Huawei

Huawei XH321 V5 (Intel Xeon Silver 4116)

**SPECrate2017_fp_base** = 117  
**SPECrate2017_fp_peak** = 119

<table>
<thead>
<tr>
<th>Copies</th>
<th>Specrate2017_fp_base</th>
<th>Specrate2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>48</td>
<td>SPECrate2017_fp_base (117)</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>48</td>
<td>SPECrate2017_fp_peak (119)</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>510.parest_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>511.povray_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>526.blender_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>544.nab_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>554.roms_r</td>
<td>48</td>
<td></td>
</tr>
</tbody>
</table>

**Hardware**

- **CPU Name:** Intel Xeon Silver 4116
- **Max MHz.:** 3000
- **Nominal:** 2100
- **Enabled:** 24 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:** 16.5 MB I+D on chip per chip
- **Memory:** 384 GB (12 x 32 GB 2Rx4 PC4-2666V-R, running at 2400)
- **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 18.0.0.128 of Intel C/C++ Compiler for Linux; Fortran: Version 18.0.0.128 of Intel Fortran Compiler for Linux
- **Parallel:** No
- **Firmware:** Version 0.59 Released Feb-2018
- **File System:** xfs
- **System State:** Run level 3 (multi-user)
- **Base Pointers:** 64-bit
- **Peak Pointers:** 64-bit
- **Other:** None
Huawei
Huawei XH321 V5 (Intel Xeon Silver 4116)

Results Table

<table>
<thead>
<tr>
<th>Benchmark</th>
<th>Copies</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
<th>Seconds</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>503.bwaves_r</td>
<td>48</td>
<td>1285</td>
<td>375</td>
<td>1286</td>
<td>374</td>
<td>1285</td>
<td>375</td>
</tr>
<tr>
<td>507.cactuBSSN_r</td>
<td>48</td>
<td>615</td>
<td>98.8</td>
<td>615</td>
<td>98.8</td>
<td>610</td>
<td>99.6</td>
</tr>
<tr>
<td>508.namd_r</td>
<td>48</td>
<td>561</td>
<td>81.3</td>
<td>559</td>
<td>81.6</td>
<td>558</td>
<td>81.8</td>
</tr>
<tr>
<td>510.parest_r</td>
<td>48</td>
<td>1625</td>
<td>77.3</td>
<td>1619</td>
<td>77.5</td>
<td>1623</td>
<td>77.4</td>
</tr>
<tr>
<td>511.povray_r</td>
<td>48</td>
<td>864</td>
<td>130</td>
<td>862</td>
<td>130</td>
<td>859</td>
<td>131</td>
</tr>
<tr>
<td>519.lbm_r</td>
<td>48</td>
<td>613</td>
<td>82.5</td>
<td>612</td>
<td>82.7</td>
<td>615</td>
<td>82.3</td>
</tr>
<tr>
<td>521.wrf_r</td>
<td>48</td>
<td>751</td>
<td>143</td>
<td>752</td>
<td>143</td>
<td>752</td>
<td>143</td>
</tr>
<tr>
<td>526.blender_r</td>
<td>48</td>
<td>660</td>
<td>111</td>
<td>659</td>
<td>111</td>
<td>658</td>
<td>111</td>
</tr>
<tr>
<td>527.cam4_r</td>
<td>48</td>
<td>765</td>
<td>110</td>
<td>765</td>
<td>110</td>
<td>764</td>
<td>110</td>
</tr>
<tr>
<td>538.imagick_r</td>
<td>48</td>
<td>726</td>
<td>164</td>
<td>725</td>
<td>165</td>
<td>725</td>
<td>165</td>
</tr>
<tr>
<td>544.nab_r</td>
<td>48</td>
<td>564</td>
<td>143</td>
<td>560</td>
<td>144</td>
<td>566</td>
<td>143</td>
</tr>
<tr>
<td>549.fotonik3d_r</td>
<td>48</td>
<td>1677</td>
<td>112</td>
<td>1674</td>
<td>112</td>
<td>1677</td>
<td>112</td>
</tr>
<tr>
<td>554.roms_r</td>
<td>48</td>
<td>1197</td>
<td>63.7</td>
<td>1196</td>
<td>63.8</td>
<td>1190</td>
<td>64.1</td>
</tr>
</tbody>
</table>

**SPECrate2017_fp_base = 117**

**SPECrate2017_fp_peak = 119**

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 = "/spec/lib/ia32:/spec/lib/intel64:/spec/je5.0.1-32:/spec/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>
```

Yes: The test sponsor attests, as of date of publication, that CVE-2017-5754 (Meltdown) is mitigated in the system as tested and documented.

(Continued on next page)
Huawei

Huawei XH321 V5 (Intel Xeon Silver 4116)

SPECrate2017_fp_base = 117
SPECrate2017_fp_peak = 119

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

Test Date: Jun-2018
Hardware Availability: Jul-2017
Software Availability: Jan-2018

General Notes (Continued)

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
ADDDC Sparing Set to Disabled
Sysinfo program /spec/bin/sysinfo
Rev: r5797 of 2017-06-14 96c45e4568ad54c135fd618bcc091c0f
running on localhost.localdomain Wed Jun 13 07:25:00 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) Silver 4116 CPU @ 2.10GHz
  2 "physical id"s (chips)
  48 "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 : 24
physical 0: cores 0 1 2 3 4 5 8 9 10 11 12 13
physical 1: cores 0 1 2 3 4 5 8 9 10 11 12 13

From lscpu:
Architecture: x86_64
CPU op-mode(s): 32-bit, 64-bit
Byte Order: Little Endian
CPU(s): 48
On-line CPU(s) list: 0-47
Thread(s) per core: 2
Core(s) per socket: 12
Socket(s): 2
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Silver 4116 CPU @ 2.10GHz

(Continued on next page)
Huawei
Huawei XH321 V5 (Intel Xeon Silver 4116)

SPECrated2017_fp_peak = 119
SPECrated2017_fp_base = 117

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

Platform Notes (Continued)

Stepping: 4
CPU MHz: 2100.000
BogoMIPS: 4205.58
Virtualization: VT-x
L1d cache: 32K
L1i cache: 32K
L2 cache: 1024K
L3 cache: 16896K
NUMA node0 CPU(s): 0-2, 6-8, 24-26, 30-32
NUMA node1 CPU(s): 3-5, 9-11, 27-29, 33-35
NUMA node2 CPU(s): 12-14, 18-20, 36-38, 42-44
NUMA node3 CPU(s): 15-17, 21-23, 39-41, 45-47

/proc/cpuinfo cache data
  cache size: 16896 KB

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 6 7 8 24 25 26 30 31 32
  node 0 size: 96437 MB
  node 0 free: 85242 MB
  node 1 cpus: 3 4 5 9 10 11 27 28 29 33 34 35
  node 1 size: 98304 MB
  node 1 free: 90372 MB
  node 2 cpus: 12 13 14 18 19 20 36 37 38 42 43 44
  node 2 size: 98304 MB
  node 2 free: 90671 MB
  node 3 cpus: 15 16 17 21 22 23 39 40 41 45 46 47
  node 3 size: 98304 MB
  node 3 free: 90746 MB
  node distances:
  node 0 1 2 3
  0: 10 11 21 21
  1: 11 10 21 21
  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="7.3 (Maipo)"

(Continued on next page)
Huawei
Huawei XH321 V5 (Intel Xeon Silver 4116)

SPECrate2017_fp_base = 117
SPECrate2017_fp_peak = 119

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

Platform Notes (Continued)

```plaintext
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)

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 Jun 12 20:11

SPEC is set to: /spec
Filesystem     Type  Size  Used Avail Use% Mounted on
/dev/sda8      xfs   325G  136G  190G  42% /
```

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. 0.59 02/24/2018
Memory:
4x NO DIMM NO DIMM
12x Samsung M393A4K40BB2-CTD 32 GB 2 rank 2666, configured at 2400

(End of data from sysinfo program)

Compiler Version Notes

```
CC  519.lbm_r(base) 538.imagick_r(base, peak) 544.nab_r(base)
-------------------------------------------------------------------------------
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
-------------------------------------------------------------------------------

CC  519.lbm_r(peak) 544.nab_r(peak)
-------------------------------------------------------------------------------
icc (ICC) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.
```

(Continued on next page)
**Huawei**

**Huawei XH321 V5 (Intel Xeon Silver 4116)**

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>117</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_fp_peak</td>
<td>119</td>
</tr>
</tbody>
</table>

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

**Compiler Version Notes (Continued)**

<table>
<thead>
<tr>
<th>Architecture</th>
<th>Compiler</th>
<th>Version</th>
<th>Date</th>
<th>License</th>
</tr>
</thead>
<tbody>
<tr>
<td>CXXC</td>
<td>icpc</td>
<td>18.0.0</td>
<td>20170811</td>
<td>Copyright (C) 1985-2017 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td></td>
<td>icpc</td>
<td>18.0.0</td>
<td>20170811</td>
<td>Copyright (C) 1985-2017 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td></td>
<td>iccc</td>
<td>18.0.0</td>
<td>20170811</td>
<td>Copyright (C) 1985-2017 Intel Corporation. All rights reserved.</td>
</tr>
<tr>
<td></td>
<td>ifort</td>
<td>18.0.0</td>
<td>20170811</td>
<td>Copyright (C) 1985-2017 Intel Corporation. All rights reserved.</td>
</tr>
</tbody>
</table>

(Continued on next page)
Huawei

Huawei XH321 V5 (Intel Xeon Silver 4116)

SPEC CPU2017 Floating Point Rate Result

Copyright 2017-2018 Standard Performance Evaluation Corporation

SPECrater2017_fp_base = 117
SPECrater2017_fp_peak = 119

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

Compiler Version Notes (Continued)

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  503.bwaves_r(base, peak) 549.fotonik3d_r(base, peak) 554.roms_r(base)
------------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
FC   554.roms_r(peak)
------------------------------------------------------------------------------
ifort (IFORT) 18.0.0 20170811
Copyright (C) 1985-2017 Intel Corporation. All rights reserved.

------------------------------------------------------------------------------
CC  521.wrf_r(base) 527.cam4_r(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   521.wrf_r(peak) 527.cam4_r(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

(Continued on next page)
# SPEC CPU2017 Floating Point Rate Result

## Huawei

**Huawei XH321 V5 (Intel Xeon Silver 4116)**

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>SPECrate2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>117</td>
<td>119</td>
</tr>
</tbody>
</table>

### Base Compiler Invocation (Continued)

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

- **Fortran benchmarks:**
  - ifort

- **Benchmarks using both Fortran and C:**
  - ifort icc

- **Benchmarks using both C and C++:**
  - icpc icc

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

### Base Portability Flags

- 503.bwaves_r: -DSPEC_LP64
- 507.cactuBSSN_r: -DSPEC_LP64
- 508.namd_r: -DSPEC_LP64
- 510.parest_r: -DSPEC_LP64
- 511.povray_r: -DSPEC_LP64
- 519.lbm_r: -DSPEC_LP64
- 521.wrf_r: -DSPEC_LP64 -DSPEC_CASE_FLAG -convert big_endian
- 526.blender_r: -DSPEC_LP64 -DSPEC_LINUX -funsigned-char
- 527.cam4_r: -DSPEC_LP64 -DSPEC_CASE_FLAG
- 538.imagick_r: -DSPEC_LP64
- 544.nab_r: -DSPEC_LP64
- 549.fotonik3d_r: -DSPEC_LP64
- 554.roms_r: -DSPEC_LP64

### Base Optimization Flags

- **C benchmarks:**
  - -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
  - -qopt-mem-layout-trans=3

- **C++ benchmarks:**
  - -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
  - -qopt-mem-layout-trans=3

---

*(Continued on next page)*
Huawei

Huawei XH321 V5 (Intel Xeon Silver 4116)

| SPECrate2017_fp_base = 117 |
| SPECrate2017_fp_peak = 119 |

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

**Base Optimization Flags (Continued)**

Fortran benchmarks:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-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 -nostandard-realloc-lhs -align array32byte
```

Benchmarks using both C and C++:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3
```

Benchmarks using Fortran, C, and C++:
```
-xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs -align array32byte
```

**Base Other Flags**

C benchmarks:
```
-m64 -std=c11
```

C++ benchmarks:
```
-m64
```

Fortran benchmarks:
```
-m64
```

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

Benchmarks using both C and C++:
```
-m64 -std=c11
```

Benchmarks using Fortran, C, and C++:
```
-m64 -std=c11
```

**Peak Compiler Invocation**

C benchmarks:
```
icc
```

(Continued on next page)
<table>
<thead>
<tr>
<th>Huawei XH321 V5 (Intel Xeon Silver 4116)</th>
<th>SPECrate2017_fp_base = 117</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPECrate2017_fp_peak = 119</td>
<td></td>
</tr>
</tbody>
</table>

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

---

### Peak Compiler Invocation (Continued)

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

- **Fortran benchmarks:**
  - ifort

- **Benchmarks using both Fortran and C:**
  - ifort icc

- **Benchmarks using both C and C++:**
  - icpc icc

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

---

### Peak Portability Flags

Same as Base Portability Flags

---

### Peak Optimization Flags

**C benchmarks:**

- 519.lbm_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3

- 538.imagick_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3

- 544.nab_r: Same as 519.lbm_r

**C++ benchmarks:**

- -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3 -no-prec-div -qopt-prefetch -ffinite-math-only -qopt-mem-layout-trans=3

**Fortran benchmarks:**

- 503.bwaves_r: basepeak = yes

(Continued on next page)
### Huawei

Huawei XH321 V5 (Intel Xeon Silver 4116)

<table>
<thead>
<tr>
<th>SPECrate2017_fp_base</th>
<th>SPECrate2017_fp_peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>117</td>
<td>119</td>
</tr>
</tbody>
</table>

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

#### Peak Optimization Flags (Continued)

549.fotonik3d_r: -xCORE-AVX2 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=3
-nostandard-realloc-lhs -align array32byte

554.roms_r: -prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3 -nostandard-realloc-lhs
-align array32byte

Benchmarks using both Fortran and C:

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

Benchmarks using both C and C++:

-prof-gen(pass 1) -prof-use(pass 2) -ipo -xCORE-AVX2 -O3
-no-prec-div -qopt-prefetch -ffinite-math-only
-qopt-mem-layout-trans=3

Benchmarks using Fortran, C, and C++:

507.cactusBSSN_r: basepeak = yes

### Peak Other Flags

- **C benchmarks**:
  - -m64 -std=c11

- **C++ benchmarks**:
  - -m64

- **Fortran benchmarks**:
  - -m64

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

- **Benchmarks using both C and C++**:
  - -m64 -std=c11

- **Benchmarks using Fortran, C, and C++**:
  - -m64 -std=c11
### Huawei XH321 V5 (Intel Xeon Silver 4116)

**SPECrate2017_fp_base = 117**

**SPECrate2017_fp_peak = 119**

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

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/Intel-ic18.0-official-linux64.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/Intel-ic18.0-official-linux64.xml)

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.

Tested with SPEC CPU2017 v1.0.2 on 2018-06-13 07:24:59-0400.
Report generated on 2018-10-31 19:01:04 by CPU2017 PDF formatter v6067.
Originally published on 2018-07-10.