



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

CPU2017 License: 9019

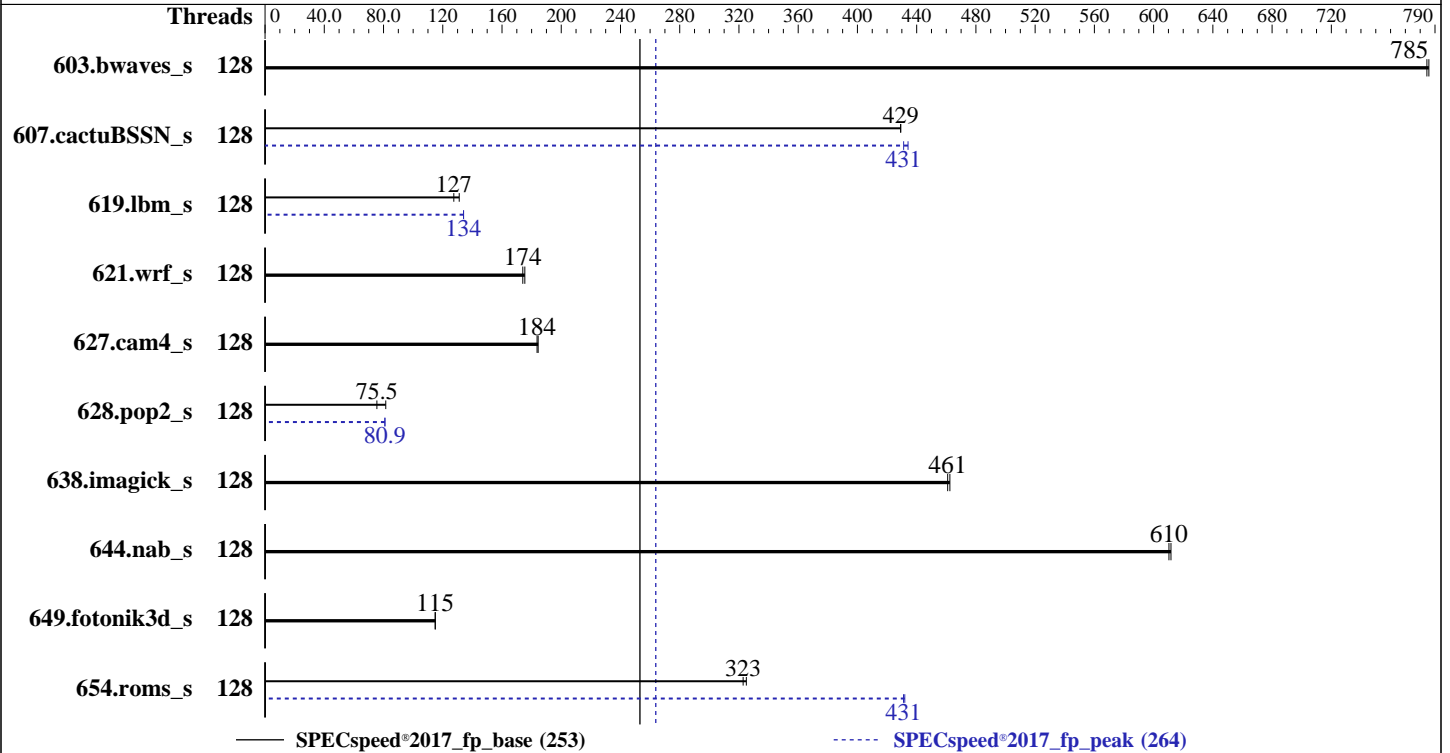
Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Aug-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021



### Hardware

CPU Name: AMD EPYC 7763  
 Max MHz: 3500  
 Nominal: 2450  
 Enabled: 128 cores, 2 chips  
 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: 256 MB I+D on chip per chip,  
 32 MB shared / 8 cores  
 Other: None  
 Memory: 2 TB (16 x 128 GB 4Rx4 PC4-3200V-L)  
 Storage: 1 x 960 GB M.2 SSD SATA  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP3 (x86\_64)  
 kernel version 5.3.18-57-default  
 Compiler: C/C++/Fortran: Version 3.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Version 4.2.0.287 released Jul-2021  
 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 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

## Results Table

Benchmark	Base						Peak							
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	128	<b><u>75.2</u></b>	<b><u>785</u></b>	75.1	786			128	<b><u>75.2</u></b>	<b><u>785</u></b>	75.1	786		
607.cactuBSSN_s	128	<b><u>38.8</u></b>	<b><u>429</u></b>	38.8	429			128	38.4	434	<b><u>38.7</u></b>	<b><u>431</u></b>		
619.lbm_s	128	<b><u>41.1</u></b>	<b><u>127</u></b>	40.0	131			128	<b><u>39.1</u></b>	<b><u>134</u></b>	39.1	134		
621.wrf_s	128	<b><u>76.0</u></b>	<b><u>174</u></b>	75.4	175			128	<b><u>76.0</u></b>	<b><u>174</u></b>	75.4	175		
627.cam4_s	128	<b><u>48.3</u></b>	<b><u>184</u></b>	48.1	184			128	<b><u>48.3</u></b>	<b><u>184</u></b>	48.1	184		
628.pop2_s	128	<b><u>157</u></b>	<b><u>75.5</u></b>	146	81.5			128	147	80.9	<b><u>147</u></b>	<b><u>80.9</u></b>		
638.imagick_s	128	31.2	462	<b><u>31.3</u></b>	<b><u>461</u></b>			128	31.2	462	<b><u>31.3</u></b>	<b><u>461</u></b>		
644.nab_s	128	<b><u>28.6</u></b>	<b><u>610</u></b>	28.6	612			128	<b><u>28.6</u></b>	<b><u>610</u></b>	28.6	612		
649.fotonik3d_s	128	<b><u>79.4</u></b>	<b><u>115</u></b>	79.3	115			128	<b><u>79.4</u></b>	<b><u>115</u></b>	79.3	115		
654.roms_s	128	<b><u>48.8</u></b>	<b><u>323</u></b>	48.4	325			128	36.4	432	<b><u>36.5</u></b>	<b><u>431</u></b>		

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

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 limit  
'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>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty\_ratio=8' run as root.  
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.  
To free node-local memory and avoid remote memory usage,  
'sysctl -w vm.zone\_reclaim\_mode=1' run as root.  
To clear filesystem caches, 'sync; sysctl -w vm.drop\_caches=3' run as root.  
To disable address space layout randomization (ASLR) to reduce run-to-run variability, 'sysctl -w kernel.randomize\_va\_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Aug-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Operating System Notes (Continued)

```
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.
```

## Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-127"
```

```
LD_LIBRARY_PATH =
```

```
"/home/cpu2017/amd_speed_aocc300_milan_B_lib/lib;/home/cpu2017/amd_speed  
_aocc300_milan_B_lib/lib32:"
```

```
MALLOC_CONF = "retain:true"
```

```
OMP_DYNAMIC = "false"
```

```
OMP_SCHEDULE = "static"
```

```
OMP_STACKSIZE = "128M"
```

```
OMP_THREAD_LIMIT = "128"
```

Environment variables set by runcpu during the 607.cactuBSSN\_s peak run:

```
GOMP_CPU_AFFINITY = "0-127"
```

Environment variables set by runcpu during the 619.lbm\_s peak run:

```
GOMP_CPU_AFFINITY = "0-127"
```

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

```
GOMP_CPU_AFFINITY = "0-127"
```

Environment variables set by runcpu during the 654.roms\_s peak run:

```
GOMP_CPU_AFFINITY = "0-127"
```

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using openSUSE 15.2

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 v4.8.2 in RHEL 7.4 (No options specified)

jemalloc 5.1.0 is available here:

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



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

**Cisco Systems**  
Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253  
SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

## Platform Notes

### BIOS Configuration

SMT Mode set to Disabled  
NUMA nodes per socket set to NPS2  
ACPI SRAT L3 Cache As NUMA Domain set to Enabled  
DRAM Scrub Time set to Disabled  
Determinism Slider set to Power  
cTDP Control set to Manual  
cTDP set to 280  
EDC Control set to Manual  
EDC set to 300  
L2 Stream HW Prefetcher set to Disabled  
Memory Interleaving set to Disabled  
APBDIS set to 1  
xGMI Link config set to 4

Sysinfo program /home/cpu2017/bin/sysinfo  
Rev: r6622 of 2021-04-07 982a61ec0915b55891ef0e16acafc64d  
running on localhost Mon Aug 16 06:46:29 2021

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 7763 64-Core Processor
 2 "physical id"s (chips)
128 "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 : 64
  siblings  : 64
physical 0: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63
physical 1: cores 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52
53 54 55 56 57 58 59 60 61 62 63
```

### From lscpu from util-linux 2.36.2:

```
Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Byte Order:            Little Endian
Address sizes:         48 bits physical, 48 bits virtual
CPU(s):                128
On-line CPU(s) list:   0-127
Thread(s) per core:    1
Core(s) per socket:    64
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Aug-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021

### Platform Notes (Continued)

```

Socket(s): 2
NUMA node(s): 16
Vendor ID: AuthenticAMD
CPU family: 25
Model: 1
Model name: AMD EPYC 7763 64-Core Processor
Stepping: 1
Frequency boost: enabled
CPU MHz: 1794.422
CPU max MHz: 2450.0000
CPU min MHz: 1500.0000
BogoMIPS: 4890.77
Virtualization: AMD-V
L1d cache: 4 MiB
L1i cache: 4 MiB
L2 cache: 64 MiB
L3 cache: 512 MiB
NUMA node0 CPU(s): 0-7
NUMA node1 CPU(s): 8-15
NUMA node2 CPU(s): 16-23
NUMA node3 CPU(s): 24-31
NUMA node4 CPU(s): 32-39
NUMA node5 CPU(s): 40-47
NUMA node6 CPU(s): 48-55
NUMA node7 CPU(s): 56-63
NUMA node8 CPU(s): 64-71
NUMA node9 CPU(s): 72-79
NUMA node10 CPU(s): 80-87
NUMA node11 CPU(s): 88-95
NUMA node12 CPU(s): 96-103
NUMA node13 CPU(s): 104-111
NUMA node14 CPU(s): 112-119
NUMA node15 CPU(s): 120-127
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Full AMD retpoline, IBPB conditional, IBRS_FW, STIBP disabled, RSB filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected
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

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

### Platform Notes (Continued)

```
pdpelgb rdtscp lm constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid
aperfmpperf pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 movbe popcnt aes
xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy abm sse4a
misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb
bpxt perfctr_llc mwaitx cpb cat_l3 cdp_l3 invpcid_single hw_pstate ssbd mba ibrs
ibpb stibp vmmcall fsgsbase bmi1 avx2 smep bmi2 erms invpcid 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 wbnoinvd amd_ppin arat npt lbrv
svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter
pfthreshold v_vmsave_vmload vgif umip pku ospke vaes vpclmulqdq rdpid overflow_recov
succor smca fsrm
```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	4M	8	Data	1	64	1	64
L1i	32K	4M	8	Instruction	1	64	1	64
L2	512K	64M	8	Unified	2	1024	1	64
L3	32M	512M	16	Unified	3	32768	1	64

```
/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 2 3 4 5 6 7
node 0 size: 128834 MB
node 0 free: 128637 MB
node 1 cpus: 8 9 10 11 12 13 14 15
node 1 size: 129021 MB
node 1 free: 128892 MB
node 2 cpus: 16 17 18 19 20 21 22 23
node 2 size: 129021 MB
node 2 free: 128921 MB
node 3 cpus: 24 25 26 27 28 29 30 31
node 3 size: 129021 MB
node 3 free: 128924 MB
node 4 cpus: 32 33 34 35 36 37 38 39
node 4 size: 129021 MB
node 4 free: 128869 MB
node 5 cpus: 40 41 42 43 44 45 46 47
node 5 size: 129021 MB
node 5 free: 128929 MB
node 6 cpus: 48 49 50 51 52 53 54 55
node 6 size: 129021 MB
node 6 free: 128907 MB
node 7 cpus: 56 57 58 59 60 61 62 63
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

CPU2017 License: 9019

Test Sponsor: Cisco Systems

Tested by: Cisco Systems

Test Date: Aug-2021

Hardware Availability: Jun-2021

Software Availability: Jun-2021

### Platform Notes (Continued)

```

node 7 size: 116909 MB
node 7 free: 116811 MB
node 8 cpus: 64 65 66 67 68 69 70 71
node 8 size: 129021 MB
node 8 free: 128915 MB
node 9 cpus: 72 73 74 75 76 77 78 79
node 9 size: 129021 MB
node 9 free: 128908 MB
node 10 cpus: 80 81 82 83 84 85 86 87
node 10 size: 129021 MB
node 10 free: 128496 MB
node 11 cpus: 88 89 90 91 92 93 94 95
node 11 size: 129021 MB
node 11 free: 128889 MB
node 12 cpus: 96 97 98 99 100 101 102 103
node 12 size: 129021 MB
node 12 free: 128890 MB
node 13 cpus: 104 105 106 107 108 109 110 111
node 13 size: 129021 MB
node 13 free: 128856 MB
node 14 cpus: 112 113 114 115 116 117 118 119
node 14 size: 129021 MB
node 14 free: 128905 MB
node 15 cpus: 120 121 122 123 124 125 126 127
node 15 size: 128982 MB
node 15 free: 128850 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 32 32 32 32 32 32 32 32
  1:  11 10 11 11 11 11 11 11 32 32 32 32 32 32 32 32
  2:  11 11 10 11 11 11 11 11 32 32 32 32 32 32 32 32
  3:  11 11 11 10 11 11 11 11 32 32 32 32 32 32 32 32
  4:  11 11 11 11 10 11 11 11 32 32 32 32 32 32 32 32
  5:  11 11 11 11 11 10 11 11 32 32 32 32 32 32 32 32
  6:  11 11 11 11 11 11 10 11 32 32 32 32 32 32 32 32
  7:  11 11 11 11 11 11 11 10 32 32 32 32 32 32 32 32
  8:  32 32 32 32 32 32 32 32 32 10 11 11 11 11 11 11
  9:  32 32 32 32 32 32 32 32 32 11 10 11 11 11 11 11
 10:  32 32 32 32 32 32 32 32 32 11 11 10 11 11 11 11
 11:  32 32 32 32 32 32 32 32 32 11 11 11 10 11 11 11
 12:  32 32 32 32 32 32 32 32 32 11 11 11 11 10 11 11
 13:  32 32 32 32 32 32 32 32 32 11 11 11 11 11 10 11
 14:  32 32 32 32 32 32 32 32 32 11 11 11 11 11 11 10
 15:  32 32 32 32 32 32 32 32 32 11 11 11 11 11 11 10

```

From /proc/meminfo

MemTotal: 2101256792 kB

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

### Platform Notes (Continued)

HugePages\_Total: 0  
Hugepagesize: 2048 kB

/sys/devices/system/cpu/cpu\*/cpufreq/scaling\_governor has performance

From /etc/\*release\* /etc/\*version\*  
os-release:

```
NAME="SLES"
VERSION="15-SP3"
VERSION_ID="15.3"
PRETTY_NAME="SUSE Linux Enterprise Server 15 SP3"
ID="sles"
ID_LIKE="suse"
ANSI_COLOR="0;32"
CPE_NAME="cpe:/o:suse:sles:15:sp3"
```

uname -a:  
Linux localhost 5.3.18-57-default #1 SMP Wed Apr 28 10:54:41 UTC 2021 (ba3c2e9) x86\_64 x86\_64 x86\_64 GNU/Linux

Kernel self-reported vulnerability status:

CVE-2018-12207 (iTLB Multihit):	Not affected
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: usercopy/swapgs barriers and __user pointer sanitization
CVE-2017-5715 (Spectre variant 2):	Mitigation: Full AMD retpoline, IBPB: conditional, IBRS_FW, STIBP: disabled, RSB filling
CVE-2020-0543 (Special Register Buffer Data Sampling):	Not affected
CVE-2019-11135 (TSX Asynchronous Abort):	Not affected

run-level 3 Aug 15 17:25

SPEC is set to: /home/cpu2017  
Filesystem Type Size Used Avail Use% Mounted on  
/dev/sda3 xfs 557G 10G 547G 2% /

From /sys/devices/virtual/dmi/id  
Vendor: Cisco Systems Inc

(Continued on next page)





# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

### Platform Notes (Continued)

Product: UCSC-C225-M6S  
Serial: WZP252309U3

Additional information from dmidecode 3.2 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:  
16x 0xCE00 M386AAG40AM3-CWE 128 GB 4 rank 3200

BIOS:  
BIOS Vendor: Cisco Systems, Inc.  
BIOS Version: C225M6.4.2.0.287.0730211213  
BIOS Date: 07/30/2021  
BIOS Revision: 5.22

(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)  
=====

AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin  
=====

=====  
C++, C, Fortran | 607.cactuBSSN\_s(base, peak)  
=====

AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin  
AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin  
AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Aug-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Compiler Version Notes (Continued)

Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

=====  
Fortran | 603.bwaves\_s(base, peak) 649.fotonik3d\_s(base, peak)  
| 654.roms\_s(base, peak)

=====  
AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

=====  
Fortran, C | 621.wrf\_s(base, peak) 627.cam4\_s(base, peak)  
| 628.pop2\_s(base, peak)

=====  
AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin  
AMD clang version 12.0.0 (CLANG: AOCC\_3.0.0-Build#78 2020\_12\_10) (based on LLVM Mirror.Version.12.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.0.0/bin

## Base 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



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

## 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:

-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3  
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5  
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000  
-fremap-arrays -mllvm -function-specialize -flv-function-specialization  
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true  
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -z muldefs  
-DSPEC\_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc  
-lflang -lflangrti

### Fortran benchmarks:

-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-enable-X86-prefetching  
-Wl,-mllvm -Wl,-enable-licm-vrp -Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Hz,1,0x1 -O3  
-march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive  
-mllvm -fuse-tile-inner-loop -funroll-loops  
-mllvm -extra-vectorizer-passes -mllvm -lsr-in-nested-loop  
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3  
-mllvm -global-vectorize-slp=true -z muldefs -DSPEC\_OPENMP -fopenmp  
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti

### Benchmarks using both Fortran and C:

-m64 -mno-adx -mno-sse4a -Wl,-mllvm -Wl,-enable-X86-prefetching  
-Wl,-mllvm -Wl,-enable-licm-vrp -Wl,-mllvm -Wl,-region-vectorize  
-Wl,-mllvm -Wl,-function-specialize  
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Aug-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Base Optimization Flags (Continued)

Benchmarks using both Fortran and C (continued):

```
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3 -Hz,1,0x1
-Mrecursive -mllvm -fuse-tile-inner-loop -funroll-loops
-mllvm -extra-vectorizer-passes -mllvm -lsr-in-nested-loop -z muldefs
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm -ljemalloc
-lflang -lflangrti
```

Benchmarks using Fortran, C, and C++:

```
-m64 -mno-adx -mno-sse4a -std=c++98
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false
-Wl,-mllvm -Wl,-region-vectorize -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-freemap-arrays -mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -enable-partial-unswitch -mllvm -unroll-threshold=100
-fininline-aggressive -mllvm -loop-unswitch-threshold=200000
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -extra-vectorizer-passes -mllvm -convert-pow-exp-to-int=false
-Hz,1,0x1 -Mrecursive -mllvm -fuse-tile-inner-loop -funroll-loops
-mllvm -lsr-in-nested-loop -z muldefs -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang -lflangrti
```

## Base Other Flags

C benchmarks:

-Wno-unused-command-line-argument -Wno-return-type

Fortran benchmarks:

-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using both Fortran and C:

-Wno-unused-command-line-argument -Wno-return-type

Benchmarks using Fortran, C, and C++:

-Wno-unused-command-line-argument -Wno-return-type



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019  
**Test Sponsor:** Cisco Systems  
**Tested by:** Cisco Systems

**Test Date:** Aug-2021  
**Hardware Availability:** Jun-2021  
**Software Availability:** Jun-2021

## 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: -m64 -mno-adx -mno-sse4a
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=5 -mllvm -unroll-threshold=50
-fremap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -fopenmp
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

638.imagick\_s: basepeak = yes

644.nab\_s: basepeak = yes

Fortran benchmarks:

603.bwaves\_s: basepeak = yes

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Aug-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Peak Optimization Flags (Continued)

649.fotonik3d\_s: basepeak = yes

```
654.roms_s: -m64 -mno-adx -mno-sse4a
-Wl,-mllvm -Wl,-enable-X86-prefetching
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -Mrecursive
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true -mllvm -enable-licm-vrp
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang
```

Benchmarks using both Fortran and C:

621.wrf\_s: basepeak = yes

627.cam4\_s: basepeak = yes

```
628.pop2_s: -m64 -mno-adx -mno-sse4a
-Wl,-mllvm -Wl,-enable-X86-prefetching
-Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math -flto
-fstruct-layout=5 -mllvm -unroll-threshold=50
-freemap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -Mrecursive
-DSPEC_OPENMP -fopenmp -fopenmp=libomp -lomp -lamdlibm
-ljemalloc -lflang
```

Benchmarks using Fortran, C, and C++:

```
-m64 -mno-adx -mno-sse4a -std=c++98
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -Wl,-mllvm -Wl,-enable-licm-vrp
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast -march=znver3
-fveclib=AMDLIBM -ffast-math -flto -fstruct-layout=5
-mllvm -unroll-threshold=50 -freemap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true -mllvm -function-specialize
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2021 Standard Performance Evaluation Corporation

## Cisco Systems

Cisco UCS C225 M6 (AMD EPYC 7763 64-Core, Processor)

SPECspeed®2017\_fp\_base = 253

SPECspeed®2017\_fp\_peak = 264

**CPU2017 License:** 9019

**Test Sponsor:** Cisco Systems

**Tested by:** Cisco Systems

**Test Date:** Aug-2021

**Hardware Availability:** Jun-2021

**Software Availability:** Jun-2021

## Peak Optimization Flags (Continued)

Benchmarks using Fortran, C, and C++ (continued):

```
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3  
-finline-aggressive -mllvm -unroll-threshold=100 -mllvm -reroll-loops  
-mllvm -aggressive-loop-unswitch -Mrecursive -DSPEC_OPENMP -fopenmp  
-fopenmp=libomp -lomp -lamdlibm -ljemalloc -lflang
```

## Peak Other Flags

C benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

Fortran benchmarks:

```
-Wno-unused-command-line-argument -Wno-return-type
```

Benchmarks using both Fortran and C:

```
-Wno-unused-command-line-argument -Wno-return-type
```

Benchmarks using Fortran, C, and C++:

```
-Wno-unused-command-line-argument -Wno-return-type
```

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

<http://www.spec.org/cpu2017/flags/aocc300-flags-A1.html>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v2-revC.html>

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

<http://www.spec.org/cpu2017/flags/aocc300-flags-A1.xml>

<http://www.spec.org/cpu2017/flags/Cisco-Platform-Settings-AMD-v2-revC.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 v1.1.8 on 2021-08-16 09:46:28-0400.

Report generated on 2021-09-29 12:21:02 by CPU2017 PDF formatter v6442.

Originally published on 2021-09-28.