Huawei
Huawei CH121 V5 (Intel Xeon Gold 6244)

<table>
<thead>
<tr>
<th>SPECspeed2017_fp_base</th>
<th>108</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECspeed2017_fp_peak</td>
<td>Not Run</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPEC® CPU2017 Floating Point Speed Result</th>
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**CPU2017 License:** 3175

**Test Sponsor:** Huawei

**Tested by:** Huawei

**Test Date:** Feb-2019

**Hardware Availability:** Apr-2019

**Software Availability:** Dec-2018

---

### Hardware

**CPU Name:** Intel Xeon Gold 6244

**Max MHz.:** 4400

**Nominal:** 3600

**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 chip

**Other:** None

**Memory:** 768 GB (24 x 32 GB 2Rx4 PC4-2933Y-R)

**Storage:** 1 x 1200 GB SAS, 10000 RPM

**Other:** None

---

### Software

**OS:** SUSE Linux Enterprise Server 12 SP4 (x86_64) 4.12.14-94.41-default

**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 6.36 Released Feb-2019

**File System:** xfs

**System State:** Run level 3 (multi-user)

**Base Pointers:** 64-bit

**Peak Pointers:** Not Applicable

**Other:** None
Huawei

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SPECSPEED2017_FP_BASE = 108

SPECSPEED2017_FP_PEAK = Not Run

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>
<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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</thead>
<tbody>
<tr>
<td>603.bwaves_s</td>
<td>16</td>
<td>121</td>
<td>488</td>
<td>121</td>
<td>488</td>
<td>121</td>
<td>488</td>
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<tr>
<td>607.cactuBSSN_s</td>
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<td>619.lbm_s</td>
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<td>621.wrf_s</td>
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<td>627.cam4_s</td>
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<td>59.4</td>
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<td>59.2</td>
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<td>638.imagick_s</td>
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<td>77.4</td>
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<tr>
<td>644.nab_s</td>
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<td>125</td>
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<tr>
<td>649.fotonik3d_s</td>
<td>16</td>
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<td>86.0</td>
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<tr>
<td>654.roms_s</td>
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<td>123</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 rncpu before the start of the run:
KMP_AFFINITY = "granularity=fine,compact"
LD_LIBRARY_PATH = "/spec2017/lib/ia32:/spec2017/lib/intel64"
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 rncpu 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.

Platform Notes

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

(Continued on next page)
Huawei

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<table>
<thead>
<tr>
<th>SPECspeed2017_fp_peak</th>
<th>Not Run</th>
</tr>
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<tbody>
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</tr>
</tbody>
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CPU2017 License: 3175
Test Sponsor: Huawei
Tested by: Huawei

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XPT Prefetch Set to Enabled
Sysinfo program /spec2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618b7cc091c0f
running on linux-xz5s Tue Dec 4 00:49:24 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

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>model name</td>
<td>Intel(R) Xeon(R) Gold 6244 CPU @ 3.60GHz</td>
</tr>
<tr>
<td>cpu cores</td>
<td>8</td>
</tr>
<tr>
<td>siblings</td>
<td>8</td>
</tr>
<tr>
<td>physical 0: cores</td>
<td>2 3 9 11 17 24 27</td>
</tr>
<tr>
<td>physical 1: cores</td>
<td>4 8 17 18 19 24 25 27</td>
</tr>
</tbody>
</table>

From lscpu:

<table>
<thead>
<tr>
<th>Field</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>x86_64</td>
</tr>
<tr>
<td>CPU op-mode(s):</td>
<td>32-bit, 64-bit</td>
</tr>
<tr>
<td>Byte Order</td>
<td>Little Endian</td>
</tr>
<tr>
<td>CPU(s):</td>
<td>16</td>
</tr>
<tr>
<td>On-line CPU(s) list:</td>
<td>0-15</td>
</tr>
<tr>
<td>Thread(s) per core:</td>
<td>1</td>
</tr>
<tr>
<td>Core(s) per socket:</td>
<td>8</td>
</tr>
<tr>
<td>Socket(s):</td>
<td>2</td>
</tr>
<tr>
<td>NUMA node(s):</td>
<td>2</td>
</tr>
<tr>
<td>Vendor ID:</td>
<td>GenuineIntel</td>
</tr>
<tr>
<td>CPU family:</td>
<td>6</td>
</tr>
<tr>
<td>Model:</td>
<td>85</td>
</tr>
<tr>
<td>Model name:</td>
<td>Intel(R) Xeon(R) Gold 6244 CPU @ 3.60GHz</td>
</tr>
<tr>
<td>Stepping:</td>
<td>6</td>
</tr>
<tr>
<td>CPU MHz:</td>
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<tr>
<td>CPU max MHz:</td>
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<tr>
<td>CPU min MHz:</td>
<td>1200.0000</td>
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<tr>
<td>BogoMIPS:</td>
<td>7200.00</td>
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<tr>
<td>Virtualization:</td>
<td>VT-x</td>
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<tr>
<td>L1d cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L1i cache:</td>
<td>32K</td>
</tr>
<tr>
<td>L2 cache:</td>
<td>1024K</td>
</tr>
<tr>
<td>L3 cache:</td>
<td>25344K</td>
</tr>
<tr>
<td>NUMA node0 CPU(s):</td>
<td>0-7</td>
</tr>
<tr>
<td>NUMA node1 CPU(s):</td>
<td>8-15</td>
</tr>
<tr>
<td>Flags:</td>
<td>fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov</td>
</tr>
</tbody>
</table>

(Continued on next page)
SPEC CPU2017 Floating Point Speed Result

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

### Platform Notes (Continued)

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 nopl xtopology nonstop_tsc cpuid  
aperfmpref pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg fma cx16  
xtrправ cmic pdid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes xsave  
avx f16c rdrand lahf_lm abm 3dnowprefetch cpuid_fault epb cat_l3 cdp_l3  
invpicd single ssbd mba ibrs i督办 stibp tpr_shadow vnumi flexpriority ept vpid  
fsqsbased tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rd_a avx512f  
avx512dq rsread adx clflushopt clwb intel_pt avx512cd avx512bw avx512vl  
xsavopt xsavec xgetbv1 xsavees cqm_llc cqm_occup_llc cqm_mbb_total cqm_mbb_local  
dthermal ida arat pln pts pku ospke avx512_vnni flush_l1d arch_capabilities

```
/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: 385471 MB
 node 0 free: 381821 MB
 node 1 cpus: 8 9 10 11 12 13 14 15
 node 1 size: 386787 MB
 node 1 free: 380846 MB
 node distances:
 node   0   1
 0:  10  21
 1:  21  10
```

From /proc/meminfo

```
MemTotal:       790792768 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"
PRETTY_NAME="SUSE Linux Enterprise Server 12 SP4"
ID="sles"
ANSI_COLOR="0;32"
```

(Continued on next page)
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SPECspeed2017_fp_base = 108
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Test Date: Feb-2019
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Platform Notes (Continued)

uname -a:
    x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 3 19:29

SPEC is set to: /spec2017

Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda3      xfs   212G   73G  139G  35% /

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. 6.36 02/15/2019
Memory:
    24x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
 CC  619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
==============================================================================
 Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
 Version 19.0.1.144 Build 20181018
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 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.
 Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
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  64, Version 19.0.1.144 Build 20181018
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Base Portability Flags (Continued)

644.nab_s: -DSPEC_LP64
649.fotonik3d_s: -DSPEC_LP64
654.roms_s: -DSPEC_LP64

Base Optimization Flags

C benchmarks:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP

Fortran benchmarks:
-DSPEC_OPENMP -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-nostandard-realloc-lhs

Benchmarks using both Fortran and C:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs

Benchmarks using Fortran, C, and C++:
-xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP
-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

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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 2018-12-04 00:49:23-0500.