



# SPEC® CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Huawei

SPECspeed2017\_fp\_base = 103

## Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

CPU2017 License: 3175

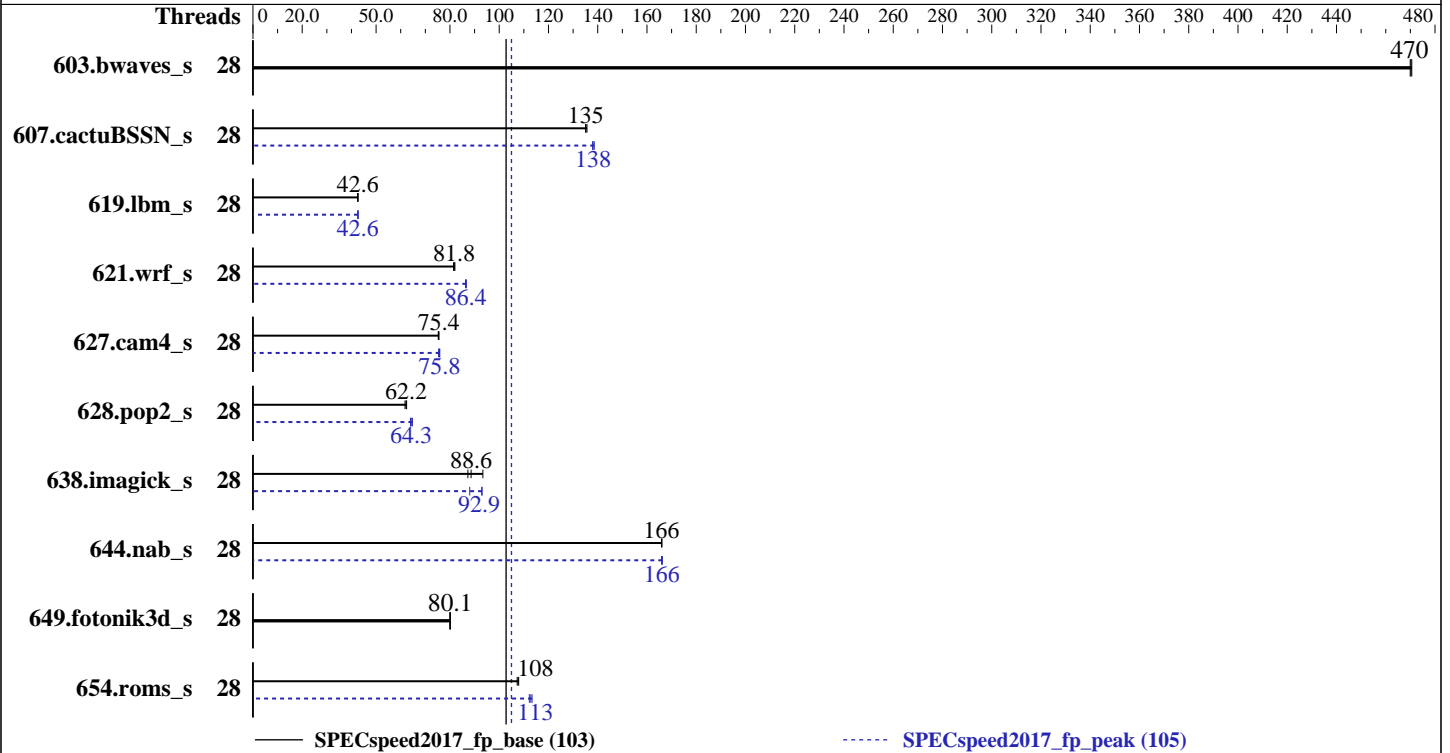
Test Date: Dec-2017

Test Sponsor: Huawei

Hardware Availability: Jul-2017

Tested by: Huawei

Software Availability: Sep-2017



### Hardware

CPU Name: Intel Xeon Gold 6132  
 Max MHz.: 3700  
 Nominal: 2600  
 Enabled: 28 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: 19.25 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

### Software

OS: Red Hat Enterprise Linux Server release 7.3 (Maipo)  
 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 0.31 Released Sep-2017  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Huawei

SPECspeed2017\_fp\_base = 103

## Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

Test Date: Dec-2017  
Hardware Availability: Jul-2017  
Software Availability: Sep-2017

### Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	28	<b><u>125</u></b>	<b><u>470</u></b>	125	471	126	470	28	<b><u>125</u></b>	<b><u>470</u></b>	125	471	126	470
607.cactuBSSN_s	28	123	136	123	135	<b><u>123</u></b>	<b><u>135</u></b>	28	<b><u>121</u></b>	<b><u>138</u></b>	120	139	121	138
619.lbm_s	28	123	42.5	123	42.7	<b><u>123</u></b>	<b><u>42.6</u></b>	28	123	42.6	123	42.7	<b><u>123</u></b>	<b><u>42.6</u></b>
621.wrf_s	28	161	82.0	<b><u>162</u></b>	<b><u>81.8</u></b>	162	81.5	28	153	86.4	<b><u>153</u></b>	<b><u>86.4</u></b>	153	86.6
627.cam4_s	28	118	75.2	117	75.5	<b><u>118</u></b>	<b><u>75.4</u></b>	28	<b><u>117</u></b>	<b><u>75.8</u></b>	118	75.4	117	75.8
628.pop2_s	28	<b><u>191</u></b>	<b><u>62.2</u></b>	192	61.7	190	62.4	28	183	64.7	<b><u>185</u></b>	<b><u>64.3</u></b>	186	64.0
638.imagick_s	28	165	87.3	<b><u>163</u></b>	<b><u>88.6</u></b>	155	93.4	28	164	88.0	155	93.0	<b><u>155</u></b>	<b><u>92.9</u></b>
644.nab_s	28	105	166	105	166	<b><u>105</u></b>	<b><u>166</u></b>	28	105	166	105	166	<b><u>105</u></b>	<b><u>166</u></b>
649.fotonik3d_s	28	<b><u>114</u></b>	<b><u>80.1</u></b>	114	79.9	114	80.1	28	<b><u>114</u></b>	<b><u>80.1</u></b>	114	79.9	114	80.1
654.roms_s	28	147	107	146	108	<b><u>146</u></b>	<b><u>108</u></b>	28	140	112	<b><u>140</u></b>	<b><u>113</u></b>	139	113

SPECspeed2017\_fp\_base = 103

SPECspeed2017\_fp\_peak = 105

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"

LD\_LIBRARY\_PATH = "/spec2017/lib/ia32:/spec2017/lib/intel64:/spec2017/je5.0.1-32:/spec2017/je5.0.1-64"

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
```

### 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 localhost.localdomain Wed Dec 20 01:24:18 2017

SUT (System Under Test) info as seen by some common utilities.

For more information on this section, see

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017\_fp\_base = 103

Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

Test Date: Dec-2017  
Hardware Availability: Jul-2017  
Software Availability: Sep-2017

## Platform Notes (Continued)

<https://www.spec.org/cpu2017/Docs/config.html#sysinfo>

From /proc/cpuinfo

```
model name : Intel(R) Xeon(R) Gold 6132 CPU @ 2.60GHz
 2 "physical id"s (chips)
 28 "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 : 14
siblings : 14
physical 0: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
physical 1: cores 0 1 2 3 4 5 6 8 9 10 11 12 13 14
```

From lscpu:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
CPU(s):                28
On-line CPU(s) list:   0-27
Thread(s) per core:    1
Core(s) per socket:    14
Socket(s):             2
NUMA node(s):         2
Vendor ID:             GenuineIntel
CPU family:            6
Model:                 85
Model name:            Intel(R) Xeon(R) Gold 6132 CPU @ 2.60GHz
Stepping:              4
CPU MHz:               2601.000
BogoMIPS:              5205.45
Virtualization:        VT-x
L1d cache:            32K
L1i cache:            32K
L2 cache:              1024K
L3 cache:              19712K
NUMA node0 CPU(s):    0-13
NUMA node1 CPU(s):    14-27
```

```
/proc/cpuinfo cache data
cache size : 19712 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 8 9 10 11 12 13
node 0 size: 194709 MB
node 0 free: 189509 MB
```

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

## Huawei

SPECspeed2017\_fp\_base = 103

## Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

**Test Date:** Dec-2017  
**Hardware Availability:** Jul-2017  
**Software Availability:** Sep-2017

### Platform Notes (Continued)

```

node 1 cpus: 14 15 16 17 18 19 20 21 22 23 24 25 26 27
node 1 size: 196608 MB
node 1 free: 191495 MB
node distances:
node 0 1
  0: 10 21
  1: 21 10

From /proc/meminfo
MemTotal:          394144876 kB
HugePages_Total:      0
Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
os-release:
NAME="Red Hat Enterprise Linux Server"
VERSION="7.3 (Maipo)"
ID="rhel"
ID_LIKE="fedora"
VERSION_ID="7.3"
PRETTY_NAME="Red Hat Enterprise Linux Server 7.3 (Maipo)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:redhat:enterprise_linux:7.3:GA:server"
redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.3:ga:server

uname -a:
Linux localhost.localdomain 3.10.0-514.el7.x86_64 #1 SMP Wed Oct 19 11:24:13 EDT 2016
x86_64 x86_64 x86_64 GNU/Linux

run-level 3 Dec 19 08:34

SPEC is set to: /spec2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/sda2       ext4  689G   26G  629G   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. 0.31 09/29/2017
Memory:
24x Samsung M393A2K43BB1-CTD 16 GB 2 rank 2666

(End of data from sysinfo program)

```



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017\_fp\_base = 103

Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

Test Date: Dec-2017  
Hardware Availability: Jul-2017  
Software Availability: Sep-2017

## Compiler Version Notes

=====  
CC 619.lbm\_s(base) 638.imagick\_s(base, peak) 644.nab\_s(base, peak)  
-----

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

=====  
CC 619.lbm\_s(peak)  
-----

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

=====  
FC 607.cactuBSSN\_s(base)  
-----

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

=====  
FC 607.cactuBSSN\_s(peak)  
-----

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

=====  
FC 603.bwaves\_s(base) 649.fotonik3d\_s(base) 654.roms\_s(base)  
-----

ifort (IFORT) 18.0.0 20170811  
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.  
-----

=====  
FC 603.bwaves\_s(peak) 649.fotonik3d\_s(peak) 654.roms\_s(peak)  
-----

ifort (IFORT) 18.0.0 20170811  
-----

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017\_fp\_base = 103

Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

Test Date: Dec-2017  
Hardware Availability: Jul-2017  
Software Availability: Sep-2017

## Compiler Version Notes (Continued)

Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

=====  
CC 621.wrf\_s(base) 627.cam4\_s(base, peak) 628.pop2\_s(base)  
=====

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

=====  
CC 621.wrf\_s(peak) 628.pop2\_s(peak)  
=====

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

## Base Compiler Invocation

C benchmarks:  
icc

Fortran benchmarks:  
ifort

Benchmarks using both Fortran and C:  
ifort icc

Benchmarks using Fortran, C, and C++:  
icpc icc ifort

## Base Portability Flags

603.bwaves\_s: -DSPEC\_LP64  
607.cactuBSSN\_s: -DSPEC\_LP64  
619.lbm\_s: -DSPEC\_LP64  
621.wrf\_s: -DSPEC\_LP64 -DSPEC\_CASE\_FLAG -convert big\_endian  
627.cam4\_s: -DSPEC\_LP64 -DSPEC\_CASE\_FLAG  
628.pop2\_s: -DSPEC\_LP64 -DSPEC\_CASE\_FLAG -convert big\_endian  
-assume byterecl

(Continued on next page)



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017\_fp\_base = 103

Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

Test Date: Dec-2017  
Hardware Availability: Jul-2017  
Software Availability: Sep-2017

## Base Portability Flags (Continued)

638.imagick\_s: -DSPEC\_LP64  
644.nab\_s: -DSPEC\_LP64  
649.fotonik3d\_s: -DSPEC\_LP64  
654.roms\_s: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC\_OPENMP

Fortran benchmarks:

-DSPEC\_OPENMP -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp  
-nonstandard-realloc-lhs -align array32byte

Benchmarks using both Fortran and C:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC\_OPENMP  
-nonstandard-realloc-lhs -align array32byte

Benchmarks using Fortran, C, and C++:

-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only  
-qopt-mem-layout-trans=3 -qopenmp -DSPEC\_OPENMP  
-nonstandard-realloc-lhs -align array32byte

## Base Other Flags

C benchmarks:

-m64 -std=c11

Fortran benchmarks:

-m64

Benchmarks using both Fortran and C:

-m64 -std=c11

Benchmarks using Fortran, C, and C++:

-m64 -std=c11



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017\_fp\_base = 103

Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

Test Date: Dec-2017  
Hardware Availability: Jul-2017  
Software Availability: Sep-2017

## Peak Compiler Invocation

C benchmarks:

icc

Fortran benchmarks:

ifort

Benchmarks using both Fortran and C:

ifort icc

Benchmarks using Fortran, C, and C++:

icpc icc ifort

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

```
619.lbm_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2  
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div  
-qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp  
-DSPEC_OPENMP
```

```
638.imagick_s: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch  
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp  
-DSPEC_OPENMP
```

644.nab\_s: Same as 638.imagick\_s

Fortran benchmarks:

603.bwaves\_s: basepeak = yes

649.fotonik3d\_s: basepeak = yes

```
654.roms_s: -prof-gen(pass 1) -prof-use(pass 2) -DSPEC_SUPPRESS_OPENMP  
-DSPEC_OPENMP -O2 -xCORE-AVX2 -qopt-prefetch -ipo -O3  
-ffinite-math-only -no-prec-div -qopt-mem-layout-trans=3  
-qopenmp -nostandard-realloc-lhs -align array32byte
```

(Continued on next page)





# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017\_fp\_base = 103

Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

CPU2017 License: 3175

Test Sponsor: Huawei

Tested by: Huawei

Test Date: Dec-2017

Hardware Availability: Jul-2017

Software Availability: Sep-2017

## Peak Optimization Flags (Continued)

Benchmarks using both Fortran and C:

```
621.wrf_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div
-qopt-mem-layout-trans=3 -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs -align array32byte
```

```
627.cam4_s: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs -align array32byte
```

628.pop2\_s: Same as 621.wrf\_s

Benchmarks using Fortran, C, and C++:

```
-prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX2 -qopt-prefetch
-ipo -O3 -ffinite-math-only -no-prec-div -qopt-mem-layout-trans=3
-DSPEC_SUPPRESS_OPENMP -qopenmp -DSPEC_OPENMP -nostandard-realloc-lhs
-align array32byte
```

## Peak Other Flags

C benchmarks:

```
-m64 -std=c11
```

Fortran benchmarks:

```
-m64
```

Benchmarks using both Fortran and C:

```
-m64 -std=c11
```

Benchmarks using Fortran, C, and C++:

```
-m64 -std=c11
```

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>

<http://www.spec.org/cpu2017/flags/Huawei-Platform-Settings-SKL-V1.7.html>

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/Huawei-Platform-Settings-SKL-V1.7.xml>



# SPEC CPU2017 Floating Point Speed Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

Huawei

SPECspeed2017\_fp\_base = 103

Huawei 1288H V5 (Intel Xeon Gold 6132)

SPECspeed2017\_fp\_peak = 105

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

**Test Date:** Dec-2017  
**Hardware Availability:** Jul-2017  
**Software Availability:** Sep-2017

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](mailto:info@spec.org).

Tested with SPEC CPU2017 v1.0.2 on 2017-12-20 01:24:17-0500.  
Report generated on 2018-10-31 17:03:49 by CPU2017 PDF formatter v6067.  
Originally published on 2018-01-10.