Huawei

Huawei 1288H V5 (Intel Xeon Gold 6150)

**SPECrate2017_int_base = 199**

**SPECrate2017_int_peak = 213**

**CPU2017 License:** 3175  
**Test Sponsor:** Huawei  
**Tested by:** Huawei  
**Test Date:** Jul-2018  
**Hardware Availability:** Jul-2017  
**Software Availability:** Jan-2018

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Software</th>
</tr>
</thead>
</table>
| CPU Name: Intel Xeon Gold 6150  
Max MHz.: 3700  
Nominal: 2700  
Enabled: 36 cores, 2 chips, 2 threads/core  
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 PC4-2666V-R)  
Storage: 1 x 1200 GB SAS, 10000 RPM  
Other: None | OS: Red Hat Enterprise Linux Server release 7.4 (Maipo)  
3.10.0-693.11.6.el7.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: No  
Firmware: Version 0.62 Released Mar-2018  
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; |
Huawei

Huawei 1288H V5 (Intel Xeon Gold 6150)

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
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<td>520.omnetpp_r</td>
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</tr>
</tbody>
</table>

SPECrate2017_int_base = 199
SPECrate2017_int_peak = 213

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

Submit Notes

The numactl mechanism was used to bind copies to processors. The config file option 'submit' was used to generate numactl commands to bind each copy to a specific processor. For details, please see the config file.

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:
LD_LIBRARY_PATH = "'/spec2017/lib/ia32:/spec2017/lib/intel64:/spec2017/je5.0.1-32:/spec2017/je5.0.1-64"

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
runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>
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

(Continued on next page)
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Huawei 1288H V5 (Intel Xeon Gold 6150)

<table>
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</tbody>
</table>

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

**General Notes (Continued)**

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.

**Platform Notes**

BIOS configuration:
Power Policy Set to Performance
SNC Set to Enabled
IMC Interleaving Set to 1-way Interleave
XPT Prefetch Set to Enabled
Sysinfo program /spec2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on localhost.localdomain Mon Jul 16 22:01:21 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 6150 CPU @ 2.70GHz
- 2 "physical id"s (chips)
- 72 "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: 36
  - 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): 72
- On-line CPU(s) list: 0-71
- Thread(s) per core: 2
- Core(s) per socket: 18
- Socket(s): 2
- NUMA node(s): 4
- Vendor ID: GenuineIntel
- CPU family: 6

(Continued on next page)
Huawei

Huawei 1288H V5 (Intel Xeon Gold 6150)  

---

**Platform Notes (Continued)**

Model: 85  
Model name: Intel(R) Xeon(R) Gold 6150 CPU @ 2.70GHz  
Stepping: 4  
CPU MHz: 2700.000  
BogoMIPS: 5400.00  
Virtualization: VT-x  
L1d cache: 32K  
L1i cache: 32K  
L2 cache: 1024K  
L3 cache: 25344K  
NUMA node0 CPU(s): 0-2,5,6,9,10,14,15,36-38,41,42,45,46,50,51  
NUMA node1 CPU(s): 3,4,7,8,11-13,16,17,39,40,43,44,47-49,52,53  
NUMA node2 CPU(s): 18-20,23,24,27,28,32,33,54-56,59,60,63,64,68,69  
NUMA node3 CPU(s): 21,22,25,26,29-31,34,35,57,58,61,62,65-67,70,71  
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 aperfmperf eagerfpu pni pclmulqdq dtes64 ds_cpl vmx smx est tm2 ssse3 fma cx16 xtrpcl pdcmt cda sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer tsc_adjtime intelrts msr mca lsa_cldtl mcm tsc_deadline_timer aes xsave avx f16c rdrand lahf_lm abm 3dnowprefetch epb cat_l3 cdp_l3 invpcid_single intel_pt spec_ctrl ibpb_support tpr_shadow vmping priority ept vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 3rts invpcid rtm cqm mpx rdts_a avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt xsaves xsaveic qmovbl1 qmovl1 cqm_occup_llc qcm_mbm_total qcm_mbm_local dtherm ida arat pln pts

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 5 6 9 10 14 15 36 37 38 41 42 45 46 50 51
   node 0 size: 96437 MB
   node 0 free: 92847 MB
   node 1 cpus: 3 4 7 8 11 12 13 16 17 39 40 43 44 47 48 49 52 53
   node 1 size: 98304 MB
   node 1 free: 95438 MB
   node 2 cpus: 18 19 20 23 24 27 28 32 33 54 55 56 59 60 63 64 68 69
   node 2 size: 98304 MB
   node 2 free: 95565 MB
   node 3 cpus: 21 22 25 26 29 30 31 34 35 57 58 61 62 65 66 67 70 71
   node 3 size: 98304 MB
   node 3 free: 95521 MB
   node distances:
   node 0 1 2 3
   0: 10 11 21 21
   1: 11 10 21 21

---

(Continued on next page)
**Huawei**

**Huawei 1288H V5 (Intel Xeon Gold 6150)**

**SPEC CPU2017 Integer Rate Result**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
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<td>CPU2017 License</td>
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<tr>
<td>Test Date</td>
<td>Jul-2018</td>
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<tr>
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<td>Jul-2017</td>
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<td>Test Sponsor</td>
<td>Huawei</td>
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<td>Tested by</td>
<td>Huawei</td>
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<td>Jan-2018</td>
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<td>SPECrate2017_int_base</td>
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</tr>
<tr>
<td>SPECrate2017_int_peak</td>
<td>213</td>
</tr>
</tbody>
</table>

**Platform Notes (Continued)**

2: 21 21 10 11  
3: 21 21 11 10

From /proc/meminfo

MemTotal: 394174484 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.4 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VARIANT="Server"
VARIANT_ID="server"
VERSION_ID="7.4"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.4 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.4 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.4:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-693.11.6.el7.x86_64 #1 SMP Thu Dec 28 14:23:39 EST 2017 x86_64 x86_64 x86_64 GNU/Linux
run-level 3 Jul 16 11:43

SPEC is set to: /spec2017

Filesystem Type Size Used Avail Use% Mounted on
/dev/mapper/rhel-root xfs 1.8T 35G 1.8T 2% /

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. 0.62 03/26/2018
Memory:
24x Samsung M393A2K43BB1-CTD 16 GB 2 rank 2666

(End of data from sysinfo program)

**Compiler Version Notes**

```
CC 500.perlbench_r(base) 502.gcc_r(base) 505.mcf_r(base, peak)
```

(Continued on next page)
Huawei

Huawei 1288H V5 (Intel Xeon Gold 6150)

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CPU2017 License: 3175
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Compiler Version Notes (Continued)

525.x264_r(base, peak) 557.xz_r(base, peak)

---------------------------------------------------------------

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

---------------------------------------------------------------

CC 500.perlbench_r(peak) 502.gcc_r(peak)

---------------------------------------------------------------

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

---------------------------------------------------------------

CXXC 520.omnetpp_r(base) 523.xalancbmk_r(base) 531.deepsjeng_r(base)
541.leela_r(base)

---------------------------------------------------------------

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

---------------------------------------------------------------

CXXC 520.omnetpp_r(peak) 523.xalancbmk_r(peak) 531.deepsjeng_r(peak)
541.leela_r(peak)

---------------------------------------------------------------

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

---------------------------------------------------------------

FC 548.exchange2_r(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
SPEC CPU2017 Integer Rate Result

Huawei 1288H V5 (Intel Xeon Gold 6150)

SPECrate2017_int_base = 199
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Copyright 2017-2018 Standard Performance Evaluation Corporation

---

**Base Portability Flags**

500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64
502.gcc_r: -DSPEC_LP64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LP64 -DSPEC_LINUX
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
548.exchange2_r: -DSPEC_LP64
557.xz_r: -DSPEC_LP64

---

**Base Optimization Flags**

C benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -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=3 -L/usr/local/je5.0.1-64/lib -ljemalloc

Fortran benchmarks:
-Wl,-z,muldefs -xCORE-AVX512 -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
## Huawei

**Huawei 1288H V5 (Intel Xeon Gold 6150)**

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**CPU2017 License:** 3175  
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**Software Availability:** Jan-2018

### Peak Compiler Invocation

**C benchmarks:**  
```  
icc  
```

**C++ benchmarks:**  
```  
icpc  
```

**Fortran benchmarks:**  
```  
ifort  
```

### Peak Portability Flags

```  
500.perlbench_r: -DSPEC_LP64 -DSPEC_LINUX_X64  
502.gcc_r: -D_FILE_OFFSET_BITS=64  
505.mcf_r: -DSPEC_LP64  
520.omnetpp_r: -DSPEC_LP64  
523.xalancbmk_r: -D_FILE_OFFSET_BITS=64 -DSPEC_LINUX  
525.x264_r: -DSPEC_LP64  
531.deepsjeng_r: -DSPEC_LP64  
541.leela_r: -DSPEC_LP64  
548.exchange2_r: -DSPEC_LP64  
557.xz_r: -DSPEC_LP64  
```

### Peak Optimization Flags

**C benchmarks:**  
```  
500.perlbench_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3 -fno-strict-overflow -L/usr/local/je5.0.1-64/lib -ljemalloc  
505.mcf_r: basepeak = yes  
525.x264_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-mem-layout-trans=3 -fno-alias -L/usr/local/je5.0.1-64/lib -ljemalloc  
```

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### Huawei 1288H V5 (Intel Xeon Gold 6150)

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

#### Peak Optimization Flags (Continued)

```
557.xz_r: -Wl,-z,muldefs -xCORE-AVX512 -ipo -O3 -no-prec-div
-qopt-mem-layout-trans=3 -L/usr/local/je5.0.1-64/lib
-ljemalloc
```

C++ benchmarks:

520.omnetpp_r: basepeak = yes

523.xalancbmk_r: -L/opt/intel/compilers_and_libraries_2018/linux/lib/ia32
-Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-32/lib -ljemalloc

531.deepsjeng_r: -Wl,-z,muldefs -prof-gen(pass 1) -prof-use(pass 2) -ipo
-xCORE-AVX512 -O3 -no-prec-div -qopt-mem-layout-trans=3
-L/usr/local/je5.0.1-64/lib -ljemalloc

541.leela_r: Same as 531.deepsjeng_r

Fortran benchmarks:

548.exchange2_r: basepeak = yes

#### Peak Other Flags

C benchmarks (except as noted below):

- m64 -std=c11

502.gcc_r: -m32 -std=c11

C++ benchmarks (except as noted below):

- m64

523.xalancbmk_r: -m32

Fortran benchmarks:

- m64

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

## SPEC CPU2017 Integer Rate Result

### Huawei

**Huawei 1288H V5 (Intel Xeon Gold 6150)**  

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<tr>
<td>Software Availability:</td>
<td>Jan-2018</td>
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</table>

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

- [http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.xml](http://www.spec.org/cpu2017/flags/Intel-ic18.0-official-linux64.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 2018-07-16 22:01:20-0400.


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