**Huawei**

Huawei 2288H V5 (Intel Xeon Gold 6134)

<table>
<thead>
<tr>
<th>Spec Speed Result</th>
<th>Huawei 2288H V5 (Intel Xeon Gold 6134)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_int_base = 8.91</td>
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<tr>
<td>SPECspeed2017_int_peak = 9.21</td>
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**CPU2017 License:** 3175  
**Test Sponsor:** Huawei  
**Tested by:** Huawei  
**Test Date:** Jan-2018  
**Hardware Availability:** Jul-2017  
**Software Availability:** Sep-2017

<table>
<thead>
<tr>
<th>Threads</th>
<th>SPECspeed2017_int_base (8.91)</th>
<th>SPECspeed2017_int_peak (9.21)</th>
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<tbody>
<tr>
<td>600.perlbench_s 32</td>
<td>6.22</td>
<td>7.49</td>
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<tr>
<td>602.gcc_s 32</td>
<td>6.53</td>
<td>6.94</td>
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<tr>
<td>605.mcf_s 32</td>
<td>5.24</td>
<td>4.31</td>
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<tr>
<td>625.x264_s 32</td>
<td>9.60</td>
<td>10.3</td>
</tr>
<tr>
<td>631.deepsjeng_s 32</td>
<td>6.74</td>
<td>7.39</td>
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<tr>
<td>641.leela_s 32</td>
<td>7.78</td>
<td>8.91</td>
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<tr>
<td>648.exchange2_s 32</td>
<td>6.60</td>
<td>7.53</td>
</tr>
<tr>
<td>657.xz_s 32</td>
<td>5.24</td>
<td>6.74</td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Gold 6134  
- **Max MHz.:** 3700  
- **Nominal:** 3200  
- **Enabled:** 16 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 core  
- **Other:** None  
- **Memory:** 384 GB (24 x 16 GB 2Rx8 PC4-2666V-R)  
- **Storage:** 1 x 1200 GB SAS, 10000 RPM  
- **Other:** None

**Software**

- **OS:** SUSE Linux Enterprise Server 12 SP2 (x86_64)  
- **Compiler:** C/C++: Version 18.0.0.128 of Intel C/C++  
- **Compiler for Linux:**  
- **Fortran:** Version 18.0.0.128 of Intel Fortran  
- **Compiler for Linux:**  
- **Parallel:** Yes  
- **Firmware:** Version 0.37 Released Nov-2017  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 32/64-bit  
- **Other:** jemalloc, jemalloc memory allocator library V5.0.1
Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Threads</th>
<th>Base</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Peak</th>
<th>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>600.perlbench_s</td>
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<td>6.22</td>
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<td>605.mcf_s</td>
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<td>410</td>
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<td>407</td>
<td>11.6</td>
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<td>625.x264_s</td>
<td>32</td>
<td>153</td>
<td>11.6</td>
<td>158</td>
<td>11.2</td>
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<td>218</td>
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<td>20.8</td>
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<td>20.8</td>
<td>20.8</td>
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</tbody>
</table>

SPECspeed2017_int_base = 8.91
SPECspeed2017_int_peak = 9.21

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,scatter"
OMP_STACKSIZE = "192M"

Binaries compiled on a system with 1x Intel Core i7-4790 CPU + 32GB RAM memory using Redhat Enterprise Linux 7.4
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: configured and built at default for
32bit (i686) and 64bit (x86_64) targets;
jemalloc: built with the RedHat Enterprise 7.4, and the system compiler gcc 4.8.5;
jemalloc: sources available from jemalloc.net or

No: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.
No: 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.
**General Notes (Continued)**

No: 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.

This benchmark result is intended to provide perspective on past performance using the historical hardware and/or software described on this result page.

The system as described on this result page was formerly generally available. At the time of this publication, it may not be shipping, and/or may not be supported, and/or may fail to meet other tests of General Availability described in the SPEC OSG Policy document, http://www.spec.org/osg/policy.html

This measured result may not be representative of the result that would be measured were this benchmark run with hardware and software available as of the publication date.

---

**Platform Notes**

BIOS configuration:
Power Efficiency Mode Set to Custom
Hyper-Threading Set to Disable
Sysinfo program /spec2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on linux-jujq Wed Jan 3 03:18:31 2018

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 6134 CPU @ 3.20GHz
 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 1 3 4 6 7 18 20 22
  physical 1: cores 0 2 3 9 16 19 26 27

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 16

(Continued on next page)
**Huawei**

**Huawei 2288H V5 (Intel Xeon Gold 6134)**

<table>
<thead>
<tr>
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<th>SPECspeed2017_int_peak</th>
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<td>9.21</td>
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**CPU2017 License:** 3175  
**Test Sponsor:** Huawei  
**Test Date:** Jan-2018  
**Hardware Availability:** Jul-2017  
**Tested by:** Huawei  
**Software Availability:** Sep-2017

---

### Platform Notes (Continued)

- 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 6134 CPU @ 3.20GHz
- Stepping: 4
- CPU MHz: 1500.000
- CPU max MHz: 3201.0000
- CPU min MHz: 1200.0000
- BogoMIPS: 6399.98
- 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
- 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 aperfmpref perf鲲pu pmc pllunlgdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pclid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb pni pclmulqdq dtes64_64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16 xtpr pdcm pclid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch ida arat epb pni pclmulqdq dtes64_64
- /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: 2 nodes (0-1)  
node 0 cpus: 0 1 2 3 4 5 6 7  
node 0 size: 191497 MB  
node 0 free: 190559 MB  
node 1 cpus: 8 9 10 11 12 13 14 15  
node 1 size: 193382 MB  
node 1 free: 192167 MB  
node distances:

<table>
<thead>
<tr>
<th>node 0</th>
<th>0</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>1</td>
<td>21</td>
<td>10</td>
</tr>
</tbody>
</table>

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

From `/proc/meminfo`

- MemTotal: 394117236 kB
- HugePages_Total: 0
- Hugepagesize: 2048 kB

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

- SuSE-release:
  - SUSE Linux Enterprise Server 12 (x86_64)
  - VERSION = 12
  - PATCHLEVEL = 2
  # 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-SP2"
  - VERSION_ID="12.2"
  - PRETTY_NAME="SUSE Linux Enterprise Server 12 SP2"
  - ID="sles"
  - ANSI_COLOR="0;32"
  - CPE_NAME=cpe:/o:suse:sles:12:sp2"

`uname -a`:

```
Linux linux-jujq 4.4.21-69-default #1 SMP Tue Oct 25 10:58:20 UTC 2016 (9464f67) 
x86_64 x86_64 x86_64 GNU/Linux
```

`run-level` 3 Jan 2 22:03

**SPEC is set to:** `/spec2017`

<table>
<thead>
<tr>
<th>Filesystem</th>
<th>Type</th>
<th>Size</th>
<th>Used</th>
<th>Avail</th>
<th>Use%</th>
<th>Mounted on</th>
</tr>
</thead>
<tbody>
<tr>
<td>/dev/sda2</td>
<td>xfs</td>
<td>500G</td>
<td>27G</td>
<td>474G</td>
<td>6%</td>
<td>/</td>
</tr>
</tbody>
</table>

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. 0.37 11/13/2017

Memory:

- 24x Samsung M393A2K43BB1-CTD 16 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, 
```

(Continued on next page)
## SPEC CPU2017 Integer Speed Result

<table>
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<tr>
<th>Huawei 2288H V5 (Intel Xeon Gold 6134)</th>
<th>SPECspeed2017_int_base = 8.91</th>
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<td></td>
</tr>
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</table>

### Compiler Version Notes (Continued)

```plaintext
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

==============================================================================
CC 600.perlbench_s(peak) 602.gcc_s(peak) 605.mcf_s(peak) 657.xz_s(peak)
==============================================================================
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

==============================================================================
CXXC 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)
==============================================================================
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

==============================================================================
CXXC 620.omnetpp_s(peak) 623.xalancbmk_s(peak) 631.deepsjeng_s(peak) 641.leela_s(peak)
==============================================================================
icpc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

==============================================================================
FC 648.exchange2_s(base, peak)
==============================================================================
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

### Base Compiler Invocation

- **C benchmarks:**
  -icc

- **C++ benchmarks:**
  -icpc

- **Fortran benchmarks:**
  -ifort
Huawei

Huawei 2288H V5 (Intel Xeon Gold 6134)

<table>
<thead>
<tr>
<th>SPECspeed2017_int_peak</th>
<th>SPECspeed2017_int_base</th>
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<tbody>
<tr>
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<td>8.91</td>
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CPU2017 License: 3175  
Test Sponsor: Huawei  
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Hardware Availability: Jul-2017  
Software Availability: Sep-2017

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:  
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP  
-L/usr/local/je5.0.1-64/lib -ljemalloc

C++ benchmarks:  
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:  
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div  
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte  
-L/usr/local/je5.0.1-64/lib -ljemalloc

Base Other Flags

C benchmarks:  
-m64 -std=c11

C++ benchmarks:  
-m64

Fortran benchmarks:  
-m64
SPEC CPU2017 Integer Speed Result

Huawei
Huawei 2288H V5 (Intel Xeon Gold 6134)

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Test Date: Jan-2018
Tested by: Huawei
Software Availability: Sep-2017

Peak Compiler Invocation

C benchmarks:
icc

C++ benchmarks:
icpc

Fortran benchmarks:
ifort

Peak 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: -D_FILE_OFFSET_BITS=64 -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

Peak Optimization Flags

C benchmarks:

600.perlbench_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2 -qopt-mem-layout-trans=3 -ipo -O3 -no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -fno-strict-overflow -L/usr/local/jemalloc

602.gcc_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2 -qopt-mem-layout-trans=3 -ipo -O3 -no-prec-div -DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -L/usr/local/jemalloc

605.mcf_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -L/usr/local/jemalloc

(Continued on next page)
Huawei

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Peak Optimization Flags (Continued)

625.x264_s: basepeak = yes
657.xz_s: Same as 602.gcc_s

C++ benchmarks:

620.omnetpp_s: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -03 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

623.xalancbmk_s: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX2 -03 -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-32/lib -ljemalloc

631.deepsjeng_s: basepeak = yes
641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak Other Flags

C benchmarks:
-m64 -std=c11

C++ benchmarks (except as noted below):
-m64

623.xalancbmk_s: -m32

Fortran benchmarks:
-m64

The flags files that were used to format this result can be browsed at
http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.html
## SPEC CPU2017 Integer Speed Result

**Huawei**

**Huawei 2288H V5 (Intel Xeon Gold 6134)**

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

- [Intel-ic18.0-official-linux64.xml](http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml)
- [Huawei-Platform-Settings-SKL-V1.8.xml](http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.8.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 v1.0.2 on 2018-01-02 14:18:30-0500.
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