### SPEC® CPU2017 Integer Speed Result

**Huawei**

**Huawei CH225 V5 (Intel Xeon Gold 5217)**

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU Name:</strong> Intel Xeon Gold 5217</td>
<td><strong>OS:</strong> SUSE Linux Enterprise Server 12 SP4 (x86_64)</td>
</tr>
<tr>
<td><strong>Max MHz.:</strong> 3700</td>
<td><strong>4.12.14-94.41-default</strong></td>
</tr>
<tr>
<td><strong>Nominal:</strong> 3000</td>
<td><strong>Compiler:</strong> C/C++: Version 19.0.1.144 of Intel C/C++ Compiler Build 20181018 for Linux; Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux</td>
</tr>
<tr>
<td><strong>Enabled:</strong> 16 cores, 2 chips</td>
<td><strong>Parallel:</strong> Yes</td>
</tr>
<tr>
<td><strong>Orderable:</strong> 1,2 chips</td>
<td><strong>Firmware:</strong> Version 6.52 Released Mar-2019</td>
</tr>
<tr>
<td><strong>Cache L1:</strong> 32 KB I + 32 KB D on chip per core</td>
<td><strong>File System:</strong> xfs</td>
</tr>
<tr>
<td><strong>Cache L2:</strong> 1 MB I+D on chip per core</td>
<td><strong>System State:</strong> Run level 3 (multi-user)</td>
</tr>
<tr>
<td><strong>Cache L3:</strong> 11 MB I+D on chip per chip</td>
<td><strong>Base Pointers:</strong> 64-bit</td>
</tr>
<tr>
<td><strong>Other:</strong> None</td>
<td><strong>Peak Pointers:</strong> Not Applicable</td>
</tr>
<tr>
<td><strong>Memory:</strong> 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R, running at 2666)</td>
<td><strong>Other:</strong> jemalloc memory allocator V5.0.1</td>
</tr>
<tr>
<td><strong>Storage:</strong> 1 x 1200 GB SAS, 10000 RPM</td>
<td></td>
</tr>
</tbody>
</table>

| SPECspeed2017_int_base = 8.95 | SPECspeed2017_int_peak = Not Run |

---

**CPU2017 License:** 3175

**Test Sponsor:** Huawei

**Tested by:** Huawei

**Test Date:** Apr-2019

**Hardware Availability:** Apr-2019

**Software Availability:** Dec-2018

---

**Threads**

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s 16</td>
<td>8.76</td>
</tr>
<tr>
<td>602.gcc_s 16</td>
<td>12.0</td>
</tr>
<tr>
<td>605.mcf_s 16</td>
<td>11.8</td>
</tr>
<tr>
<td>620.omnetpp_s 16</td>
<td>13.1</td>
</tr>
<tr>
<td>623.xalanchmk_s 16</td>
<td>13.3</td>
</tr>
<tr>
<td>625.x264_s 16</td>
<td>19.2</td>
</tr>
<tr>
<td>631.deepsjeng_s 16</td>
<td>5.25</td>
</tr>
<tr>
<td>641.leela_s 16</td>
<td>4.54</td>
</tr>
<tr>
<td>648.exchange2_s 16</td>
<td>13.3</td>
</tr>
<tr>
<td>657.xz_s 16</td>
<td>11.0</td>
</tr>
</tbody>
</table>

---

**Hardware**

CPU Name: Intel Xeon Gold 5217

Max MHz.: 3700

Nominal: 3000

Enabled: 16 cores, 2 chips

Orderable: 1,2 chips

Cache L1: 32 KB I + 32 KB D on chip per core

Cache L2: 1 MB I+D on chip per core

Cache L3: 11 MB I+D on chip per chip

Other: None

Memory: 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R, running at 2666)

Storage: 1 x 1200 GB SAS, 10000 RPM

Other: None
Huawei

Huawei CH225 V5 (Intel Xeon Gold 5217)

SPECspeed2017_int_base = 8.95
SPECspeed2017_int_peak = Not Run

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Base</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>16</td>
<td>290</td>
<td>6.12</td>
<td>286</td>
<td>6.21</td>
<td>288</td>
<td>6.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>16</td>
<td>455</td>
<td>8.76</td>
<td>457</td>
<td>8.72</td>
<td>454</td>
<td>8.76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>16</td>
<td>394</td>
<td>12.0</td>
<td>396</td>
<td>11.9</td>
<td>395</td>
<td>12.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>16</td>
<td>302</td>
<td>5.41</td>
<td>302</td>
<td>5.40</td>
<td>303</td>
<td>5.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>16</td>
<td>120</td>
<td>11.8</td>
<td>121</td>
<td>11.7</td>
<td>120</td>
<td>11.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>625.x264_s</td>
<td>16</td>
<td>134</td>
<td>13.1</td>
<td>134</td>
<td>13.1</td>
<td>134</td>
<td>13.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>16</td>
<td>273</td>
<td>5.25</td>
<td>273</td>
<td>5.26</td>
<td>273</td>
<td>5.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>16</td>
<td>376</td>
<td>4.54</td>
<td>376</td>
<td>4.54</td>
<td>376</td>
<td>4.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>16</td>
<td>221</td>
<td>13.3</td>
<td>221</td>
<td>13.3</td>
<td>220</td>
<td>13.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>16</td>
<td>322</td>
<td>19.2</td>
<td>322</td>
<td>19.2</td>
<td>322</td>
<td>19.2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SPECspeed2017_int_base = 8.95
SPECspeed2017_int_peak = Not Run

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

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:
KMP_AFFINITY = "granularity=fine,compact,1,0"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i9-7900X 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
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.
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.
Huawei

Huawei CH225 V5 (Intel Xeon Gold 5217)

| SPECspeed2017_int_base = | 8.95 |
| SPECspeed2017_int_peak = | Not Run |

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei
Test Date: Apr-2019
Hardware Availability: Apr-2019
Software Availability: Dec-2018

Platform Notes

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

Sysinfo program /spec2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on sles12sp4 Sat Apr 27 04:42:22 2019

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 5217 CPU @ 3.00GHz
  2  "physical id"s (chips)
  16 "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 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): 16
On-line CPU(s) list: 0-15
Thread(s) per core: 1
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) Gold 5217 CPU @ 3.00GHz
Stepping: 6
CPU MHz: 3000.000
CPU max MHz: 3700.0000
CPU min MHz: 1200.0000
BogoMIPS: 6000.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 11264K

(Continued on next page)
Huawei CH225 V5 (Intel Xeon Gold 5217)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base = 8.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak = Not Run</td>
</tr>
</tbody>
</table>

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

**Platform Notes (Continued)**

NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 8-15
Flags:  
- fpu
- vme
- de
- pse
- tsc
- mce
- cx8
- apic
- sep
- mtrr
- pge
- mca
- cmov
- pat
- pse36
- clflush
- dts
- acpi
- mmx
- fxsr
- sse
- sse2
- ss
- ht
- tm
- pbe
- syscall
- nx
- pdpe1gb
- rdtsscp
- lm
- constant_tsc
- art
- arch_perfmon
- pebs
- bts
- rep_good
- nopl
- xtopology
- nonstop_tsc
- cpuid
- aperf
- mperf
- pni
- pclmulqdq
- dtes64
- monitor
- ds_cpl
- vmx
- smx
- est
- tm2
- ssse3
- sdbg
- fma
- cx16
- xtrr
- pdcm
- pcid
- dca
- sse4_1
- sse4_2
- x2apic
- movbe
- popcnt
- tsc_deadline_timer
- aes
- xsave
- avx
- f16c
- rdrand
- lahf_lm
- abm
- 3nowprefetch
- cpuid_fault
- epb
- cat_13
- cdp_13
- invperf_single
- ssbd
- mba
- ibrs
- ibpb
- tpr_shadow
- vmm
- flexpriority
- ept
- vpid
- fsbgbase
- tsc_adjust
- bmi1
- hle
- avx2
- smep
- bmi2
- erms
- invpcid
- rtm
- cmq
- mpx
- rdt_a
- avx512f
- avx512dq
- rdseed
- adx
- smap
- clflushopt
- clwb
- intel_pt
- avx512cd
- avx512bw
- avx512vl
- xsaves
- opt
- xsave
- xgetbv1
- xsaves
- cmq_llc
- cmq_occ_up_llc
- cmq_mbm_total
- cmq_mbm_local
- ditherm
- ida
- arat
- pln
- pts
- pk
- ospke
- avx512_vnni
- flush_l1d
- arch_capabilities

```
/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
   node 0 size: 191935 MB
   node 0 free: 189898 MB
   node 1 cpus: 8 9 10 11 12 13 14 15
   node 1 size: 193253 MB
   node 1 free: 192144 MB
   node distances:
      node 0 1
         0: 10 21
         1: 21 10

From /proc/meminfo
   MemTotal: 394433308 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"
```

(Continued on next page)
Huawei
Huawei CH225 V5 (Intel Xeon Gold 5217)

SPECspeed2017_int_base = 8.95
SPECspeed2017_int_peak = Not Run

CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei
Test Date: Apr-2019
Hardware Availability: Apr-2019
Software Availability: Dec-2018

Platform Notes (Continued)

PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
ID="sles"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:12:sp4"

uname -a:
    x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown): Not affected
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 Apr 26 08:27

SPEC is set to: /spec2017
    Filesystem     Type  Size  Used  Avail  Use%  Mounted on
    /dev/sda3      xfs   700G   15G  686G    3%  /

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 INSYDE Corp. 6.52 03/16/2019
Memory:
    24x Samsung M393A2K43CB2-CVF 16 GB 2 rank 2933, configured at 2666

Compiler Version Notes

==============================================================================
CC  600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base)
     657.xz_s(base)
==============================================================================

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

==============================================================================
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base)
     641.leela_s(base)

(Continued on next page)
## Huawei

### Huawei CH225 V5 (Intel Xeon Gold 5217)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

- **CPU2017 License:** 3175
- **Test Sponsor:** Huawei
- **Hardware Availability:** Apr-2019
- **Software Availability:** Dec-2018

### Compiler Version Notes (Continued)

```
Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
```

```
FC 648.exchange2_s(base)
```

```
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.1.144 Build 20181018
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

```
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
```
# SPEC CPU2017 Integer Speed Result

## Huawei

### Huawei CH225 V5 (Intel Xeon Gold 5217)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_base</th>
<th>8.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CPU2017 License:</th>
<th>3175</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor:</td>
<td>Huawei</td>
</tr>
<tr>
<td>Tested by:</td>
<td>Huawei</td>
</tr>
</tbody>
</table>

### Test Details
- **Test Date:** Apr-2019
- **Hardware Availability:** Apr-2019
- **Software Availability:** Dec-2018

### Base Optimization Flags

**C benchmarks:**
- `-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div`
- `-qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP`
- `-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=4`
- `-L/usr/local/IntelCompiler19/compilers_and_libraries_2019.1.144/linux/compiler/lib/intel64 -lqkmalloc`

**Fortran benchmarks:**
- `-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4`
- `-nostandard-realloc-lhs`

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:

---

SPEC is a registered trademark 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.

Tested with SPEC CPU2017 v1.0.5 on 2019-04-27 04:42:22-0400.