



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

## Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

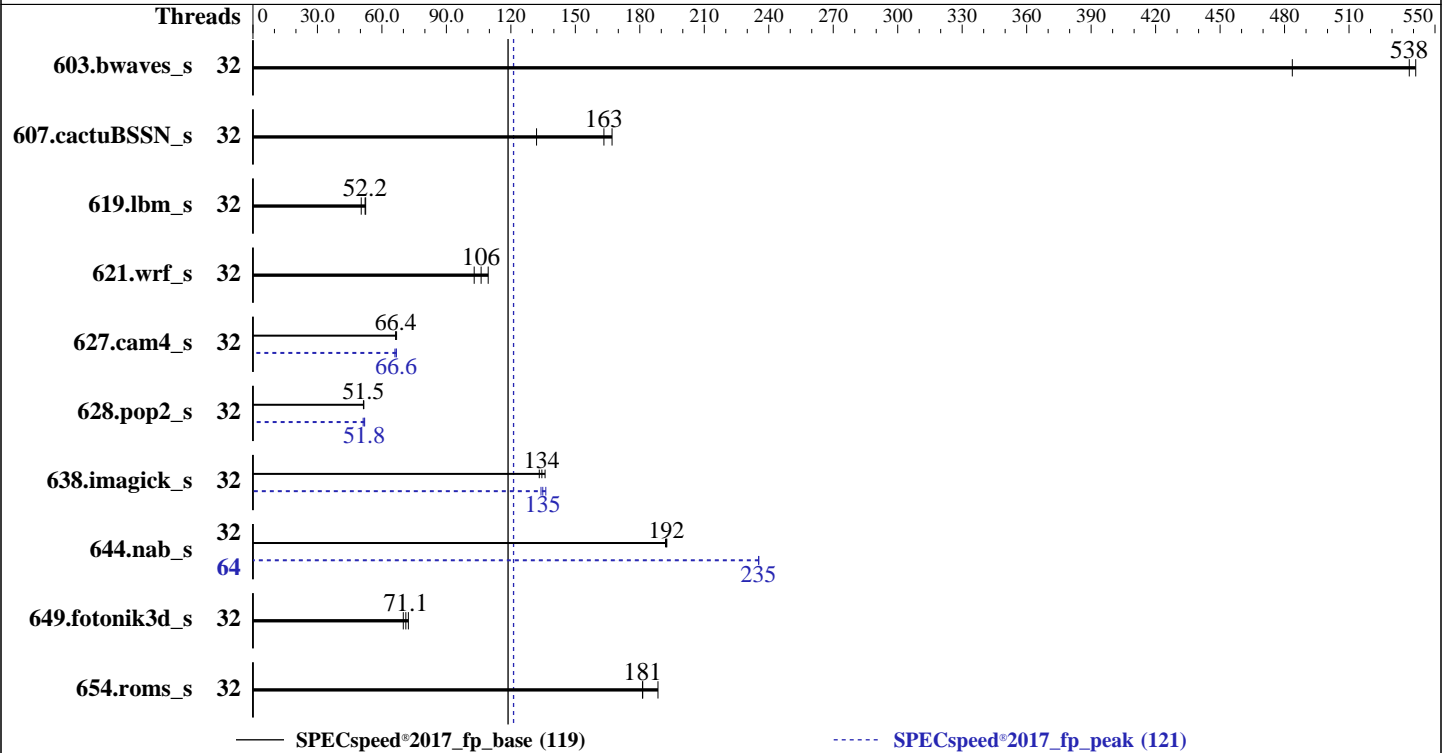
Test Date: Nov-2019

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2020

Tested by: Dell Inc.

Software Availability: Aug-2019



### Hardware

CPU Name: AMD EPYC 7302  
 Max MHz: 3300  
 Nominal: 3000  
 Enabled: 32 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 chips  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 512 KB I+D on chip per core  
 L3: 128 MB I+D on chip per chip, 16 MB shared / 2 cores  
 Other: None  
 Memory: 512 GB (16 x 32 GB 2Rx4 PC4-3200AA-R)  
 Storage: 2 x 960 GB SAS SSD  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP1  
 kernel 4.12.14-195-default  
 Compiler: C/C++/Fortran: Version 2.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Version 1.2.6 released Nov-2019  
 File System: xfs  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 64-bit  
 Other: jemalloc: jemalloc memory allocator library v5.1.0  
 Power Management: BIOS set to prefer performance at the cost of additional power usage.



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECSpeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECSpeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Date: Nov-2019

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2020

Tested by: Dell Inc.

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	32	109	541	<b>110</b>	<b>538</b>	122	484	32	109	541	<b>110</b>	<b>538</b>	122	484
607.cactuBSSN_s	32	99.8	167	<b>102</b>	<b>163</b>	126	132	32	99.8	167	<b>102</b>	<b>163</b>	126	132
619.lbm_s	32	<b>100</b>	<b>52.2</b>	99.9	52.4	104	50.4	32	<b>100</b>	<b>52.2</b>	99.9	52.4	104	50.4
621.wrf_s	32	<b>125</b>	<b>106</b>	128	103	121	109	32	<b>125</b>	<b>106</b>	128	103	121	109
627.cam4_s	32	133	66.8	133	66.4	<b>133</b>	<b>66.4</b>	32	133	66.7	<b>133</b>	<b>66.6</b>	134	66.0
628.pop2_s	32	231	51.4	<b>231</b>	<b>51.5</b>	230	51.6	32	228	52.0	<b>229</b>	<b>51.8</b>	232	51.3
638.imagick_s	32	106	136	<b>107</b>	<b>134</b>	108	133	32	<b>107</b>	<b>135</b>	106	136	108	134
644.nab_s	32	90.7	193	91.0	192	<b>90.8</b>	<b>192</b>	64	74.3	235	<b>74.3</b>	<b>235</b>	74.2	235
649.fotonik3d_s	32	126	72.3	130	69.9	<b>128</b>	<b>71.1</b>	32	126	72.3	130	69.9	<b>128</b>	<b>71.1</b>
654.roms_s	32	83.6	188	<b>86.8</b>	<b>181</b>	86.9	181	32	83.6	188	<b>86.8</b>	<b>181</b>	86.9	181

SPECSpeed®2017\_fp\_base = **119**

SPECSpeed®2017\_fp\_peak = **121**

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

## Compiler Notes

The AMD64 AOCC Compiler Suite is available at <http://developer.amd.com/amd-aocc/>

## Submit Notes

The config file option 'submit' was used.  
'numactl' was used to bind copies to the cores.  
See the configuration file for details.

## Operating System Notes

'ulimit -s unlimited' was used to set environment stack size  
'ulimit -l 2097152' was used to set environment locked pages in memory limit

```
runcpu command invoked through numactl i.e.:  
numactl --interleave=all runcpu <etc>
```

Set dirty\_ratio=8 to limit dirty cache to 8% of memory  
Set swappiness=1 to swap only if necessary  
Set zone\_reclaim\_mode=1 to free local node memory and avoid remote memory  
sync then drop\_caches=3 to reset caches before invoking runcpu

dirty\_ratio, swappiness, zone\_reclaim\_mode and drop\_caches were all set using privileged echo (e.g. echo 1 > /proc/sys/vm/swappiness).

Transparent huge pages set to 'always' for this run (OS default)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Environment Variables Notes

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

GOMP\_CPU\_AFFINITY = "0-63"

LD\_LIBRARY\_PATH =

"/root/cpu2017-1.1.0/amd\_speed\_aocc200\_rome\_C\_lib/64;/root/cpu2017-1.1.0/amd\_speed\_aocc200\_rome\_C\_lib/32:"

MALLOC\_CONF = "retain:true"

OMP\_DYNAMIC = "false"

OMP\_SCHEDULE = "static"

OMP\_STACKSIZE = "128M"

OMP\_THREAD\_LIMIT = "64"

Environment variables set by runcpu during the 627.cam4\_s peak run:

GOMP\_CPU\_AFFINITY = "0-31"

Environment variables set by runcpu during the 628.pop2\_s peak run:

GOMP\_CPU\_AFFINITY = "0-31"

Environment variables set by runcpu during the 638.imagick\_s peak run:

GOMP\_CPU\_AFFINITY = "0-31"

Environment variables set by runcpu during the 644.nab\_s peak run:

GOMP\_CPU\_AFFINITY = "0 32 1 33 2 34 3 35 4 36 5 37 6 38 7 39 8 40 9 41 10 42 11 43 12 44 13 45 14 46 15 47 16 48 17 49 18 50 19 51 20 52 21 53 22 54 23 55 24 56 25 57 26 58 27 59 28 60 29 61 30 62 31 63"

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 7601 CPU + 512GB Memory using Fedora 26

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.

jemalloc: configured and built with GCC v9.1.0 in Ubuntu 19.04 with -O3 -znver2 -flto

jemalloc 5.1.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>

## Platform Notes

BIOS settings:

NUMA Nodes Per Socket set to 4

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Platform Notes (Continued)

CCX as NUMA Domain set to Enabled  
 System Profile set to Custom  
 CPU Power Management set to Maximum Performance  
 Memory Frequency set to Maximum Performance  
 Turbo Boost Enabled  
 Cstates set to Enabled  
 Memory Patrol Scrub Disabled  
 Memory Refresh Rate set to 1x  
 PCI ASPM L1 Link Power Management Disabled  
 Determinism Slider set to Power Determinism  
 Efficiency Optimized Mode Disabled  
 Memory Interleaving set to Disabled

sysinfo program /root/cpu2017-1.1.0/bin/sysinfo  
 Rev: r6365 of 2019-08-21 295195f888a3d7edble6e46a485a0011  
 running on linux-g3ob Fri Nov 29 10:11:53 2019

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 : AMD EPYC 7302 16-Core Processor  
 2 "physical id"s (chips)  
 64 "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 : 16  
 siblings : 32  
 physical 0: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29  
 physical 1: cores 0 1 4 5 8 9 12 13 16 17 20 21 24 25 28 29

From lscpu:  
 Architecture: x86\_64  
 CPU op-mode(s): 32-bit, 64-bit  
 Byte Order: Little Endian  
 Address sizes: 43 bits physical, 48 bits virtual  
 CPU(s): 64  
 On-line CPU(s) list: 0-63  
 Thread(s) per core: 2  
 Core(s) per socket: 16  
 Socket(s): 2  
 NUMA node(s): 16  
 Vendor ID: AuthenticAMD  
 CPU family: 23  
 Model: 49  
 Model name: AMD EPYC 7302 16-Core Processor

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Platform Notes (Continued)

```
Stepping: 0
CPU MHz: 2994.478
BogoMIPS: 5988.95
Virtualization: AMD-V
L1d cache: 32K
L1i cache: 32K
L2 cache: 512K
L3 cache: 16384K
NUMA node0 CPU(s): 0,1,32,33
NUMA node1 CPU(s): 2,3,34,35
NUMA node2 CPU(s): 4,5,36,37
NUMA node3 CPU(s): 6,7,38,39
NUMA node4 CPU(s): 8,9,40,41
NUMA node5 CPU(s): 10,11,42,43
NUMA node6 CPU(s): 12,13,44,45
NUMA node7 CPU(s): 14,15,46,47
NUMA node8 CPU(s): 16,17,48,49
NUMA node9 CPU(s): 18,19,50,51
NUMA node10 CPU(s): 20,21,52,53
NUMA node11 CPU(s): 22,23,54,55
NUMA node12 CPU(s): 24,25,56,57
NUMA node13 CPU(s): 26,27,58,59
NUMA node14 CPU(s): 28,29,60,61
NUMA node15 CPU(s): 30,31,62,63
Flags: fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov
pat pse36 clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
constant_tsc rep_good nopl xtopology nonstop_tsc cpuid extd_apicid aperfmperf pni
pclmulqdq monitor ssse3 fma cx16 sse4_1 sse4_2 movbe popcnt aes xsave avx fl6c
rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpext perfctr_l2 mwaitx cpb
cat_l3 cdp_l3 hw_pstate sme ssbd sev ibrs ibpb stibp vmmcall fsgsbase bmi1 avx2 smep
bmi2 cqm rdt_a rdseed adx smap clflushopt clwb sha_ni xsaveopt xsavec xgetbv1 xsaves
cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local clzero irperf xsaveerptr arat npt
lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter
pfthreshold avic v_omsave_vmload vgif umip rdpid overflow_recov succor smca
```

```
/proc/cpuinfo cache data
cache size : 512 KB
```

```
From numactl --hardware WARNING: a numactl 'node' might or might not correspond to a
physical chip.
available: 16 nodes (0-15)
node 0 cpus: 0 1 32 33
node 0 size: 31676 MB
node 0 free: 31614 MB
node 1 cpus: 2 3 34 35
node 1 size: 32254 MB
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Platform Notes (Continued)

```

node 1 free: 32201 MB
node 2 cpus: 4 5 36 37
node 2 size: 32255 MB
node 2 free: 32219 MB
node 3 cpus: 6 7 38 39
node 3 size: 32254 MB
node 3 free: 32219 MB
node 4 cpus: 8 9 40 41
node 4 size: 32255 MB
node 4 free: 32208 MB
node 5 cpus: 10 11 42 43
node 5 size: 32254 MB
node 5 free: 32212 MB
node 6 cpus: 12 13 44 45
node 6 size: 32255 MB
node 6 free: 32200 MB
node 7 cpus: 14 15 46 47
node 7 size: 32242 MB
node 7 free: 32147 MB
node 8 cpus: 16 17 48 49
node 8 size: 32255 MB
node 8 free: 32213 MB
node 9 cpus: 18 19 50 51
node 9 size: 32254 MB
node 9 free: 32215 MB
node 10 cpus: 20 21 52 53
node 10 size: 32255 MB
node 10 free: 32133 MB
node 11 cpus: 22 23 54 55
node 11 size: 32254 MB
node 11 free: 32184 MB
node 12 cpus: 24 25 56 57
node 12 size: 32255 MB
node 12 free: 32214 MB
node 13 cpus: 26 27 58 59
node 13 size: 32225 MB
node 13 free: 32188 MB
node 14 cpus: 28 29 60 61
node 14 size: 32255 MB
node 14 free: 32162 MB
node 15 cpus: 30 31 62 63
node 15 size: 32253 MB
node 15 free: 32217 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
0:  10 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11
1:  11 10 11 11 11 11 11 11 11 11 11 11 11 11 11 11

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECSpeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECSpeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Date: Nov-2019

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2020

Tested by: Dell Inc.

Software Availability: Aug-2019

## Platform Notes (Continued)

2:	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11	11
3:	11	11	11	10	11	11	11	11	11	11	11	11	11	11	11	11
4:	11	11	11	11	10	11	11	11	11	11	11	11	11	11	11	11
5:	11	11	11	11	11	10	11	11	11	11	11	11	11	11	11	11
6:	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11	11
7:	11	11	11	11	11	11	11	10	11	11	11	11	11	11	11	11
8:	11	11	11	11	11	11	11	11	10	11	11	11	11	11	11	11
9:	11	11	11	11	11	11	11	11	11	10	11	11	11	11	11	11
10:	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11	11
11:	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11	11
12:	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11	11
13:	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11	11
14:	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10	11
15:	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	10

```
From /proc/meminfo
MemTotal:      527827632 kB
HugePages_Total:      0
Hugepagesize:    2048 kB
```

```
From /etc/*release* /etc/*version*
os-release:
NAME="SLES"
VERSION="15-SP1"
VERSION_ID="15.1"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP1"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp1"
```

```
uname -a:
Linux linux-g3ob 4.12.14-195-default #1 SMP Tue May 7 10:55:11 UTC 2019 (8fba516)
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: __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):      Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: conditional, RSB filling
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Platform Notes (Continued)

run-level 3 Nov 28 17:14 last=5

SPEC is set to: /root/cpu2017-1.1.0

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/sda2	xfs	440G	36G	405G	8%	/

From /sys/devices/virtual/dmi/id

BIOS: Dell Inc. 1.2.6 11/21/2019

Vendor: Dell Inc.

Product: PowerEdge R7525

Product Family: PowerEdge

Serial: 1234567

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:

7x 802C80B3802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200

8x 802C869D802C 36ASF4G72PZ-3G2E2 32 GB 2 rank 3200

1x 80AD80B380AD HMA84GR7CJR4N-XN 32 GB 2 rank 3200

16x Not Specified Not Specified

(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)
=====

```

```

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
=====

```

```

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

```

```

AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin

```

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Dell Inc.**

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Date: Nov-2019

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2020

Tested by: Dell Inc.

Software Availability: Aug-2019

## Compiler Version Notes (Continued)

```
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
```

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

```
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
```

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

```
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
AOCC.LLVM.2.0.0.B191.2019_07_19 clang version 8.0.0 (CLANG: Jenkins
  AOCC_2_0_0-Build#191) (based on LLVM AOCC.LLVM.2.0.0.B191.2019_07_19)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /sppo/dev/compilers/aocc-compiler-2.0.0/bin
```

## Base Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Base Compiler Invocation (Continued)

Benchmarks using both Fortran and C:

flang clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Base Portability Flags

```

603.bwaves_s: -DSPEC_LP64
607.cactuBSSN_s: -DSPEC_LP64
619.lbm_s: -DSPEC_LP64
621.wrf_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
627.cam4_s: -DSPEC_CASE_FLAG -DSPEC_LP64
628.pop2_s: -DSPEC_CASE_FLAG -Mbyteswapio -DSPEC_LP64
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:

```

-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-freemap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -z muldefs -DSPEC_OPENMP -fopenmp
-DUSE_OPENMP -fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm
-ljemalloc -lflang

```

Fortran benchmarks:

```

-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver2
-funroll-loops -Mrecursive -mllvm -vector-library=LIBMVEC -z muldefs
-Kieee -fno-finite-math-only -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

**Dell Inc.**

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

-lflang

Benchmarks using both Fortran and C:

```
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -ffast-math
-march=znver2 -fstruct-layout=3 -mllvm -unroll-threshold=50
-freemap-arrays -mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -funroll-loops -Mrecursive -z muldefs
-Kieee -fno-finite-math-only -DSPEC_OPENMP -fopenmp -DUSE_OPENMP
-fopenmp=libomp -lomp -lpthread -ldl -lmvec -lamdlibm -ljemalloc
-lflang
```

Benchmarks using Fortran, C, and C++:

```
-std=c++98 -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-suppress-fmas -O3 -ffast-math -march=znver2
-fstruct-layout=3 -mllvm -unroll-threshold=50 -freemap-arrays
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -reduce-array-computations=3 -mllvm -global-vectorize-slp
-mllvm -vector-library=LIBMVEC -mllvm -inline-threshold=1000
-flv-function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -unroll-threshold=100 -mllvm -enable-partial-unswitch
-funroll-loops -Mrecursive -z muldefs -Kieee -fno-finite-math-only
-DSPEC_OPENMP -fopenmp -DUSE_OPENMP -fopenmp=libomp -lomp -lpthread
-ldl -lmvec -lamdlibm -ljemalloc -lflang
```

## Base Other Flags

C benchmarks:

-Wno-return-type

Fortran benchmarks:

-Wno-return-type

Benchmarks using both Fortran and C:

-Wno-return-type

Benchmarks using Fortran, C, and C++:

-Wno-return-type



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Peak Compiler Invocation

C benchmarks:

clang

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Peak Portability Flags

Same as Base Portability Flags

## Peak Optimization Flags

C benchmarks:

619.lbm\_s: basepeak = yes

638.imagick\_s: -flto -Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-vector-library=LIBMVEC  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast  
-march=znver2 -mno-sse4a -fstruct-layout=5  
-mllvm -vectorize-memory-aggressively  
-mllvm -function-specialize -mllvm -enable-gvn-hoist  
-mllvm -unroll-threshold=50 -fremap-arrays  
-mllvm -vector-library=LIBMVEC  
-mllvm -reduce-array-computations=3  
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000  
-flv-function-specialization -DSPEC\_OPENMP -fopenmp  
-DUSE\_OPENMP -lmvec -lamdlibm -fopenmp=libomp -lomp  
-lpthread -ldl -ljemalloc -lflang

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

Fortran benchmarks:

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Peak Optimization Flags (Continued)

603.bwaves\_s: basepeak = yes

649.fotonik3d\_s: basepeak = yes

654.roms\_s: basepeak = yes

Benchmarks using both Fortran and C:

621.wrf\_s: basepeak = yes

```

627.cam4_s: -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-vector-library=LIBMVEC
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver2 -mno-sse4a -fstruct-layout=5
-mllvm -vectorize-memory-aggressively
-mllvm -function-specialize -mllvm -enable-gvn-hoist
-mllvm -unroll-threshold=50 -fremap-arrays
-mllvm -vector-library=LIBMVEC
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp -mllvm -inline-threshold=1000
-flv-function-specialization -O3 -funroll-loops
-Mrecursive -Kieee -fno-finite-math-only -DSPEC_OPENMP
-fopenmp -DUSE_OPENMP -fopenmp=libomp -lomp -lpthread
-ldl -lmvec -lamdlibm -ljemalloc -lflang

```

628.pop2\_s: Same as 627.cam4\_s

Benchmarks using Fortran, C, and C++:

607.cactuBSSN\_s: basepeak = yes

## Peak Other Flags

C benchmarks:

-Wno-return-type

Fortran benchmarks:

-Wno-return-type

Benchmarks using both Fortran and C:

-Wno-return-type

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2019 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017\_fp\_base = 119

PowerEdge R7525 (AMD EPYC 7302, 3.00 GHz)

SPECspeed®2017\_fp\_peak = 121

CPU2017 License: 55

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2019

Hardware Availability: Feb-2020

Software Availability: Aug-2019

## Peak Other Flags (Continued)

Benchmarks using Fortran, C, and C++:

-Wno-return-type

The flags files that were used to format this result can be browsed at

<http://www.spec.org/cpu2017/flags/aocc200-flags-B1-speed-Dell.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE7.html>

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

<http://www.spec.org/cpu2017/flags/aocc200-flags-B1-speed-Dell.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-revE7.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 2019-11-29 11:11:52-0500.

Report generated on 2019-12-26 11:33:22 by CPU2017 PDF formatter v6255.

Originally published on 2019-12-24.