



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

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

SPECspeed®2017\_int\_base = 12.3

**Huawei 2488H V5 (Intel Xeon Gold 6244)**

SPECspeed®2017\_int\_peak = Not Run

CPU2017 License: 6177

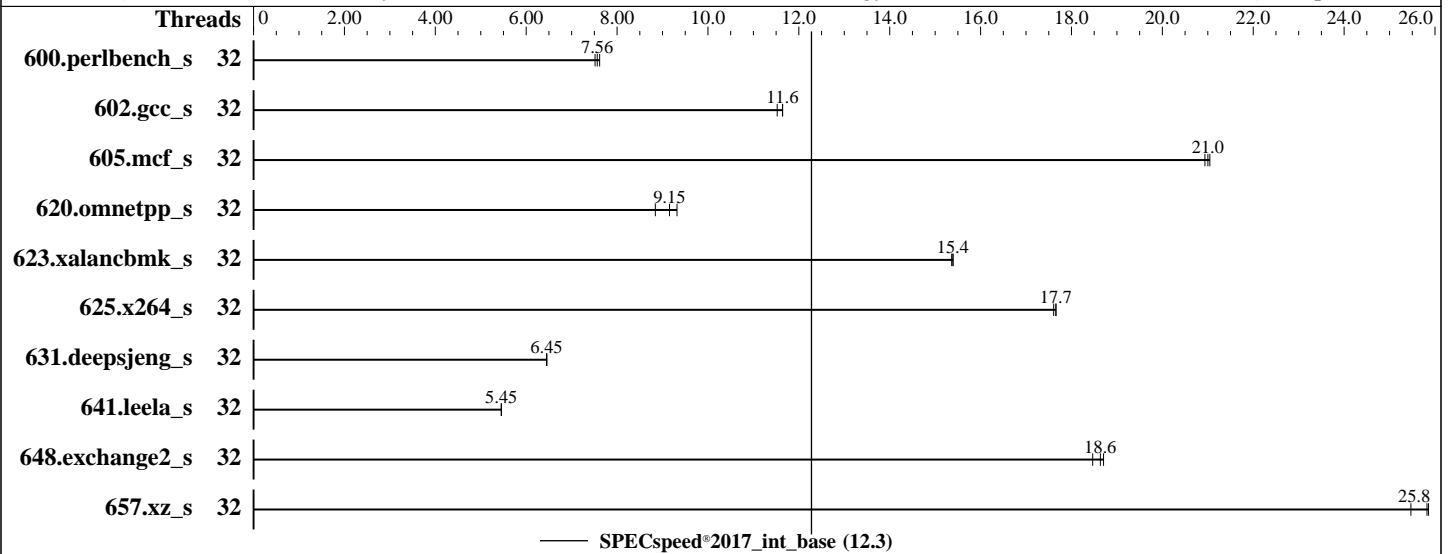
Test Date: Nov-2020

Test Sponsor: China Academy of Information and Communications Technology

Hardware Availability: Apr-2019

Tested by: China Academy of Information and Communications Technology

Software Availability: Apr-2020



## Hardware

CPU Name: Intel Xeon Gold 6244  
 Max MHz: 4400  
 Nominal: 3600  
 Enabled: 32 cores, 4 chips  
 Orderable: 2,4 chips  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 1 MB I+D on chip per core  
 L3: 24.75 MB I+D on chip per chip  
 Other: None  
 Memory: 736 GB (46 x 16 GB 2Rx4 PC4-2933Y-R)  
 Storage: 1 x 960 GB SATA 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: Yes  
 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: jemalloc memory allocator V5.0.1  
 Power Management: BIOS set to prefer performance at the cost of additional power usage.



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Huawei

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

SPECspeed®2017\_int\_base = 12.3

## Huawei 2488H V5 (Intel Xeon Gold 6244)

SPECspeed®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: Nov-2020

Hardware Availability: Apr-2019

Software Availability: Apr-2020

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	32	236	7.52	233	7.62	<u>235</u>	<u>7.56</u>							
602.gcc_s	32	<b>342</b>	<b>11.6</b>	342	11.6	346	11.5							
605.mcf_s	32	224	21.0	<u>225</u>	<u>21.0</u>	225	20.9							
620.omnetpp_s	32	175	9.32	<u>178</u>	<u>9.15</u>	184	8.84							
623.xalancbmk_s	32	92.2	15.4	<u>92.1</u>	<u>15.4</u>	92.1	15.4							
625.x264_s	32	100	17.6	<u>99.9</u>	<u>17.7</u>	99.9	17.7							
631.deepsjeng_s	32	222	6.45	<u>222</u>	<u>6.45</u>	222	6.45							
641.leela_s	32	313	5.45	<u>313</u>	<u>5.45</u>	313	5.45							
648.exchange2_s	32	159	18.5	157	18.7	<u>158</u>	<u>18.6</u>							
657.xz_s	32	<u>239</u>	<u>25.8</u>	239	25.9	243	25.5							

SPECspeed®2017\_int\_base = 12.3

SPECspeed®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.

## 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:  
KMP\_AFFINITY = "granularity=fine,compact,1,0"  
LD\_LIBRARY\_PATH = "/opt/intel/compilers\_and\_libraries\_2020.1.217/linux/compiler/lib/intel64:/usr/local/jemalloc64-5.0.1"  
MALLOC\_CONF = "retain:true"  
OMP\_STACKSIZE = "192M"

## General Notes

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)

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

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

SPECspeed®2017\_int\_base = 12.3

**Huawei 2488H V5 (Intel Xeon Gold 6244)**

SPECspeed®2017\_int\_peak = Not Run

**CPU2017 License:** 6177

**Test Date:** Nov-2020

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

**Hardware Availability:** Apr-2019

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

**Software Availability:** Apr-2020

## General Notes (Continued)

is mitigated in the system as tested and documented.  
 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
```

 jemalloc, a general purpose malloc implementation  
 built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5  
 sources available from jemalloc.net or <https://github.com/jemalloc/jemalloc/releases>

## Platform Notes

BIOS configuration:  
 Power Policy Set to Load Balance  
 Hyper-Threading Set to Disabled  
 XPT Prefetch Set to Enabled

Sysinfo program /spec2017/bin/sysinfo  
 Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
 running on linux-mb4p Sat Nov 7 14:56:29 2020

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 6244 CPU @ 3.60GHz  
 4 "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  : 8
physical 0: cores 1 2 3 9 18 24 27
physical 1: cores 2 9 17 19 20 25 26 27
physical 2: cores 1 2 4 8 11 18 19 24
physical 3: cores 1 2 3 4 9 11 25 27
```

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: 1  
 Core(s) per socket: 8  
 Socket(s): 4

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Huawei

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

SPECspeed®2017\_int\_base = 12.3

## Huawei 2488H V5 (Intel Xeon Gold 6244)

SPECspeed®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: Nov-2020

Hardware Availability: Apr-2019

Software Availability: Apr-2020

### Platform Notes (Continued)

```

NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6244 CPU @ 3.60GHz
Stepping: 7
CPU MHz: 3600.000
CPU max MHz: 4400.0000
CPU min MHz: 1200.0000
BogoMIPS: 7200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 8-15
NUMA node2 CPU(s): 16-23
NUMA node3 CPU(s): 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 cpuid
aperfmpperf 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 fl6c 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 bmi1 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_lld arch_capabilities

```

```

/proc/cpuinfo cache data
cache size : 25344 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 4 5 6 7
node 0 size: 192728 MB
node 0 free: 192354 MB
node 1 cpus: 8 9 10 11 12 13 14 15
node 1 size: 161245 MB
node 1 free: 160913 MB
node 2 cpus: 16 17 18 19 20 21 22 23
node 2 size: 193530 MB
node 2 free: 193349 MB
node 3 cpus: 24 25 26 27 28 29 30 31

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Huawei

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

SPECspeed®2017\_int\_base = 12.3

## Huawei 2488H V5 (Intel Xeon Gold 6244)

SPECspeed®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:** Nov-2020

**Hardware Availability:** Apr-2019

**Software Availability:** Apr-2020

### Platform Notes (Continued)

```
node 3 size: 193311 MB
node 3 free: 193081 MB
node distances:
node  0  1  2  3
  0:  10  21  21  21
  1:  21  10  21  21
  2:  21  21  10  21
  3:  21  21  21  10
```

From /proc/meminfo

```
MemTotal:      758595596 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-mb4p 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
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 Nov 7 14:42

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Huawei**

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

SPECspeed®2017\_int\_base = 12.3

**Huawei 2488H V5 (Intel Xeon Gold 6244)**

SPECspeed®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: Nov-2020

Hardware Availability: Apr-2019

Software Availability: Apr-2020

## Platform Notes (Continued)

SPEC is set to: /spec2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda3	xf	883G	37G	847G	5%	/

```

From /sys/devices/virtual/dmi/id
BIOS:      INSYDE Corp. 6.83 06/29/2019
Vendor:    Huawei
Product:   2488H V5
Product Family: Purley
Serial:    Huawei

```

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:
  2x NO DIMM NO DIMM
  46x Samsung M393A2K43CB2-CVF 16 GB 2 rank 2933

```

(End of data from sysinfo program)

## Compiler Version Notes

```

=====
C      | 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base)
      | 625.x264_s(base) 657.xz_s(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++   | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
      | 641.leela_s(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.
-----

```

```

=====
Fortran | 648.exchange2_s(base)
-----

```

```

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

```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Huawei**

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

SPECspeed®2017\_int\_base = 12.3

**Huawei 2488H V5 (Intel Xeon Gold 6244)**

SPECspeed®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:** Nov-2020

**Hardware Availability:** Apr-2019

**Software Availability:** Apr-2020

## Compiler Version Notes (Continued)

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

## Base Compiler Invocation

C benchmarks:

icc

C++ benchmarks:

icpc

Fortran benchmarks:

ifort

## Base Portability Flags

```
600.perlbench_s: -DSPEC_LP64 -DSPEC_LINUX_X64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LP64 -DSPEC_LINUX
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -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
-fuse-ld=gold -qopt-mem-layout-trans=4 -fopenmp -DSPEC_OPENMP
-L/usr/local/jemalloc64-5.0.1/ -ljemalloc
```

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
```

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Huawei**

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

SPECspeed®2017\_int\_base = 12.3

**Huawei 2488H V5 (Intel Xeon Gold 6244)**

SPECspeed®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:** Nov-2020

**Hardware Availability:** Apr-2019

**Software Availability:** Apr-2020

## Base Optimization Flags (Continued)

C++ benchmarks (continued):

-lqkmalloc

Fortran benchmarks:

-m64 -Wl,-plugin-opt=-x86-branches-within-32B-boundaries -xCORE-AVX512

-O3 -ipo -no-prec-div -qopt-mem-layout-trans=4

-nostandard-realloc-lhs -align array32byte

-mbranches-within-32B-boundaries

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

[http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64\\_revB.html](http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-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-ic19.1u1-official-linux64\\_revB.xml](http://www.spec.org/cpu2017/flags/Intel-ic19.1u1-official-linux64_revB.xml)

<http://www.spec.org/cpu2017/flags/CAICT-Platform-Settings-V1.3.xml>

SPEC CPU and SPECspeed 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 2020-11-07 01:56:28-0500.

Report generated on 2020-11-25 10:31:20 by CPU2017 PDF formatter v6255.

Originally published on 2020-11-24.