSYDE Corp. 6.83 06/29/2019
Vendor:    Huawei
Product:   1288H V5
Product Family: Purley
Serial:    Serial Number
```

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.

Memory:  
 24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(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)  
=====
```

```
Intel(R) C Compiler for applications running on Intel(R) 64, Version 2021.1  
NextGen Build 20200304  
Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
=====
```

```
=====  
C++   | 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)  
     | 541.leela_r(base)  
=====
```

```
Intel(R) C++ Compiler for applications running on Intel(R) 64, Version 2021.1  
NextGen Build 20200304
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Huawei**  
(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

**Huawei 1288H V5 (Intel Xeon Gold 6238R)**

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 6177

**Test Date:** Jan-2021

**Test Sponsor:** China Academy of Information and Communications Technology

**Hardware Availability:** Feb-2020

**Tested by:** China Academy of Information and Communications Technology

**Software Availability:** Apr-2020

## Compiler Version Notes (Continued)

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.

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

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)  
64, Version 19.1.1.217 Build 20200306

Copyright (C) 1985-2020 Intel Corporation. All rights reserved.  
-----

## 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  
541.leela\_r: -DSPEC\_LP64  
548.exchange2\_r: -DSPEC\_LP64  
557.xz\_r: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-m64 -qnextgen -std=c11  
-Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs  
-xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse -funroll-loops

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Huawei**

(Test Sponsor: China Academy of Information and Communications Technology)

SPECrate®2017\_int\_base = 335

**Huawei 1288H V5 (Intel Xeon Gold 6238R)**

SPECrate®2017\_int\_peak = Not Run

**CPU2017 License:** 6177

**Test Sponsor:** China Academy of Information and Communications Technology

**Tested by:** China Academy of Information and Communications Technology

**Test Date:** Jan-2021

**Hardware Availability:** Feb-2020

**Software Availability:** Apr-2020

## Base Optimization Flags (Continued)

C benchmarks (continued):

```
-fuse-ld=gold -qopt-mem-layout-trans=4  
-L/opt/intel/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin  
-lqkmalloc
```

C++ benchmarks:

```
-m64 -qnextgen -Wl,-plugin-opt=-x86-branches-within-32B-boundaries  
-Wl,-z,muldefs -xCORE-AVX512 -O3 -ffast-math -flto -mfpmath=sse  
-funroll-loops -fuse-ld=gold -qopt-mem-layout-trans=4  
-L/opt/intel/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin  
-lqkmalloc
```

Fortran benchmarks:

```
-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -Wl,-z,muldefs  
-xCORE-AVX512 -O3 -ipo -no-prec-div -qopt-mem-layout-trans=4  
-nostandard-realloc-lhs -align array32byte -auto  
-mbranches-within-32B-boundaries  
-L/opt/intel/compilers_and_libraries_2020.1.217/linux/compiler/lib/intel64_lin  
-lqkmalloc
```

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

[http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64\\_revB.html](http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64_revB.html)  
<http://www.spec.org/cpu2017/flags/CAICT-Platform-Settings-V1.3.html>

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

[http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64\\_revB.xml](http://www.spec.org/cpu2017/flags/Intel-ic19.1ul-official-linux64_revB.xml)  
<http://www.spec.org/cpu2017/flags/CAICT-Platform-Settings-V1.3.xml>

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

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 2021-01-03 22:54:37-0500.

Report generated on 2021-02-02 19:46:49 by CPU2017 PDF formatter v6255.

Originally published on 2021-02-02.