



SPEC CPU®2017 Floating Point Speed Result

Copyright 2017-2025 Standard Performance Evaluation Corporation

Supermicro

FlexTwin A+ Server AS -2126FT-HE-LCC
(H14DST-F, AMD EPYC 9845)

SPECspeed®2017_fp_base = 507

SPECspeed®2017_fp_peak = 516

CPU2017 License: 001176

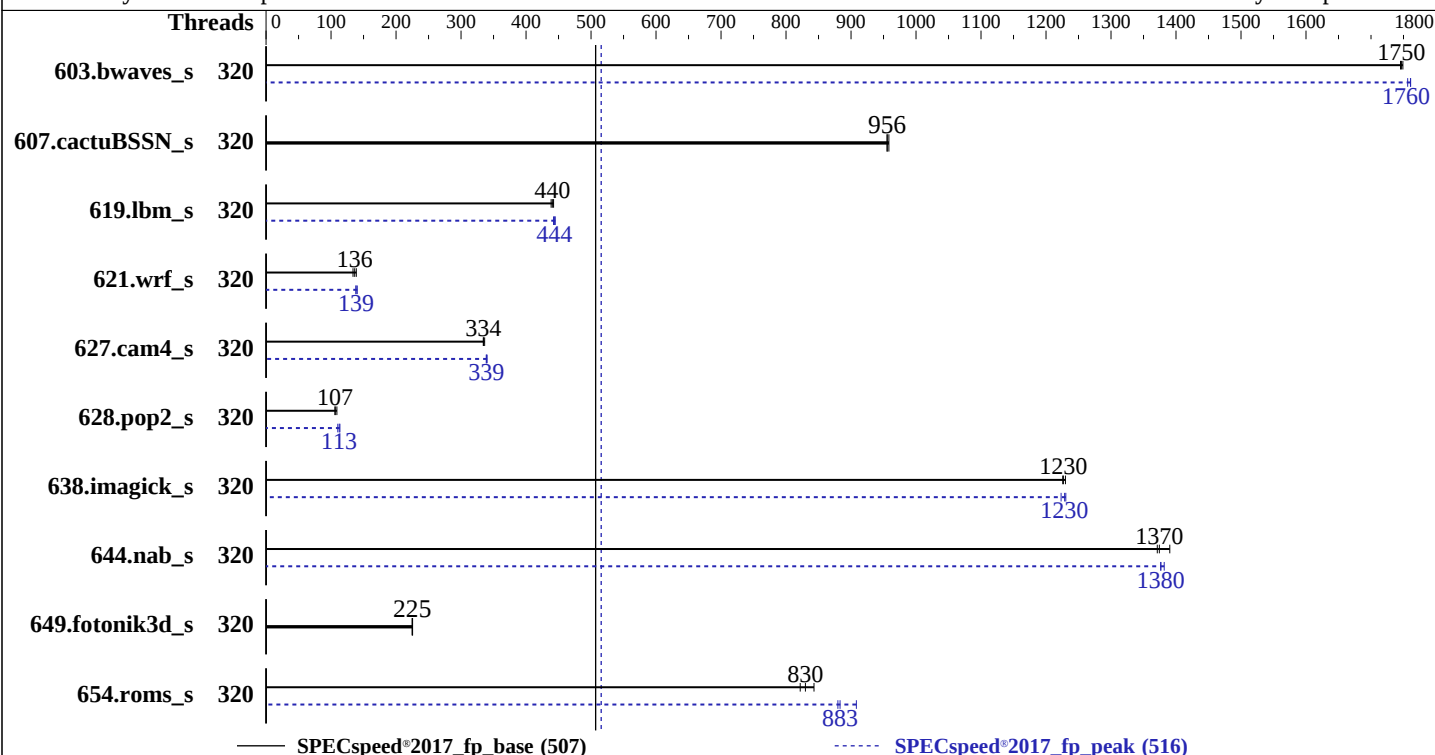
Test Sponsor: Supermicro

Tested by: Supermicro

Test Date: Oct-2025

Hardware Availability: Oct-2024

Software Availability: Sep-2025



Hardware

CPU Name: AMD EPYC 9845
Max MHz: 3700
Nominal: 2100
Enabled: 320 cores, 2 chips
Orderable: 2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 320 MB I+D on chip per chip, 32 MB shared / 16 cores
Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 1 x 1.92 TB M.2 NVMe SSD
Other: CPU Cooling: DLC

Software

OS: Ubuntu 24.04.3 LTS
Kernel 6.8.0-85-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 1.5 released Aug-2025
File System: ext4
System State: Run level 5 (multi-user)
Base Pointers: 64-bit
Peak Pointers: 64-bit
Other: None
Power Management: BIOS and OS 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	320	33.7	1750	<u>33.8</u>	<u>1750</u>	33.8	1750	320	33.6	1760	<u>33.5</u>	<u>1760</u>	33.5	1760
607.cactuBSSN_s	320	17.4	958	<u>17.4</u>	<u>956</u>	17.4	955	320	17.4	958	<u>17.4</u>	<u>956</u>	17.4	955
619.lbm_s	320	11.9	439	11.8	442	<u>11.9</u>	<u>440</u>	320	11.8	442	<u>11.8</u>	<u>444</u>	11.8	445
621.wrf_s	320	<u>97.0</u>	<u>136</u>	98.9	134	95.3	139	320	<u>95.4</u>	<u>139</u>	94.2	140	95.7	138
627.cam4_s	320	26.4	336	<u>26.5</u>	<u>334</u>	26.5	334	320	<u>26.1</u>	<u>339</u>	26.2	339	26.1	340
628.pop2_s	320	<u>111</u>	<u>107</u>	109	109	112	106	320	108	110	<u>105</u>	<u>113</u>	104	114
638.imagick_s	320	<u>11.8</u>	<u>1230</u>	11.8	1230	11.7	1230	320	<u>11.7</u>	<u>1230</u>	11.7	1230	11.8	1220
644.nab_s	320	12.6	1390	12.7	1370	<u>12.7</u>	<u>1370</u>	320	12.6	1380	<u>12.7</u>	<u>1380</u>	12.7	1380
649.fotonik3d_s	320	40.4	225	<u>40.5</u>	<u>225</u>	40.6	225	320	40.4	225	<u>40.5</u>	<u>225</u>	40.6	225
654.roms_s	320	19.2	822	18.7	843	<u>19.0</u>	<u>830</u>	320	17.3	908	<u>17.8</u>	<u>883</u>	17.9	880

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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 = "0-319"

LD_LIBRARY_PATH =

"/home/cpu2017/amd_speed_aocc500_znver5_A_lib/lib:/home/cpu2017/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 = "320"

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

GOMP_CPU_AFFINITY = "0-319"

Environment variables set by runcpu during the 619.lbm_s peak run:

GOMP_CPU_AFFINITY = "0-319"

Environment variables set by runcpu during the 621.wrf_s peak run:

GOMP_CPU_AFFINITY = "0-319"

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

GOMP_CPU_AFFINITY = "0-319"

Environment variables set by runcpu during the 628.pop2_s peak run:

GOMP_CPU_AFFINITY = "0-319"

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

GOMP_CPU_AFFINITY = "0-319"

Environment variables set by runcpu during the 644.nab_s peak run:

GOMP_CPU_AFFINITY = "0-319"

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

GOMP_CPU_AFFINITY = "0-319"

General Notes

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

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.

Platform Notes

BIOS Settings:

SMT Control = Disabled

Determinism Control = Manual

Determinism Enable = Power

TDP Control = Manual

TDP = 400

Package Power Limit Control = Manual

Package Power Limit = 400

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Platform Notes (Continued)

Memory Target Speed = DDR6400
DRAM Scrub Time = Disabled
TSME = Disabled

Sysinfo program /home/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on as-2126ft-he-lcc-9845 Mon Oct 20 05:43:22 2025

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

Table of contents

1. uname -a
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. Services, from systemctl list-unit-files
13. Linux kernel boot-time arguments, from /proc/cmdline
14. cpupower frequency-info
15. tuned-adm active
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 as-2126ft-he-lcc-9845 6.8.0-85-generic #85-Ubuntu SMP PREEMPT_DYNAMIC Thu Sep 18 15:26:59 UTC 2025
x86_64 x86_64 x86_64 GNU/Linux

2. w
05:43:22 up 3:01, 1 user, load average: 6.68, 6.99, 4.23
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
smc tty1 - 02:42 3:00m 0.51s 0.50s sudo su -

3. Username
From environment variable \$USER: root
From the command 'logname': smc

4. ulimit -a
time(seconds) unlimited
file(blocks) unlimited
data(kbytes) unlimited
stack(kbytes) unlimited

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Platform Notes (Continued)

```
coredump(blocks)      0
memory(kbytes)         unlimited
locked memory(kbytes) 2097152
process                6189858
nofiles                1024
vmemory(kbytes)        unlimited
locks                  unlimited
rtprio                 0
```

5. sysinfo process ancestry

```
/sbin/init
/bin/login -p --
-bash
sudo su -
sudo su -
su -
-bash
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 3 fpspeed
runcpu --configfile amd_speed_aocc500_znver5_A1.cfg --tune all --reportable --iterations 3 --nopower
--runmode speed --tune base:peak --size test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.002/temlogs/preenv.fpspeed.002.0.log --lognum 002.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /home/cpu2017
```

6. /proc/cpuinfo

```
model name      : AMD EPYC 9845 160-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 17
stepping        : 0
microcode       : 0xb101047
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 160
siblings        : 160
2 physical ids (chips)
320 processors (hardware threads)
physical id 0:  core ids 0-159
physical id 1:  core ids 0-159
physical id 0:  apicids 0-159
physical id 1:  apicids 256-415
```

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):             320
On-line CPU(s) list: 0-319
Vendor ID:          AuthenticAMD
BIOS Vendor ID:     Advanced Micro Devices, Inc.
```

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Platform Notes (Continued)

Model name:	AMD EPYC 9845 160-Core Processor	
BIOS Model name:	AMD EPYC 9845 160-Core Processor	Unknown CPU @ 2.1GHz
BIOS CPU family:	107	
CPU family:	26	
Model:	17	
Thread(s) per core:	1	
Core(s) per socket:	160	
Socket(s):	2	
Stepping:	0	
Frequency boost:	enabled	
CPU(s) scaling MHz:	100%	
CPU max MHz:	2100.0000	
CPU min MHz:	1500.0000	
BogoMIPS:	4200.13	
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 svm 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 erms 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 cppc amd_ibpb_ret arat npt lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists pausefilter pfthreshold avic v_vmsave_vmload vgif x2avic v_spec_ctrl vnni 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 fsrm avx512_vp2intersect flush_l1d debug_swap	
Virtualization:	AMD-V	
L1d cache:	15 MiB (320 instances)	
L1i cache:	10 MiB (320 instances)	
L2 cache:	320 MiB (320 instances)	
L3 cache:	640 MiB (20 instances)	
NUMA node(s):	2	
NUMA node0 CPU(s):	0-159	
NUMA node1 CPU(s):	160-319	
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 disabled; RSB filling; PBRB-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
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Platform Notes (Continued)

L1d	48K	15M	12 Data	1	64	1	64
L1i	32K	10M	8 Instruction	1	64	1	64
L2	1M	320M	16 Unified	2	1024	1	64
L3	32M	640M	16 Unified	3	32768	1	64

8. numactl --hardware

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

available: 2 nodes (0-1)

node 0 cpus: 0-159

node 0 size: 773551 MB

node 0 free: 770834 MB

node 1 cpus: 160-319

node 1 size: 773990 MB

node 1 free: 772328 MB

node distances:

node 0 1

0: 10 32

1: 32 10

9. /proc/meminfo

MemTotal: 1584683512 kB

10. who -r

run-level 5 Oct 20 02:41

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

Default Target Status

graphical running

12. Services, from systemctl list-unit-files

STATE UNIT FILES

enabled ModemManager apparmor apport 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 pollinate rsyslog secureboot-db setvtrgb sysstat systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald tuned 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-sysexit systemd-time-wait-sync upower indirect systemd-sysupdate systemd-sysupdate-reboot uuid masked cryptdisks cryptdisks-early hwclock multipath-tools-boot screen-cleanup sudo x11-common

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

BOOT_IMAGE=/boot/vmlinuz-6.8.0-85-generic

root=UUID=00cf9ec0-ae00-4d63-b6b9-d28793b4e20e

ro

nomodeset

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Platform Notes (Continued)

14. cpupower frequency-info

analyzing CPU 49:

current policy: frequency should be within 1.50 GHz and 2.10 GHz.

The governor "performance" may decide which speed to use within this range.

boost state support:

Supported: yes

Active: yes

Boost States: 0

Total States: 3

Pstate-P0: 2100MHz

15. tuned-adm active

Current active profile: throughput-performance

16. sysctl

kernel.numa_balancing	1
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

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Platform Notes (Continued)

20. Disk information

SPEC is set to: /home/cpu2017

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/nvme0n1p2	ext4	1.8T	20G	1.7T	2%	/

21. /sys/devices/virtual/dmi/id

Vendor: Supermicro
Product: AS -2126FT-HE-LCC
Product Family: SMC H14
Serial: A938360X5100205

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:

24x Samsung M321R8GA0EB2-CCPWF 64 GB 2 rank 6400

23. BIOS

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

BIOS Vendor: American Megatrends International, LLC.
BIOS Version: 1.5
BIOS Date: 08/01/2025
BIOS Revision: 5.35

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#1316 2024_09_09)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

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

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)

Target: x86_64-unknown-linux-gnu

Thread model: posix

InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin

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FlexTwin A+ Server AS -2126FT-HE-LCC
(H14DST-F, AMD EPYC 9845)

SPECspeed®2017_fp_base = 507

SPECspeed®2017_fp_peak = 516

CPU2017 License: 001176
Test Sponsor: Supermicro
Tested by: Supermicro

Test Date: Oct-2025
Hardware Availability: Oct-2024
Software Availability: Sep-2025

Compiler Version Notes (Continued)

=====
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#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/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#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/bin
AMD clang version 17.0.6 (CLANG: AOCC_5.0.0-Build#1316 2024_09_09)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-5.0.0-4925-1316/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

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Base Portability Flags (Continued)

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  
-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=2000000 -mllvm -unroll-threshold=100  
-funroll-loops -mllvm -lsr-in-nested-loop -Mrecursive -mrecip=none  
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang
```



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Base Other Flags

C benchmarks:

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

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

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 -Wl, -mllvm -Wl, -align-all-nofallthru-blocks=6
-Wl, -mllvm -Wl, -reduce-array-computations=3 -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

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Peak Optimization Flags (Continued)

619.lbm_s (continued):

-mllvm -unroll-threshold=50 -zopt -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang

638.imagick_s: Same as 619.lbm_s

644.nab_s: -m64 -Wl, -mllvm -Wl, -align-all-nofallthru-blocks=6
-Wl, -mllvm -Wl, -reduce-array-computations=3 -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 -mrecip=none
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

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: -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 -funroll-loops
-mllvm -lsr-in-nested-loop -Mrecursive -fopenmp=libomp
-lomp -lamdlibm -lamdalloc -lflang

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

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Peak Optimization Flags (Continued)

627.cam4_s (continued):

-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: -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 -fscalar-transform
-fvector-transform -Mrecursive -fopenmp=libomp -lomp
-lamdlibm -lamdalloc -lflang

Benchmarks using Fortran, C, and C++:

607.cactuBSSN_s: basepeak = yes

Peak Other Flags

C benchmarks:

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

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/Supermicro-Platform-Settings-V1.2-Turin-revE.html>



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CPU2017 License: 001176

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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/Supermicro-Platform-Settings-V1.2-Turin-revE.xml>

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