## Huawei

**Huawei G560 V5 (Intel Xeon Gold 6152)**

| SPECspeed2017_int_base = 9.54 | SPECspeed2017_int_peak = Not Run |

<table>
<thead>
<tr>
<th>CPU2017 License: 3175</th>
<th>Test Date: Apr-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Huawei</td>
<td>Hardware Availability: Jul-2017</td>
</tr>
<tr>
<td>Tested by: Huawei</td>
<td>Software Availability: Nov-2018</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Threads</th>
</tr>
</thead>
<tbody>
<tr>
<td>600.perlbench_s 44</td>
</tr>
<tr>
<td>602.gcc_s 44</td>
</tr>
<tr>
<td>605.mcf_s 44</td>
</tr>
<tr>
<td>620.omnetpp_s 44</td>
</tr>
<tr>
<td>623.xalancbmk_s 44</td>
</tr>
<tr>
<td>625.x264_s 44</td>
</tr>
<tr>
<td>631.deepsjeng_s 44</td>
</tr>
<tr>
<td>641.leela_s 44</td>
</tr>
<tr>
<td>648.exchange2_s 44</td>
</tr>
<tr>
<td>657.xz_s 44</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 6152
- **Max MHz.:** 3700
- **Nominal:** 2100
- **Enabled:** 44 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:** 30.25 MB I+D on chip per chip
- **Other:** None
- **Memory:** 384 GB (12 x 32 GB 2Rx4 PC4-2666V-R)
- **Storage:** 1 x 1920 GB SATA SSD
- **Other:** None

### Software

- **OS:** Red Hat Enterprise Linux Server release 7.6 (x86_64)
  (Maipo)
- **Compiler:** C/C++: Version 19.0.1.144 of Intel C/C++ Compiled Build 20181018 for Linux;
  Fortran: Version 19.0.1.144 of Intel Fortran Compiler Build 20181018 for Linux
- **Parallel:** Yes
- **Firmware:** Version 1.09 Released Jan-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>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Base</td>
<td></td>
<td>Peak</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600.perlbench_s</td>
<td>44</td>
<td>276</td>
<td>6.42</td>
<td>280</td>
<td>6.34</td>
<td>273</td>
<td>6.49</td>
</tr>
<tr>
<td>602.gcc_s</td>
<td>44</td>
<td>438</td>
<td>9.09</td>
<td>436</td>
<td>9.14</td>
<td>442</td>
<td>9.01</td>
</tr>
<tr>
<td>605.mcf_s</td>
<td>44</td>
<td>395</td>
<td>11.9</td>
<td>397</td>
<td>11.9</td>
<td>400</td>
<td>11.8</td>
</tr>
<tr>
<td>620.omnetpp_s</td>
<td>44</td>
<td>209</td>
<td>7.79</td>
<td>210</td>
<td>7.76</td>
<td>203</td>
<td>8.05</td>
</tr>
<tr>
<td>623.xalancbmk_s</td>
<td>44</td>
<td>120</td>
<td>11.8</td>
<td>120</td>
<td>11.8</td>
<td>119</td>
<td>11.9</td>
</tr>
<tr>
<td>625.x264_s</td>
<td>44</td>
<td>128</td>
<td>13.8</td>
<td>128</td>
<td>13.8</td>
<td>128</td>
<td>13.8</td>
</tr>
<tr>
<td>631.deepsjeng_s</td>
<td>44</td>
<td>274</td>
<td>5.22</td>
<td>274</td>
<td>5.22</td>
<td>274</td>
<td>5.23</td>
</tr>
<tr>
<td>641.leela_s</td>
<td>44</td>
<td>377</td>
<td>4.53</td>
<td>377</td>
<td>4.53</td>
<td>377</td>
<td>4.52</td>
</tr>
<tr>
<td>648.exchange2_s</td>
<td>44</td>
<td>221</td>
<td>13.3</td>
<td>222</td>
<td>13.3</td>
<td>222</td>
<td>13.3</td>
</tr>
<tr>
<td>657.xz_s</td>
<td>44</td>
<td>274</td>
<td>22.5</td>
<td>274</td>
<td>22.6</td>
<td>274</td>
<td>22.6</td>
</tr>
</tbody>
</table>

SPECspeed2017_int_base = 9.54

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:

csync; 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 G560 V5 (Intel Xeon Gold 6152)

**SPECSpeed2017_int_base = 9.54**

**SPECSpeed2017_int_peak = Not Run**

<table>
<thead>
<tr>
<th>CPU2017 License: 3175</th>
<th>Test Date: Apr-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Sponsor: Huawei</td>
<td>Hardware Availability: Jul-2017</td>
</tr>
<tr>
<td>Tested by: Huawei</td>
<td>Software Availability: Nov-2018</td>
</tr>
</tbody>
</table>

**Platform Notes**

BIOS configuration:
Power Policy Set to Load Balance
Hyper-Threaded Set to Disable
XPT Prefetch Set to Enabled
Sysinfo program /spec2017/bin/sysinfo
Rev: r5974 of 2018-05-19 9bcde8f2999c33d61f64985e45859ea9
running on localhost.localdomain Thu Apr 11 16:19:52 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

```plaintext
model name: Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz
  2 "physical id"s (chips)
  44 "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 : 22
siblings : 22
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 16 17 18 19 20 21 24 25 26 27 28
```

From lscpu:

```plaintext
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 44
On-line CPU(s) list: 0-43
Thread(s) per core: 1
Core(s) per socket: 22
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6152 CPU @ 2.10GHz
Stepping: 4
CPU MHz: 2101.000
CPU max MHz: 2101.0000
CPU min MHz: 1000.0000
BogoMIPS: 4200.00
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 30976K
```

(Continued on next page)
Huawei
Huawei G560 V5 (Intel Xeon Gold 6152)

**SPEC CPU2017 Integer Speed Result**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU2017 License</td>
<td>3175</td>
</tr>
<tr>
<td>Test Sponsor</td>
<td>Huawei</td>
</tr>
<tr>
<td>Tested by</td>
<td>Huawei</td>
</tr>
<tr>
<td>Test Date</td>
<td>Apr-2019</td>
</tr>
<tr>
<td>Hardware Availability</td>
<td>Jul-2017</td>
</tr>
<tr>
<td>Software Availability</td>
<td>Nov-2018</td>
</tr>
</tbody>
</table>

### Platform Notes (Continued)

- **NUMA node0 CPU(s):** 0-21
- **NUMA node1 CPU(s):** 22-43
- **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 arch_perfmon pebs bts rep_good nopip good mda mce cx8 apic sep mtrr
  - pge mca cmov pmct tsc_deadline_timer aes xsave
  - avx f16c rdrand lahf_lm abm 3nowprefetch epb cat_13 cd7_13 intel_pni intel_pmm intel_isb
  - 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 avx512cd avx512bw avx512vl xsaveopt xsaves xsavec xgetbv1 cmp_llc
  - cmp_model cmp_digit cmp_model cmp_digit cmp_model cmp_digit cmp_digit
  - 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 18 19 20 21
      - node 0 size: 195187 MB
      - node 0 free: 190327 MB
      - node 1 cpus: 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43
      - node 1 size: 196608 MB
      - node 1 free: 191782 MB
      - node distances:
        - node 0:
          - 0: 10 21
          - 1: 21 10

From /proc/meminfo

- MemTotal: 394621960 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

From /etc/*release* /etc/*version*

- os-release:
  - NAME="Red Hat Enterprise Linux Server"
  - VERSION="7.6 (Maipo)"
  - ID="rhel"
  - ID_LIKE="fedora"
  - VARIANT="Server"
  - VARIANT_ID="server"
  - VERSION_ID="7.6"
  - PRETTY_NAME="Red Hat Enterprise Linux Server 7.6 (Maipo)"
  - redhat-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
Huawei
Huawei G560 V5 (Intel Xeon Gold 6152)

| SPECspeed2017_int_base = 9.54 |
| SPECspeed2017_int_peak = Not Run |

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

Platform Notes (Continued)

system-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)

uname -a:
    Linux localhost.localdomain 3.10.0-957.el7.x86_64 #1 SMP Thu Oct 4 20:48:51 UTC 2018
        x86_64 x86_64 x86_64 GNU/Linux

Kernel self-reported vulnerability status:
CVE-2017-5754 (Meltdown): Mitigation: PTI
CVE-2017-5753 (Spectre variant 1): Mitigation: Load fences, __user pointer sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: IBRS (kernel)

run-level 3 Apr 11 16:12
SPEC is set to: /spec2017
    Filesystem  Type  Size  Used  Avail  Use%  Mounted on
    /dev/sda4    xfs   300G  11G   289G   4%  /

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. 1.09 01/31/2019
    Memory:
        12x NO DIMM NO DIMM
        12x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666

(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)
=================================================================================

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,

(Continued on next page)
## Compiler Version Notes (Continued)

Version 19.0.1.144 Build 20181018
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

Base Compiler Invocation

**C benchmarks:**
```bash
icc -m64 -std=c11
```

**C++ benchmarks:**
```bash
icpc -m64
```

**Fortran benchmarks:**
```bash
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

Base Optimization Flags

**C benchmarks:**
```bash
-W1, -z, muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
```
Huawei

Huawei G560 V5 (Intel Xeon Gold 6152)

| SPECspeed2017_int_base = 9.54 |
| SPECspeed2017_int_peak = Not Run |

| CPU2017 License: 3175 | Test Date: Apr-2019 |
| Test Sponsor: Huawei | Hardware Availability: Jul-2017 |
| Tested by: Huawei | Software Availability: Nov-2018 |

Base Optimization Flags (Continued)

C benchmarks (continued):
-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:
http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.9-revC.xml

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 2019-04-11 16:19:52-0400.