## SPEC® CPU2017 Floating Point Speed Result

<table>
<thead>
<tr>
<th>SPECspeed2017_fp_base</th>
<th>SPECspeed2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>106</td>
<td>108</td>
</tr>
</tbody>
</table>

### Hardware

- **CPU Name:** Intel Xeon Gold 6136  
- **Max MHz.:** 3700  
- **Nominal:** 3000  
- **Enabled:** 24 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:** Red Hat Enterprise Linux Server release 7.3 (Maipo)  
  3.10.0-693.11.6.el7.x86_64  
- **Compiler:** C/C++: Version 18.0.2.199 of Intel C/C++  
  Compiler for Linux:  
  Fortran: Version 18.0.2.199 of Intel Fortran  
  Compiler for Linux  
- **Parallel:** Yes  
- **Firmware:** Version 0.80 Released Jun-2018  
- **File System:** xfs  
- **System State:** Run level 3 (multi-user)  
- **Base Pointers:** 64-bit  
- **Peak Pointers:** 64-bit  
- **Other:** jemalloc memory allocator V5.0.1
Huawei

Huawei CH225 V5 (Intel Xeon Gold 6136)

SPECspeed2017_fp_base = 106

SPECspeed2017_fp_peak = 108

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>Seconds</th>
<th>Ratio</th>
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<tbody>
<tr>
<td>603.bwaves_s</td>
<td>24</td>
<td>123</td>
<td>481</td>
<td>123</td>
<td>481</td>
<td>123</td>
<td>481</td>
<td>24</td>
<td>123</td>
</tr>
<tr>
<td>607.cactuBSSN_s</td>
<td>24</td>
<td>124</td>
<td>135</td>
<td>127</td>
<td>131</td>
<td>131</td>
<td>127</td>
<td>24</td>
<td>124</td>
</tr>
<tr>
<td>619.lbm_s</td>
<td>24</td>
<td>114</td>
<td>45.8</td>
<td>114</td>
<td>45.9</td>
<td>114</td>
<td>45.8</td>
<td>24</td>
<td>114</td>
</tr>
<tr>
<td>621.wrf_s</td>
<td>24</td>
<td>161</td>
<td>82.3</td>
<td>160</td>
<td>82.5</td>
<td>160</td>
<td>82.7</td>
<td>24</td>
<td>146</td>
</tr>
<tr>
<td>627.cam4_s</td>
<td>24</td>
<td>121</td>
<td>73.4</td>
<td>121</td>
<td>73.1</td>
<td>121</td>
<td>73.4</td>
<td>24</td>
<td>121</td>
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<tr>
<td>628.pop2_s</td>
<td>24</td>
<td>174</td>
<td>68.2</td>
<td>175</td>
<td>67.8</td>
<td>175</td>
<td>67.8</td>
<td>24</td>
<td>170</td>
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<tr>
<td>638.imagick_s</td>
<td>24</td>
<td>163</td>
<td>88.4</td>
<td>165</td>
<td>87.6</td>
<td>170</td>
<td>84.8</td>
<td>24</td>
<td>163</td>
</tr>
<tr>
<td>644.nab_s</td>
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<td>97.8</td>
<td>179</td>
<td>97.7</td>
<td>179</td>
<td>97.7</td>
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<td>24</td>
<td>97.8</td>
</tr>
<tr>
<td>649.fotonik3d_s</td>
<td>24</td>
<td>107</td>
<td>85.1</td>
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<td>84.7</td>
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<tr>
<td>654.roms_s</td>
<td>24</td>
<td>136</td>
<td>116</td>
<td>136</td>
<td>115</td>
<td>136</td>
<td>116</td>
<td>24</td>
<td>136</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 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 i7-6700K 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:
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.
jemalloc, a general purpose malloc implementation built with the RedHat Enterprise 7.5, and the system compiler gcc 4.8.5
Huawei

Huawei CH225 V5 (Intel Xeon Gold 6136)

| SPECspeed2017_fp_base = 106 |
| SPECspeed2017_fp_peak = 108 |

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

| Test Date: Sep-2018 |
| Hardware Availability: Jul-2017 |
| Software Availability: Mar-2018 |

Platform Notes

BIOS configuration:
Power Policy Set to Load Balance
Hyper-Threading Set to Disable
XPT Prefetch Set to Enabled
Sysinfo program /spec2017/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bccc91c0f
running on localhost.localdomain Wed Sep 19 15:21:37 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 6136 CPU @ 3.00GHz
  2 "physical id"s (chips)
  24 "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 : 12
siblings : 12
physical 0: cores 0 1 2 3 4 9 10 16 18 19 25 26
physical 1: cores 0 1 2 3 4 9 10 16 18 19 25 26

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 24
On-line CPU(s) list: 0-23
Thread(s) per core: 1
Core(s) per socket: 12
Socket(s): 2
NUMA node(s): 2
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6136 CPU @ 3.00GHz
Stepping: 4
CPU MHz: 3001.000
BogoMIPS: 6005.85
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 25344K
NUMA node0 CPU(s): 0-11
NUMA node1 CPU(s): 12-23

(Continued on next page)
Huawei CH225 V5 (Intel Xeon Gold 6136)

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Platform Notes (Continued)

```
/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 8 9 10 11
  node 0 size: 194737 MB
  node 0 free: 189583 MB
  node 1 cpus: 12 13 14 15 16 17 18 19 20 21 22 23
  node 1 size: 196608 MB
  node 1 free: 191380 MB
  node distances:
    node 0 1
    0: 10 21
    1: 21 10

From /proc/meminfo
  MemTotal:       394169160 kB
  HugePages_Total:       0
  Hugepagesize:       2048 kB

From /etc/*release* /etc/*version*
  redhat-release: Red Hat Enterprise Linux Server release 7.3 (Maipo)

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 Sep 19 10:23

SPEC is set to: /spec2017
  Filesystem  Type  Size  Used  Avail  Use% Mounted on
  /dev/sda4    xfs  400G  8.3G  392G   3% /
```

(Continued on next page)
Platform Notes (Continued)

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. 0.80 06/27/2018
Memory:
24x Samsung M393A2K43BB1-CTD 16 GB 2 rank 2666

(End of data from sysinfo program)

Compiler Version Notes

==============================================================================
CC  619.lbm_s(base) 638.imagick_s(base, peak) 644.nab_s(base, peak)
------------------------------------------------------------------------------
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
CC   619.lbm_s(peak)
------------------------------------------------------------------------------
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
==============================================================================
FC  607.cactuBSSN_s(base, peak)
------------------------------------------------------------------------------
icpc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
 ===============================================================================
FC  603.bwaves_s(base) 649.fotonik3d_s(base) 654.roms_s(base, peak)
------------------------------------------------------------------------------
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
------------------------------------------------------------------------------
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Huawei

Huawei CH225 V5 (Intel Xeon Gold 6136)

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### Compiler Version Notes (Continued)

ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

==============================================================================
CC  621.wrf_s(base) 627.cam4_s(base, peak) 628.pop2_s(base)
==============================================================================
ifort (IFORT) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

==============================================================================
CC  621.wrf_s(peak) 628.pop2_s(peak)
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Copyright (C) 1985-2018 Intel Corporation. All rights reserved.
icc (ICC) 18.0.2 20180210
Copyright (C) 1985-2018 Intel Corporation. All rights reserved.

Base Compiler Invocation

C benchmarks:
icc -m64 -std=c11

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

Base Portability Flags

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.libm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian

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Huawei CH225 V5 (Intel Xeon Gold 6136)  

SPEC CPU2017 Floating Point Speed Result  

Huawei CH225 V5 (Intel Xeon Gold 6136)

Huawei

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SPECspeed2017_fp_base = 106

CPU2017 License: 3175
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Base Portability Flags (Continued)

627.cam4_s: -DSPEC_LP64 -DSPEC_CASE_FLAG
628.pop2_s: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
-assume byterecl
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:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-L/usr/local/je5.0.1-64/lib -ljemalloc

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

Benchmarks using both Fortran and C:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -L/usr/local/je5.0.1-64/lib -ljemalloc

Benchmarks using Fortran, C, and C++:
-Wl,-z,muldefs -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3 -qopenmp -DSPEC_OPENMP
-nostandard-realloc-lhs -L/usr/local/je5.0.1-64/lib -ljemalloc

Peak Compiler Invocation

C benchmarks:
icc -m64 -std=c11

Fortran benchmarks:
ifort -m64

Benchmarks using both Fortran and C:
ifort -m64 icc -m64 -std=c11

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Huawei
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Tested by: Huawei

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Hardware Availability: Jul-2017
Software Availability: Mar-2018

Peak Compiler Invocation (Continued)

Benchmarks using Fortran, C, and C++:
icpc -m64 icc -m64 -std=c11 ifort -m64

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:
619.lbm_s: basepeak = yes
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: basepeak = yes

Fortran benchmarks:
603.bwaves_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
649.fotonik3d_s: basepeak = yes
654.roms_s: basepeak = yes

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
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

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Peak Optimization Flags (Continued)

628.pop2_s: Same as 621.wrf_s

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

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/Intel-ic18.0-official-linux64.2017-12-21.xml
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.

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