



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

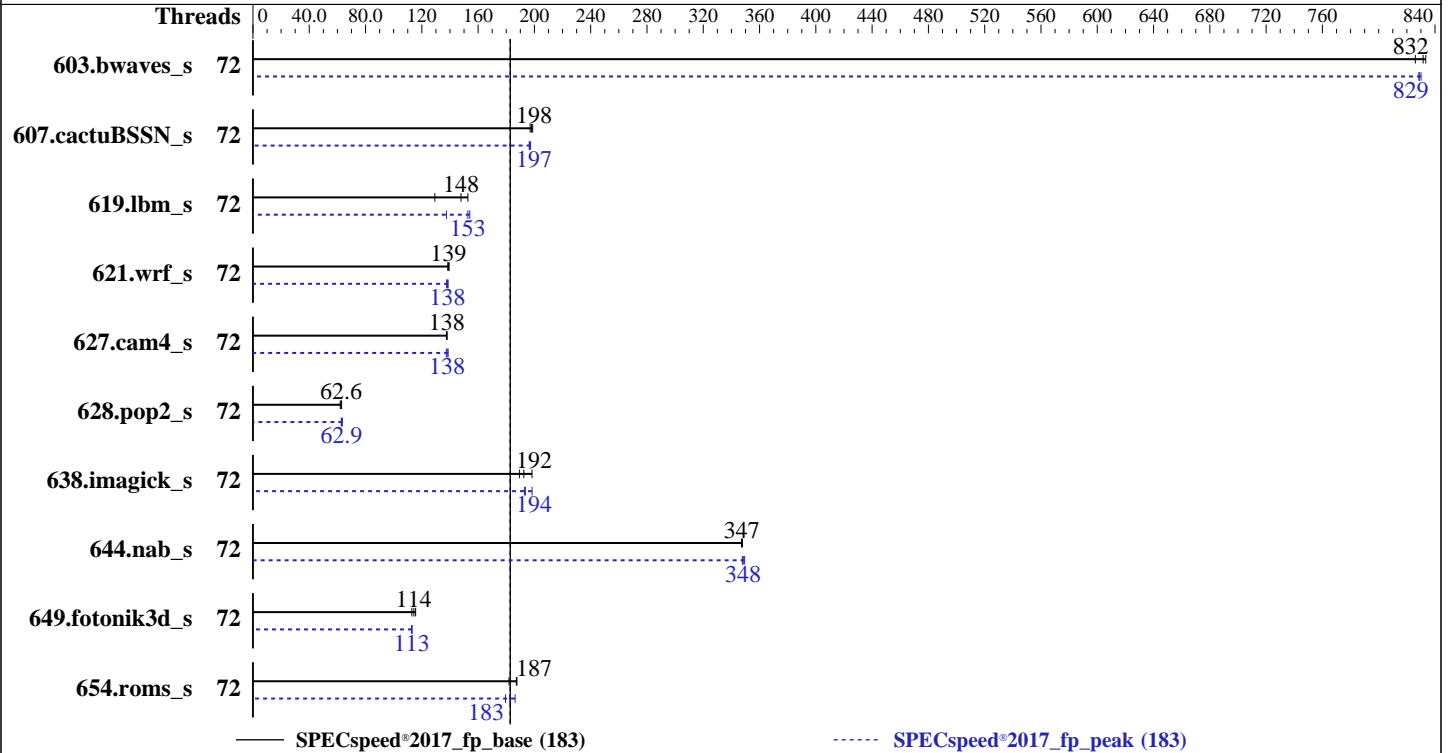
Test Date: Jun-2020

Test Sponsor: New H3C Technologies Co., Ltd.

Hardware Availability: Mar-2019

Tested by: New H3C Technologies Co., Ltd.

Software Availability: May-2019



Hardware

CPU Name: Intel Xeon Gold 6240
 Max MHz: 3900
 Nominal: 2600
 Enabled: 72 cores, 4 chips
 Orderable: 1,2,3,4 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 PC4-2933Y-R, running at 2933)
 Storage: 1 x 800 GB SATA SSD
 Other: None

Software

OS: Red Hat Enterprise Linux Server release 7.6 (Maipo)
 3.10.0-957.el7.x86_64
 Compiler: C/C++: Version 19.0.4.227 of Intel C/C++ Compiler Build 20190416 for Linux;
 Fortran: Version 19.0.4.227 of Intel Fortran Compiler Build 20190416 for Linux
 Parallel: Yes
 Firmware: Version 2.00.39 released Jun-2020 BIOS
 File System: xfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: None
 Power Management: BIOS set to prefer performance at the cost of additional power usage



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECSpeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECSpeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	72	70.9	832	71.4	826	70.8	833	72	71.2	829	71.1	830	71.2	829
607.cactuBSSN_s	72	84.2	198	84.6	197	83.9	199	72	84.8	197	84.5	197	84.9	196
619.lbm_s	72	40.5	129	35.4	148	34.3	153	72	38.1	138	34.0	154	34.3	153
621.wrf_s	72	95.6	138	95.1	139	94.9	139	72	95.6	138	95.4	139	96.1	138
627.cam4_s	72	64.3	138	64.3	138	64.4	138	72	63.9	139	64.5	137	64.2	138
628.pop2_s	72	188	63.0	191	62.0	190	62.6	72	189	62.9	187	63.6	189	62.8
638.imagick_s	72	76.2	189	74.9	192	72.7	198	72	74.5	194	74.8	193	72.7	198
644.nab_s	72	50.2	348	50.3	347	50.3	347	72	50.1	348	50.2	348	50.0	349
649.fotonik3d_s	72	79.7	114	80.7	113	78.9	116	72	80.7	113	80.9	113	80.7	113
654.roms_s	72	84.1	187	86.5	182	83.9	188	72	87.7	179	84.5	186	86.3	183

SPECSpeed®2017_fp_base = **183**

SPECSpeed®2017_fp_peak = **183**

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"

Environment Variables Notes

Environment variables set by runcpu before the start of the run:

KMP_AFFINITY = "granularity=fine,compact"

LD_LIBRARY_PATH = "/home/speccpu/lib/intel64"

OMP_STACKSIZE = "192M"

General Notes

Binaries compiled on a system with 1x Intel Core i9-7900X CPU + 32GB RAM memory using Redhat Enterprise Linux 7.5

NA: 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.

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
```



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Platform Notes

BIOS settings:

Set Hyper-Threading to Disabled
Set SNC to Disabled
Set IMC Interleaving to 2-way Interleave
Set Patrol Scrub to Disabled

Sysinfo program /home/speccpu/bin/sysinfo
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011
running on localhost.localdomain Mon Jun 15 10:49:18 2020

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 6240 CPU @ 2.60GHz
4 "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 : 18
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
physical 2: cores 0 1 2 3 4 8 9 10 11 16 17 18 19 20 24 25 26 27
physical 3: 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: 1
Core(s) per socket: 18
Socket(s): 4
NUMA node(s): 4
Vendor ID: GenuineIntel
CPU family: 6
Model: 85
Model name: Intel(R) Xeon(R) Gold 6240 CPU @ 2.60GHz
Stepping: 7
CPU MHz: 1005.310
CPU max MHz: 3900.0000
CPU min MHz: 1000.0000
BogoMIPS: 5200.00
Virtualization: VT-x

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Platform Notes (Continued)

```

L1d cache:          32K
L1i cache:          32K
L2 cache:           1024K
L3 cache:           25344K
NUMA node0 CPU(s): 0-17
NUMA node1 CPU(s): 18-35
NUMA node2 CPU(s): 36-53
NUMA node3 CPU(s): 54-71

```

```

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
aperfmpperf eagerfpu pni pclmulqdq dtes64 monitor ds_cpl vmx smx est tm2 ssse3 sdbg
fma cx16 xtpr pdcm pcid dca sse4_1 sse4_2 x2apic movbe popcnt tsc_deadline_timer aes
xsave avx f16c rdrand lahf_lm abm 3dnowprefetch epb cat_l3 cdp_l3 intel_ppin
intel_pt ssbd mba ibrs ibpb stibp ibrs_enhanced tpr_shadow vnmi flexpriority ept
vpid fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm cqm mpx rdt_a
avx512f avx512dq rdseed adx smap clflushopt clwb avx512cd avx512bw avx512vl xsaveopt
xsavec xgetbv1 cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln
pts hwp hwp_act_window hwp_epp hwp_pkg_req pku ospke avx512_vnni spec_ctrl
intel_stibp flush_lld 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: 4 nodes (0-3)
node 0 cpus: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
node 0 size: 96928 MB
node 0 free: 94230 MB
node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35
node 1 size: 98304 MB
node 1 free: 95953 MB
node 2 cpus: 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53
node 2 size: 98304 MB
node 2 free: 95911 MB
node 3 cpus: 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
node 3 size: 98304 MB
node 3 free: 95850 MB
node distances:
node  0  1  2  3
  0:  10  21  21  21
  1:  21  10  21  21
  2:  21  21  10  21
  3:  21  21  21  10

```

From /proc/meminfo

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Platform Notes (Continued)

MemTotal: 394633392 kB
HugePages_Total: 0
Hugepagesize: 2048 kB

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

```
os-release:
  NAME="Red Hat Enterprise Linux Server"
  VERSION="7.6 (Maipo)"
  ID="rhel"
  ID_LIKE="fedora"
  VARIANT="Server"
  VARIANT_ID="server"
  VERSION_ID="7.6"
  PRETTY_NAME="Red Hat Enterprise Linux Server 7.6 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
system-release: Red Hat Enterprise Linux Server release 7.6 (Maipo)
system-release-cpe: cpe:/o:redhat:enterprise_linux:7.6:ga:server
```

uname -a:

```
Linux localhost.localdomain 3.10.0-957.el7.x86_64 #1 SMP Thu Oct 4 20:48:51 UTC 2018
x86_64 x86_64 x86_64 GNU/Linux
```

Kernel self-reported vulnerability status:

```
CVE-2018-3620 (L1 Terminal Fault): Not affected
Microarchitectural Data Sampling: No status reported
CVE-2017-5754 (Meltdown): Not affected
CVE-2018-3639 (Speculative Store Bypass): Mitigation: Speculative Store Bypass disabled
via prctl and seccomp
CVE-2017-5753 (Spectre variant 1): Mitigation: Load fences, __user pointer
sanitization
CVE-2017-5715 (Spectre variant 2): Mitigation: Enhanced IBRS
```

run-level 3 Jun 15 10:46

SPEC is set to: /home/speccpu

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel-home	xfs	690G	20G	671G	3%	/home

From /sys/devices/virtual/dmi/id

```
BIOS: American Megatrends Inc. 2.00.39 06/11/2020
Vendor: New H3C Technologies Co., Ltd.
Product: UniServer R6700 G3
Serial: 210200A01SH18B000020
```

Additional information from dmidecode follows. WARNING: Use caution when you interpret this section. The 'dmidecode' program reads system data which is "intended to allow

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Platform Notes (Continued)

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.

Memory:

24x Hynix HMA82GR7CJR8N-WM 16 GB 2 rank 2933

24x NO DIMM NO DIMM

(End of data from sysinfo program)

Compiler Version Notes

```

=====
C | 619.lbm_s(base, peak) 638.imagick_s(base, peak)
  | 644.nab_s(base, peak)
-----

```

```

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
-----

```

```

=====
C++, C, Fortran | 607.cactuBSSN_s(base, peak)
-----

```

```

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
-----

```

```

=====
Fortran | 603.bwaves_s(base, peak) 649.fotonik3d_s(base, peak)
        | 654.roms_s(base, peak)
-----

```

```

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.4.227 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
-----

```

```

=====
Fortran, C | 621.wrf_s(base, peak) 627.cam4_s(base, peak)
           | 628.pop2_s(base, peak)
-----

```

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Compiler Version Notes (Continued)

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.

Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64, Version 19.0.4.227 Build 20190416

Copyright (C) 1985-2019 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.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

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-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch

-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp -DSPEC_OPENMP

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Base Optimization Flags (Continued)

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
```

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
```

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:

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

(Continued on next page)



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

Peak Optimization Flags (Continued)

Fortran benchmarks:

603.bwaves_s: -prof-gen(pass 1) -prof-use(pass 2) -DSPEC_SUPPRESS_OPENMP
-DSPEC_OPENMP -O2 -xCORE-AVX512 -qopt-prefetch -ipo -O3
-ffinite-math-only -no-prec-div -qopt-mem-layout-trans=4
-qopenmp -nostandard-realloc-lhs

649.fotonik3d_s: Same as 603.bwaves_s

654.roms_s: -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:

621.wrf_s: -prof-gen(pass 1) -prof-use(pass 2) -O2 -xCORE-AVX512
-qopt-prefetch -ipo -O3 -ffinite-math-only -no-prec-div
-qopt-mem-layout-trans=4 -DSPEC_SUPPRESS_OPENMP -qopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs

627.cam4_s: -xCORE-AVX512 -ipo -O3 -no-prec-div -qopt-prefetch
-ffinite-math-only -qopt-mem-layout-trans=4 -qopenmp
-DSPEC_OPENMP -nostandard-realloc-lhs

628.pop2_s: Same as 621.wrf_s

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

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.html>
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.3-SKL-RevE.html

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

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-09.xml>
http://www.spec.org/cpu2017/flags/New_H3C-Platform-Settings-V1.3-SKL-RevE.xml



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

New H3C Technologies Co., Ltd.

SPECspeed®2017_fp_base = 183

H3C UniServer R6700 G3 (Intel Xeon Gold 6240)

SPECspeed®2017_fp_peak = 183

CPU2017 License: 9066

Test Sponsor: New H3C Technologies Co., Ltd.

Tested by: New H3C Technologies Co., Ltd.

Test Date: Jun-2020

Hardware Availability: Mar-2019

Software Availability: May-2019

SPEC CPU and SPECspeed are registered trademarks 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 CPU®2017 v1.1.0 on 2020-06-14 22:49:17-0400.
Report generated on 2020-07-07 14:26:51 by CPU2017 PDF formatter v6255.
Originally published on 2020-07-07.