



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_fp_base = 120

PowerEdge R7715 (AMD EPYC 9015 8-Core Processor)

SPECspeed®2017_fp_peak = 126

CPU2017 License: 6573

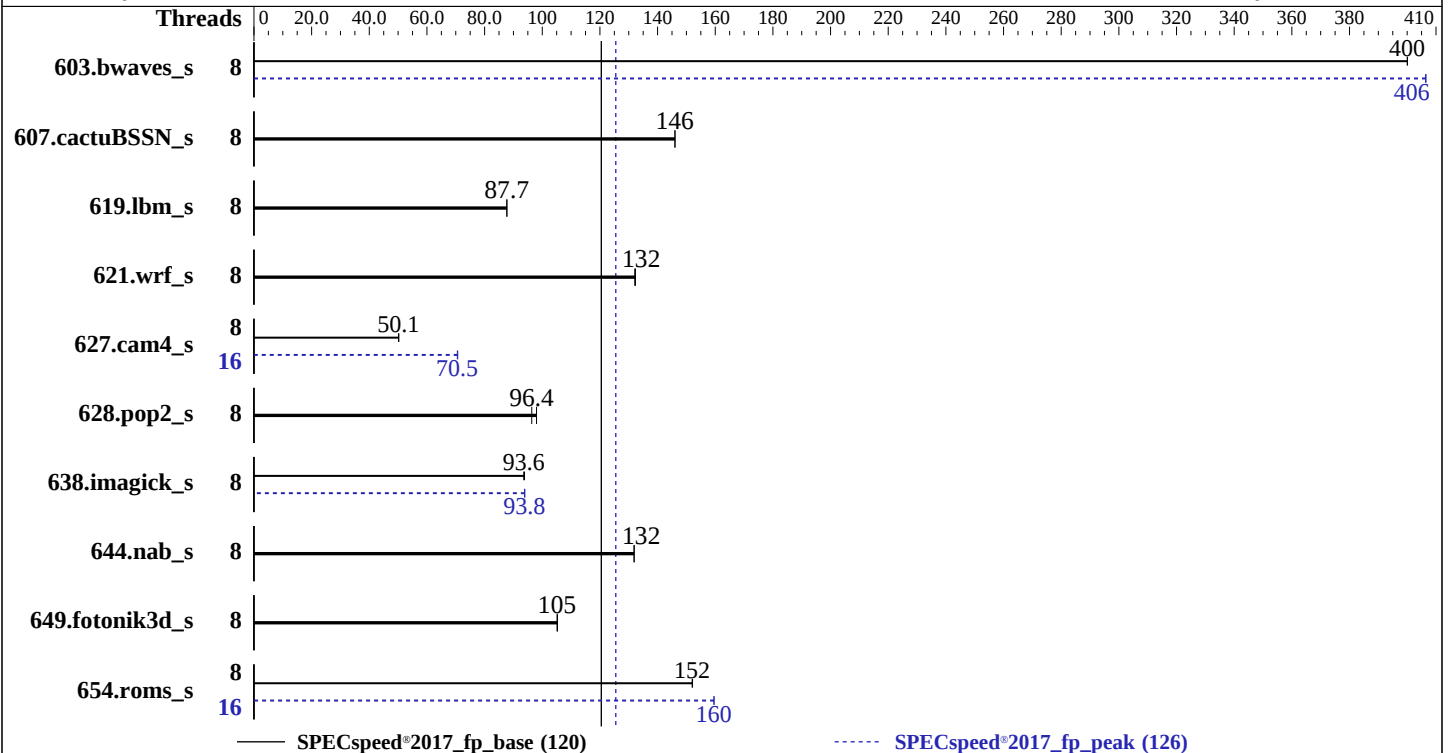
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2025

Hardware Availability: Nov-2025

Software Availability: Oct-2025



Hardware

CPU Name: AMD EPYC 9015
Max MHz: 4100
Nominal: 3600
Enabled: 8 cores, 1 chip, 2 threads/core
Orderable: 1 chip
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 64 MB I+D on chip per chip, 32 MB shared / 4 cores
Other: None
Memory: 768 GB (12 x 64 GB 2Rx4 PC5-6400B-R, running at 5200)
Storage: 40 GB on tmpfs
Other: CPU Cooling: Air

Software

OS: Ubuntu 24.04.3 LTS
6.8.0-86-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 1.3.3 released Jun-2025
File System: tmpfs
System State: Run level 5 (graphical 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.



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
603.bwaves_s	8	<u>147</u>	<u>400</u>	147	400			8	<u>145</u>	<u>406</u>	145	407		
607.cactuBSSN_s	8	<u>114</u>	<u>146</u>	114	146			8	<u>114</u>	<u>146</u>	114	146		
619.lbm_s	8	59.7	87.7	<u>59.7</u>	<u>87.7</u>			8	59.7	87.7	<u>59.7</u>	<u>87.7</u>		
621.wrf_s	8	<u>100</u>	<u>132</u>	100	132			8	<u>100</u>	<u>132</u>	100	132		
627.cam4_s	8	176	50.3	<u>177</u>	<u>50.1</u>			16	125	70.7	<u>126</u>	<u>70.5</u>		
628.pop2_s	8	<u>123</u>	<u>96.4</u>	121	98.0			8	<u>123</u>	<u>96.4</u>	121	98.0		
638.imagick_s	8	<u>154</u>	<u>93.6</u>	154	93.8			8	<u>154</u>	<u>93.8</u>	154	94.0		
644.nab_s	8	<u>133</u>	<u>132</u>	132	132			8	<u>133</u>	<u>132</u>	132	132		
649.fotonik3d_s	8	<u>86.7</u>	<u>105</u>	86.6	105			8	<u>86.7</u>	<u>105</u>	86.6	105		
654.roms_s	8	104	152	<u>104</u>	<u>152</u>			16	98.7	160	<u>98.7</u>	<u>160</u>		

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



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Environment Variables Notes

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

GOMP_CPU_AFFINITY = "0-15"

LD_LIBRARY_PATH =

"/mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1.4/amd_speed_aocc500_znver5_A_lib/lib:/mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1.4/amd_speed_aocc500_znver5_A_lib/lib32:"

LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"

MALLOC_CONF = "retain:true"

OMP_DYNAMIC = "false"

OMP_SCHEDULE = "static"

OMP_STACKSIZE = "128M"

OMP_THREAD_LIMIT = "16"

Environment variables set by runcpu during the 603.bwaves_s peak run:

GOMP_CPU_AFFINITY = "0-7"

Environment variables set by runcpu during the 627.cam4_s peak run:

GOMP_CPU_AFFINITY = "0-15"

Environment variables set by runcpu during the 638.imagick_s peak run:

GOMP_CPU_AFFINITY = "0-7"

Environment variables set by runcpu during the 654.roms_s peak run:

GOMP_CPU_AFFINITY = "0-15"

General Notes

Binaries were compiled on a system with 2x AMD EPYC 9D64 CPU + 500GiB Memory using Ubuntu 22.04

Benchmark run from a 40 GB ramdisk created with the cmd: "mount -t tmpfs -o size=40G tmpfs /mnt/ramdisk"

Platform Notes

BIOS Settings:

Virtualization Technology : Disabled

System Profile : Custom

C-States : Disabled

Memory Patrol Scrub : Disabled

PCI ASPM L1 Link Power Management : Disabled

Periodic Directory Rinse Tuning : Blended

Algorithm Performance Boost Disable : Enabled

Adaptive Allocation : Enabled

Dram Refresh Delay : Performance

DIMM Self Healing -

on Uncorrectable Memory Error : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1.4/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on SLR7751-R7715 Thu Nov 6 17:39:00 2025

SUT (System Under Test) info as seen by some common utilities.

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1. uname -a

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Platform Notes (Continued)

```
2. w
3. Username
4. ulimit -a
5. sysinfo process ancestry
6. /proc/cpuinfo
7. lscpu
8. numactl --hardware
9. /proc/meminfo
10. who -r
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.10)
12. Failed units, from systemctl list-units --state=failed
13. Services, from systemctl list-unit-files
14. Linux kernel boot-time arguments, from /proc/cmdline
15. cpupower frequency-info
16. sysctl
17. /sys/kernel/mm/transparent_hugepage
18. /sys/kernel/mm/transparent_hugepage/khugepaged
19. OS release
20. Disk information
21. /sys/devices/virtual/dmi/id
22. dmidecode
23. BIOS
-----

1. uname -a
Linux SLR7751-R7715 6.8.0-86-generic #87-Ubuntu SMP PREEMPT_DYNAMIC Mon Sep 22 18:03:36 UTC 2025 x86_64
x86_64 x86_64 GNU/Linux
-----

2. w
17:39:00 up 4 min, 1 user, load average: 0.14, 0.04, 0.01
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU   WHAT
root      tty1      -             17:36    44.00s 1.33s   0.33s /bin/bash ./amd_speed_aocc500_znver5_A1.sh
-----

3. Username
From environment variable $USER: root
-----

4. ulimit -a
time(seconds)      unlimited
file(blocks)       unlimited
data(kbytes)       unlimited
stack(kbytes)      unlimited
coredump(blocks)   0
memory(kbytes)     unlimited
locked memory(kbytes) 2097152
process            3091521
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
-----

5. sysinfo process ancestry
/sbin/init
/bin/login -p --
-bash
/bin/bash /home/DellFiles/bin/DELL_speed.sh
```

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Platform Notes (Continued)

```
/bin/bash /home/DellFiles/bin/dell-run-main.sh speed
/bin/bash /home/DellFiles/bin/dell-run-main.sh speed
/bin/bash /home/DellFiles/bin/AMD/dell-run-speccpu.sh speed --define DL-VERS=6.3b --output_format
html, pdf, txt
python3 ./run_amd_speed_aocc500_znver5_A1.py
/bin/bash ./amd_speed_aocc500_znver5_A1.sh
runcpu --config amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 2 --define DL-VERS=6.3b
--output_format html, pdf, txt fpspeed
runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 2 --define
DL-VERS=6.3b --output_format html, pdf, txt --nopower --runmode speed --tune base:peak --size
test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/temlogs/preenv.fpspeed.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1.4
```

6. /proc/cpuinfo

```
model name      : AMD EPYC 9015 8-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 2
stepping        : 1
microcode       : 0xb002151
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 8
siblings        : 16
1 physical ids (chips)
16 processors (hardware threads)
physical id 0:  core ids 0-3,8-11
physical id 0:  apicids 0-7,16-23
```

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

7. lscpu

From lscpu from util-linux 2.39.3:

```
Architecture:          x86_64
CPU op-mode(s):         32-bit, 64-bit
Address sizes:          52 bits physical, 57 bits virtual
Byte Order:             Little Endian
CPU(s):                 16
On-line CPU(s) list:    0-15
Vendor ID:              AuthenticAMD
BIOS Vendor ID:         AMD
Model name:             AMD EPYC 9015 8-Core Processor
BIOS Model name:        AMD EPYC 9015 8-Core Processor
BIOS CPU family:        107
CPU family:             26
Model:                  2
Thread(s) per core:     2
Core(s) per socket:     8
Socket(s):              1
Stepping:               1
Frequency boost:        enabled
CPU(s) scaling MHz:     67%
CPU max MHz:            3600.0000
CPU min MHz:            1500.0000
BogoMIPS:               7190.39
                        CPU @ 3.6GHz
```

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Platform Notes (Continued)

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 amd_lbr_v2 nopl nonstop_tsc cpuid
extd_apicid aperfmperf rapl pni pclmulqdq monitor ssse3 fma cx16 pcid
sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand lahf_lm
cmp_legacy extapic cr8_legacy abm sse4a misalignsse 3dnowprefetch
osvw ibs skinit wdt tce topoext perfctr_core perfctr_nb bpeext
perfctr_llc mwaitx cpb cat_l3 cdp_l3 hw_pstate ssbd mba perfmon_v2
ibrs ibpb stibp ibrs_enhanced vmmcall fsgsbase tsc_adjust bmi1 avx2
smep bmi2 invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total
cqm_mbm_local user_shstk avx_vnni avx512_bf16 clzero irperf
xsaveerptr rdpru wbnoinvd amd_ppin cpc amd_ibpb_ret arat npt lbrv
svm_lock nrp_save tsc_scale vmcb_clean flushbyasid decodeassists
pausefilter pfthreshold avic v_vmsave_vmload vgif x2avic v_spec_ctrl
vnmv avx512vbmi umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq
avx512_vnni avx512_bitalg avx512_vpopcntdq la57 rdpid bus_lock_detect
movdiri movdir64b overflow_recov succor smca avx512_vp2intersect
flush_l1d debug_swap

L1d cache: 384 KiB (8 instances)

L1i cache: 256 KiB (8 instances)

L2 cache: 8 MiB (8 instances)

L3 cache: 64 MiB (2 instances)

NUMA node(s): 1

NUMA node0 CPU(s): 0-15

Vulnerability Gather data sampling: Not affected

Vulnerability Itlb multihit: Not affected

Vulnerability L1tf: Not affected

Vulnerability Mds: Not affected

Vulnerability Meltdown: Not affected

Vulnerability Mmio stale data: Not affected

Vulnerability Reg file data sampling: Not affected

Vulnerability Retbleed: Not affected

Vulnerability Spec rstack overflow: Not affected

Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl

Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization

Vulnerability Spectre v2: Mitigation; Enhanced / Automatic IBRS; IBPB conditional; STIBP
always-on; RSB filling; PBRBS-eIBRS Not affected; BHI Not affected

Vulnerability Srbds: Not affected

Vulnerability Tsx async abort: Not affected

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	48K	384K	12	Data	1	64	1	64
L1i	32K	256K	8	Instruction	1	64	1	64
L2	1M	8M	16	Unified	2	1024	1	64
L3	32M	64M	16	Unified	3	32768	1	64

8. numactl --hardware

NOTE: a numactl 'node' might or might not correspond to a physical chip.

available: 1 nodes (0)

node 0 cpus: 0-15

node 0 size: 772958 MB

node 0 free: 766862 MB

node distances:

node 0

0: 10

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Platform Notes (Continued)

9. /proc/meminfo

MemTotal: 791509072 kB

10. who -r

run-level 5 Nov 6 17:36

11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.10)

Default Target	Status
graphical	degraded

12. Failed units, from systemctl list-units --state=failed

UNIT	LOAD	ACTIVE	SUB	DESCRIPTION
* openafs-client.service	loaded	failed	failed	OpenAFS client
* systemd-networkd-wait-online.service	loaded	failed	failed	Wait for Network to be Configured

Legend: LOAD -> Reflects whether the unit definition was properly loaded.

ACTIVE -> The high-level unit activation state, i.e. generalization of SUB.

SUB -> The low-level unit activation state, values depend on unit type.

2 loaded units listed.

13. Services, from systemctl list-unit-files

STATE	UNIT FILES
enabled	ModemManager apparmor appport blk-availability cloud-config cloud-final cloud-init cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager grub-common grub-initrd-fallback keyboard-setup lm-sensors lvm2-monitor multipathd networkd-dispatcher open-iscsi open-vm-tools openafs-client pollinate rsyslog secureboot-db setvtrgb sysstat systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw vgauth
enabled-runtime	netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled	console-getty debug-shell iscsid nftables rsync serial-getty@ ssh systemd-boot-check-no-failures systemd-confext systemd-network-generator systemd-networkd-wait-online@ systemd-pcrlock-file-system systemd-pcrlock-firmware-code systemd-pcrlock-firmware-config systemd-pcrlock-machine-id systemd-pcrlock-make-policy systemd-pcrlock-secureboot-authority systemd-pcrlock-secureboot-policy systemd-sysext systemd-time-wait-sync upower
generated	netperf
indirect	systemd-sysupdate systemd-sysupdate-reboot uuuid
masked	cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

14. Linux kernel boot-time arguments, from /proc/cmdline

BOOT_IMAGE=/boot/vmlinuz-6.8.0-86-generic
root=UUID=b1ff2144-e7e5-49f5-9136-cc043a5838f9
ro

15. cpupower frequency-info

analyzing CPU 14:

current policy: frequency should be within 1.50 GHz and 3.60 GHz.
The governor "schedutil" may decide which speed to use within this range.

boost state support:

Supported: yes

Active: yes

Boost States: 0

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Platform Notes (Continued)

Total States: 3
Pstate-P0: 3600MHz

```
-----
16. sysctl
kernel.numa_balancing          0
kernel.randomize_va_space      0
vm.compaction_proactiveness     20
vm.dirty_background_bytes       0
vm.dirty_background_ratio       10
vm.dirty_bytes                  0
vm.dirty_expire_centisecs       3000
vm.dirty_ratio                  8
vm.dirty_writeback_centisecs    500
vm.dirtytime_expire_seconds     43200
vm.extfrag_threshold            500
vm.min_unmapped_ratio           1
vm.nr_hugepages                 0
vm.nr_hugepages_mempolicy       0
vm.nr_overcommit_hugepages      0
vm.swappiness                   1
vm.watermark_boost_factor       15000
vm.watermark_scale_factor       10
vm.zone_reclaim_mode            1

-----
17. /sys/kernel/mm/transparent_hugepage
defrag      [always] defer defer+madvise madvise never
enabled     [always] madvise never
hpage_pmd_size  2097152
shmem_enabled  always within_size advise [never] deny force

-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs  60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs   10000

-----
19. OS release
From /etc/*-release /etc/*-version
os-release Ubuntu 24.04.3 LTS

-----
20. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-aocc500-znerv5_A1.4
Filesystem      Type  Size  Used Avail Use% Mounted on
tmpfs           tmpfs  40G   3.3G   37G   9% /mnt/ramdisk

-----
21. /sys/devices/virtual/dmi/id
Vendor:         Dell Inc.
Product:        PowerEdge R7715
Product Family: PowerEdge
Serial:         SLR7751
```

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Platform Notes (Continued)

22. dmidecode

Additional information from dmidecode 3.5 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:

12x 802C0000802C MTC40F2046S1RC64BD1 64 GB 2 rank 6400, configured at 5200

23. BIOS

(This section combines info from /sys/devices and dmidecode.)

BIOS Vendor: Dell Inc.

BIOS Version: 1.3.3

BIOS Date: 06/26/2025

BIOS Revision: 1.3

Compiler Version Notes

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

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin

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

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin

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

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin

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

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)

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CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2025

Hardware Availability: Nov-2025

Software Availability: Oct-2025

Compiler Version Notes (Continued)

Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/bin
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1377 2024_09_24)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-5.0.0/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

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 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP -flto
-fremap-arrays -fstrip-mining -fstruct-layout=7

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Base Optimization Flags (Continued)

C benchmarks (continued):

-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -mrecip=none -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang

Fortran benchmarks:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -funroll-loops
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3
-Mrecursive -zopt -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang

Benchmarks using both Fortran and C:

-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP -flto
-fremap-arrays -fstrip-mining -fstruct-layout=7
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -funroll-loops
-mllvm -lsr-in-nested-loop -Mrecursive -mrecip=none -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang

Benchmarks using Fortran, C, and C++:

-m64 -std=c++14 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver5
-fveclib=AMDLIBM -ffast-math -fopenmp -DSPEC_OPENMP -flto
-fremap-arrays -fstrip-mining -fstruct-layout=7
-mllvm -inline-threshold=1000 -mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt
-mllvm -loop-unswitch-threshold=200000 -mllvm -unroll-threshold=100
-funroll-loops -mllvm -lsr-in-nested-loop -Mrecursive -mrecip=none
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

Base Other Flags

C benchmarks:

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

Fortran benchmarks:

-Wno-unused-command-line-argument

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Base Other Flags (Continued)

Benchmarks using both Fortran and C:

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

Benchmarks using Fortran, C, and C++:

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

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: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver5 -fveclib=AMDLIB -ffast-math -fopenmp
-flto -DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang

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Peak Optimization Flags (Continued)

644.nab_s: basepeak = yes

Fortran benchmarks:

603.bwaves_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -DSPEC_OPENMP
-Ofast -march=znver5 -fveclib=AMDLIBM -ffast-math
-fopenmp -fscalar-transform -fvector-transform
-mllvm -reduce-array-computations=3 -Mrecursive
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

649.fotonik3d_s: basepeak = yes

654.roms_s: Same as 603.bwaves_s

Benchmarks using both Fortran and C:

621.wrf_s: basepeak = yes

627.cam4_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-X86-prefetching -Ofast
-march=znver5 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -DSPEC_OPENMP -fremap-arrays -fstrip-mining
-fstruct-layout=9 -mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3
-mllvm -unroll-threshold=50 -zopt -Mrecursive
-mrecip=none -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang

628.pop2_s: basepeak = yes

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

Peak Other Flags

C benchmarks:

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

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Peak Other Flags (Continued)

Fortran benchmarks:

-Wno-unused-command-line-argument

Benchmarks using both Fortran and C:

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

Benchmarks using Fortran, C, and C++:

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

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

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.8.html>

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

<http://www.spec.org/cpu2017/flags/aocc500-flags.2024-10-10.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.8.xml>

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Tested with SPEC CPU®2017 v1.1.9 on 2025-11-06 12:38:59-0500.

Report generated on 2025-12-03 14:24:05 by CPU2017 PDF formatter v6716.

Originally published on 2025-12-02.