



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

## Tyrone Systems

(Test Sponsor: Netweb Pte Ltd)

### DS4A0TR-28R

(3.10 GHz, Intel Xeon Gold 6254)

SPECspeed®2017\_fp\_base = 117

SPECspeed®2017\_fp\_peak = 114

CPU2017 License: 006042

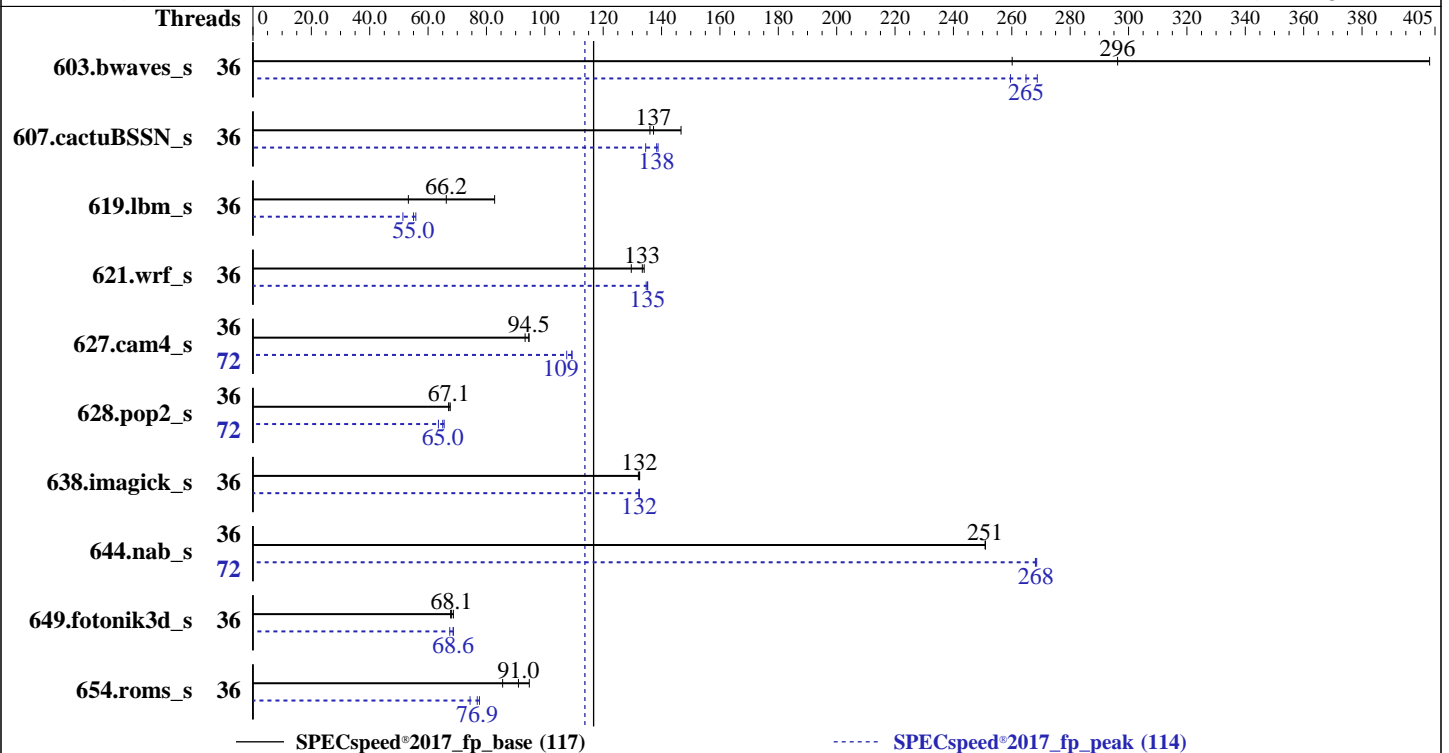
Test Sponsor: Netweb Pte Ltd

Tested by: Netweb

Test Date: Jan-2020

Hardware Availability: Sep-2019

Software Availability: Aug-2019



### Hardware

CPU Name: Intel Xeon Gold 6254  
 Max MHz: 4000  
 Nominal: 3100  
 Enabled: 36 cores, 2 chips, 2 threads/core  
 Orderable: 1, 2 (chip)s  
 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: 512 GB (16 x 32 GB 2Rx4 PC4-2933Y-R)  
 Storage: 1 x 480 GB SSD  
 Other: None

### Software

OS: CentOS Linux release 7.7.1908 (Core)  
 3.10.0-1062.el7.x86\_64  
 Compiler: C/C++: Version 19.0.4.243 of Intel C/C++  
 Compiler Build 20190416 for Linux;  
 Fortran: Version 19.0.4.243 of Intel Fortran  
 Compiler Build 20190416 for Linux  
 Parallel: Yes  
 Firmware: Version 5.14 released May-2019  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: None  
 Power Management: Default



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

DS4A0TR-28R

(3.10 GHz, Intel Xeon Gold 6254)

SPECSpeed®2017\_fp\_base = 117

SPECSpeed®2017\_fp\_peak = 114

CPU2017 License: 006042

Test Sponsor: Netweb Pte Ltd

Tested by: Netweb

Test Date: Jan-2020

Hardware Availability: Sep-2019

Software Availability: Aug-2019

## Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	36	146	403	<b><u>199</u></b>	<b><u>296</u></b>	227	260	36	<b><u>223</u></b>	<b><u>265</u></b>	220	269	227	260
607.cactuBSSN_s	36	114	147	123	136	<b><u>121</u></b>	<b><u>137</u></b>	36	<b><u>121</u></b>	<b><u>138</u></b>	120	139	124	135
619.lbm_s	36	63.3	82.8	<b><u>79.1</u></b>	<b><u>66.2</u></b>	98.4	53.2	36	93.9	55.8	102	51.4	<b><u>95.2</u></b>	<b><u>55.0</u></b>
621.wrf_s	36	98.7	134	<b><u>99.1</u></b>	<b><u>133</u></b>	102	130	36	98.2	135	97.8	135	<b><u>97.8</u></b>	<b><u>135</u></b>
627.cam4_s	36	93.7	94.6	<b><u>93.8</u></b>	<b><u>94.5</u></b>	95.1	93.2	72	82.4	108	81.1	109	<b><u>81.1</u></b>	<b><u>109</u></b>
628.pop2_s	36	<b><u>177</u></b>	<b><u>67.1</u></b>	176	67.6	177	67.1	72	187	63.5	<b><u>183</u></b>	<b><u>65.0</u></b>	181	65.5
638.imagick_s	36	109	132	109	132	<b><u>109</u></b>	<b><u>132</u></b>	36	<b><u>109</u></b>	<b><u>132</u></b>	109	132	109	132
644.nab_s	36	69.6	251	<b><u>69.6</u></b>	<b><u>251</u></b>	69.6	251	72	65.2	268	65.1	269	<b><u>65.1</u></b>	<b><u>268</u></b>
649.fotonik3d_s	36	<b><u>134</u></b>	<b><u>68.1</u></b>	135	67.7	133	68.7	36	135	67.4	<b><u>133</u></b>	<b><u>68.6</u></b>	133	68.7
654.roms_s	36	166	94.7	<b><u>173</u></b>	<b><u>91.0</u></b>	184	85.5	36	212	74.4	203	77.6	<b><u>205</u></b>	<b><u>76.9</u></b>

SPECSpeed®2017\_fp\_base = 117

SPECSpeed®2017\_fp\_peak = 114

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

## Compiler Notes

SPEC has learned that this result, which used an evaluation compiler, was submitted contrary to the compiler license terms.

Intel has granted a one-time waiver for this result.

## 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,1,0"

LD\_LIBRARY\_PATH = "/home/cpu2017/lib/ia32:/home/cpu2017/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

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
```

NA: 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)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

**DS4A0TR-28R**

(3.10 GHz, Intel Xeon Gold 6254)

SPECspeed®2017\_fp\_base = 117

SPECspeed®2017\_fp\_peak = 114

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Netweb

**Test Date:** Jan-2020

**Hardware Availability:** Sep-2019

**Software Availability:** Aug-2019

## 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

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
running on NODE4 Wed Jan 22 03:59:40 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 6254 CPU @ 3.10GHz

2 "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 : 36

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

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: 2

Core(s) per socket: 18

Socket(s): 2

NUMA node(s): 2

Vendor ID: GenuineIntel

CPU family: 6

Model: 85

Model name: Intel(R) Xeon(R) Gold 6254 CPU @ 3.10GHz

Stepping: 7

CPU MHz: 1199.963

CPU max MHz: 4000.0000

CPU min MHz: 1200.0000

BogoMIPS: 6200.00

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

**DS4A0TR-28R**

(3.10 GHz, Intel Xeon Gold 6254)

SPECspeed®2017\_fp\_base = 117

SPECspeed®2017\_fp\_peak = 114

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Netweb

**Test Date:** Jan-2020

**Hardware Availability:** Sep-2019

**Software Availability:** Aug-2019

## Platform Notes (Continued)

```

Virtualization:      VT-x
L1d cache:          32K
L1i cache:          32K
L2 cache:           1024K
L3 cache:           25344K
NUMA node0 CPU(s):  0-17,36-53
NUMA node1 CPU(s):  18-35,54-71
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
xsavc xgetbv1 cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local dtherm ida arat pln
pts pku ospke avx512_vnni md_clear spec_ctrl intel_stibp 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 8 9 10 11 12 13 14 15 16 17 36 37 38 39 40 41 42 43 44 45
46 47 48 49 50 51 52 53
node 0 size: 261543 MB
node 0 free: 227685 MB
node 1 cpus: 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 54 55 56 57 58 59 60
61 62 63 64 65 66 67 68 69 70 71
node 1 size: 262144 MB
node 1 free: 230033 MB
node distances:
node  0  1
 0:  10  21
 1:  21  10

```

```

From /proc/meminfo
MemTotal:          527747556 kB
HugePages_Total:      0
Hugepagesize:       2048 kB

```

```

From /etc/*release* /etc/*version*
centos-release: CentOS Linux release 7.7.1908 (Core)
centos-release-upstream: Derived from Red Hat Enterprise Linux 7.7 (Source)
os-release:

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

**DS4A0TR-28R**

(3.10 GHz, Intel Xeon Gold 6254)

SPECspeed®2017\_fp\_base = 117

SPECspeed®2017\_fp\_peak = 114

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Netweb

**Test Date:** Jan-2020

**Hardware Availability:** Sep-2019

**Software Availability:** Aug-2019

## Platform Notes (Continued)

```

NAME="CentOS Linux"
VERSION="7 (Core)"
ID="centos"
ID_LIKE="rhel fedora"
VERSION_ID="7"
PRETTY_NAME="CentOS Linux 7 (Core)"
ANSI_COLOR="0;31"
CPE_NAME="cpe:/o:centos:centos:7"

```

```

redhat-release: CentOS Linux release 7.7.1908 (Core)
system-release: CentOS Linux release 7.7.1908 (Core)
system-release-cpe: cpe:/o:centos:centos:7

```

uname -a:

```

Linux NODE4 3.10.0-1062.el7.x86_64 #1 SMP Wed Aug 7 18:08:02 UTC 2019 x86_64 x86_64
x86_64 GNU/Linux

```

Kernel self-reported vulnerability status:

```

CVE-2018-3620 (L1 Terminal Fault):          Not affected
Microarchitectural Data Sampling:         Not affected
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: Full retpoline, IBPB

```

run-level 3 Jan 20 01:58

SPEC is set to: /home/cpu2017

```

Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/mapper/centos-home xfs      392G  208G  185G  53% /home

```

From /sys/devices/virtual/dmi/id

BIOS: American Megatrends Inc. 5.14 05/16/2019

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.

Memory:

```

8x NO DIMM NO DIMM
16x Samsung M393A4K40CB2-CVF 32 GB 2 rank 2933

```

(End of data from sysinfo program)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

**DS4A0TR-28R**

(3.10 GHz, Intel Xeon Gold 6254)

**SPECspeed®2017\_fp\_base = 117**

**SPECspeed®2017\_fp\_peak = 114**

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Netweb

**Test Date:** Jan-2020

**Hardware Availability:** Sep-2019

**Software Availability:** Aug-2019

## 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 19.0.4.243 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
icc: NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.
=====

```

```

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

```

```

Intel(R) C++ Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.243 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
icpc: NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.243 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
icc: NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.
Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.4.243 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
ifort: NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.
=====

```

```

=====
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 19.0.4.243 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
ifort: NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.
=====

```

```

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

```

```

Intel(R) Fortran Intel(R) 64 Compiler for applications running on Intel(R)
64, Version 19.0.4.243 Build 20190416
Copyright (C) 1985-2019 Intel Corporation. All rights reserved.
ifort: NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.
Intel(R) C Intel(R) 64 Compiler for applications running on Intel(R) 64,
Version 19.0.4.243 Build 20190416
=====

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

DS4A0TR-28R

(3.10 GHz, Intel Xeon Gold 6254)

SPECspeed®2017\_fp\_base = 117

SPECspeed®2017\_fp\_peak = 114

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Netweb

**Test Date:** Jan-2020

**Hardware Availability:** Sep-2019

**Software Availability:** Aug-2019

## Compiler Version Notes (Continued)

Copyright (C) 1985-2019 Intel Corporation. All rights reserved.  
icc: NOTE: The evaluation period for this product ends on 2-nov-2019 UTC.

## 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
```

Fortran benchmarks:

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

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

**DS4A0TR-28R**

(3.10 GHz, Intel Xeon Gold 6254)

SPECspeed®2017\_fp\_base = 117

SPECspeed®2017\_fp\_peak = 114

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Netweb

**Test Date:** Jan-2020

**Hardware Availability:** Sep-2019

**Software Availability:** Aug-2019

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

`-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`

Fortran benchmarks:

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2020 Standard Performance Evaluation Corporation

**Tyrone Systems**

(Test Sponsor: Netweb Pte Ltd)

**DS4A0TR-28R**

(3.10 GHz, Intel Xeon Gold 6254)

**SPECspeed®2017\_fp\_base = 117**

**SPECspeed®2017\_fp\_peak = 114**

**CPU2017 License:** 006042

**Test Sponsor:** Netweb Pte Ltd

**Tested by:** Netweb

**Test Date:** Jan-2020

**Hardware Availability:** Sep-2019

**Software Availability:** Aug-2019

## Peak Optimization Flags (Continued)

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-linux64.2019-07-15.html>

<http://www.spec.org/cpu2017/flags/Default-Platform-Flags.html>

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

<http://www.spec.org/cpu2017/flags/Intel-ic19.0u1-official-linux64.2019-07-15.xml>

<http://www.spec.org/cpu2017/flags/Default-Platform-Flags.xml>

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](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.0 on 2020-01-22 03:59:40-0500.

Report generated on 2020-10-29 16:42:00 by CPU2017 PDF formatter v6255.

Originally published on 2020-02-18.