## SPEC® CPU2017 Integer Speed Result

### Huawei

**Huawei 5288 V5 (Intel Xeon Gold 6254)**

**SPECspeed2017_int_base = 10.2**

**SPECspeed2017_int_peak = Not Run**

<table>
<thead>
<tr>
<th>Thread</th>
<th>SPECspeed2017_int_base</th>
<th>SPECspeed2017_int_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s</td>
<td>6.89</td>
<td>Not Run</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>9.96</td>
<td>12.8</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>7.74</td>
<td>12.7</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>4.89</td>
<td>14.4</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>14.5</td>
<td>23.9</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>5.58</td>
<td></td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>7.7</td>
<td></td>
</tr>
<tr>
<td>641.leela_s</td>
<td>4.89</td>
<td></td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>12.7</td>
<td></td>
</tr>
<tr>
<td>657.xz_s</td>
<td>5.58</td>
<td></td>
</tr>
</tbody>
</table>

**Threads**: 36

---

### Hardware

- **CPU Name**: Intel Xeon Gold 6254
- **Max MHz.**: 4000
- **Nominal**: 3100
- **Enabled**: 36 cores, 2 chips
- **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**: 24.75 MB I+D on chip per chip
- **Other**: None
- **Memory**: 384 GB (24 x 16 GB 2Rx8 PC4-2933Y-R)
- **Storage**: 1 x 1200 GB SAS, 10000 RPM
- **Other**: None

### Software

- **OS**: SUSE Linux Enterprise Server 12 SP4 (x86_64)
- **Compiler**: 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
- **Parallel**: Yes
- **Firmware**: Version 6.52 Released Mar-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
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
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<tr>
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<td>4.89</td>
<td>349</td>
<td>4.89</td>
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<tr>
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<td>36</td>
<td>204</td>
<td>14.4</td>
<td>203</td>
<td>14.5</td>
<td>204</td>
<td>14.4</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>36</td>
<td>259</td>
<td>23.9</td>
<td>259</td>
<td>23.9</td>
<td>259</td>
<td>23.9</td>
</tr>
</tbody>
</table>

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"
LD_LIBRARY_PATH = "/spec/lib/ia32:/spec/lib/intel64:/spec/je5.0.1-32:/spec/je5.0.1-64"
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.
jemalloc, a general purpose malloc implementation
built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
Huawei

Huawei 5288 V5 (Intel Xeon Gold 6254)

**CPU2017 License:** 3175

**Test Sponsor:** Huawei

**Tested by:** Huawei

**Test Date:** Apr-2019

**Hardware Availability:** Apr-2019

**Software Availability:** Dec-2018

---

**SPEC CPU2017 Integer Speed Result**

Huawei

Huawei 5288 V5 (Intel Xeon Gold 6254)

**SPECspeed2017_int_base =** 10.2

**SPECspeed2017_int_peak =** Not Run

---

**Platform Notes**

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

Sysinfo program /spec/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f29999c33d61f64985e45859ea9
running on linux-7ejo Thu Apr 11 15:37:54 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 6254 CPU @ 3.10GHz
 2  "physical id"s (chips)
 36 "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 : 18
siblings : 18
physical 0: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 1: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
```

From lscpu:

```
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 36
On-line CPU(s) list: 0-35
Thread(s) per core: 1
Core(s) per socket: 18
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6254 CPU @ 3.10GHz
Stepping: 6
CPU MHz: 3100.000
CPU max MHz: 4000.0000
CPU min MHz: 1200.0000
BogoMIPS: 6200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
```

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

- NUMA node0 CPU(s): 0-17
- NUMA node1 CPU(s): 18-35
- Flags: fpu vme de pse tsc msr pae mca cmov pat pse36 clflush dts acpi mmx fxsr sse sse2 ss ht tm pbe syscall nx pdelpgb rdtscp lm constant_tsc art arch_perfmon pebs bts rep_good nopl xtopology nonstop_tsc cpuid aperfmpref perf pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtrp 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 cat13 cd8 c13
- invpcid_single ssbd mba ibrs ibpb tpr_shadow vmmi 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 xsave cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat p1n pts pku ospke avx512_vnni flush_l1d arch_capabilities

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 10 11 12 13 14 15 16 17
node 0 size: 191933 MB
node 0 free: 183489 MB
node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
node 1 size: 193250 MB
node 1 free: 187370 MB
node distances:
node 0 1
0: 10 21
1: 21 10

From `/proc/meminfo`

MemTotal: 394428348 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)
SPEC CPU2017 Integer Speed Result

Huawei

Huawei 5288 V5 (Intel Xeon Gold 6254)

SPECspeed2017_int_base = 10.2
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 11 12:26

SPEC is set to: /spec
Filesystem Type Size Used Avail Use% Mounted on
/dev/sda3 xfs 734G 100G 635G 14% /

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

(End of data from sysinfo program)

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 5288 V5 (Intel Xeon Gold 6254)

SPEC CPU2017 Integer Speed Result

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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.xalanchmk_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 5288 V5 (Intel Xeon Gold 6254)**

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<th>SPECspeed2017_int_base</th>
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</table>

**CPU2017 License:** 3175  
**Test Sponsor:** Huawei  
**Test Date:** Apr-2019  
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**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:
- [Huawei-Platform-Settings-SKL-V1.9-revC.html](http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.9-revC.html)

You can also download the XML flags sources by saving the following links:
- [Huawei-Platform-Settings-SKL-V1.9-revC.xml](http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.9-revC.xml)

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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 2019-04-11 03:37:54-0400.  