



SPEC CPU®2017 Floating Point Speed Result

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Dell Inc.

SPECspeed®2017_fp_base = 546

SPECspeed®2017_fp_peak = 571

PowerEdge R7725 (AMD EPYC 9575F 64-Core Processor)

CPU2017 License: 6573

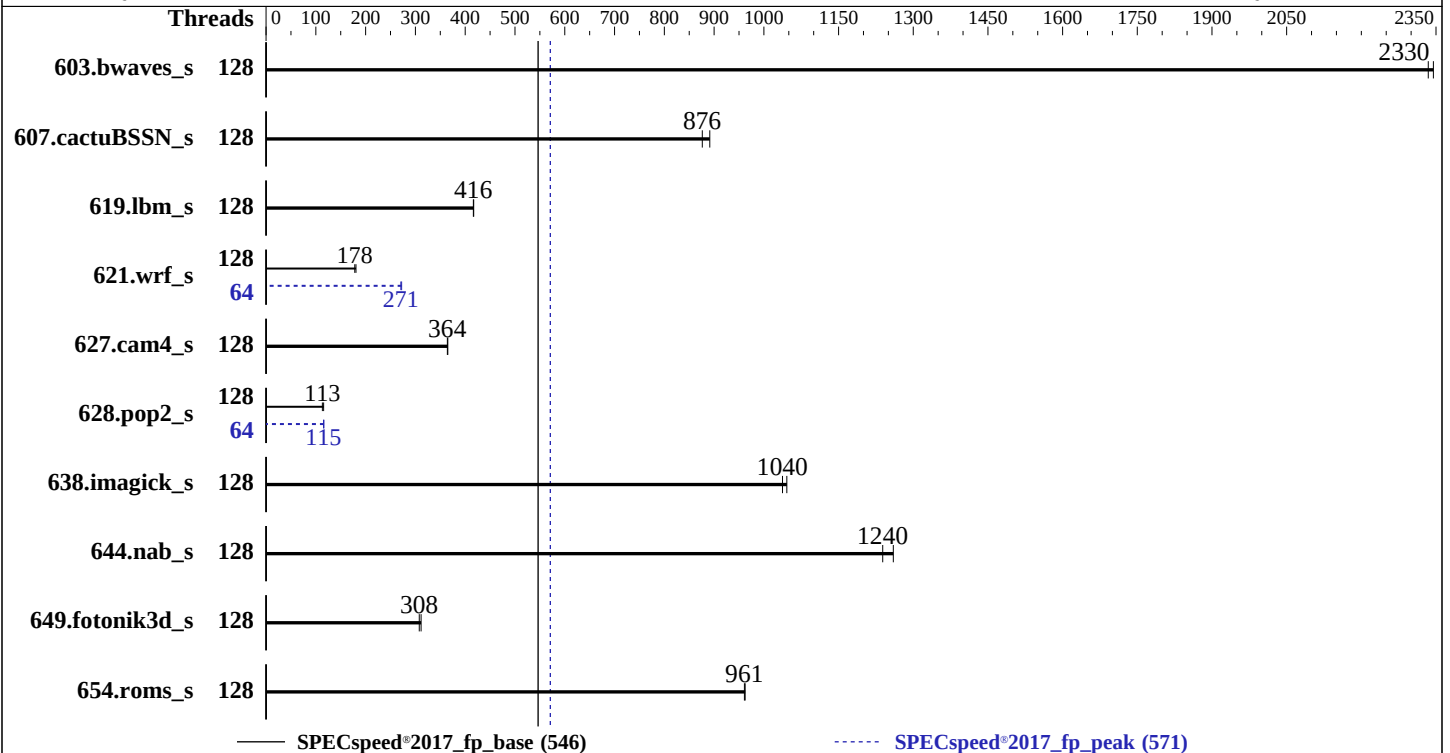
Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2025

Hardware Availability: Nov-2025

Software Availability: Jun-2025



Hardware

CPU Name: AMD EPYC 9575F
Max MHz: 5000
Nominal: 3300
Enabled: 128 cores, 2 chips, 2 threads/core
Orderable: 1,2 chips
Cache L1: 32 KB I + 48 KB D on chip per core
L2: 1 MB I+D on chip per core
L3: 256 MB I+D on chip per chip, 32 MB shared / 8 cores
Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-6400B-R)
Storage: 130 GB on tmpfs
Other: CPU Cooling: Air

Software

OS: Ubuntu 24.04.2 LTS
6.8.0-62-generic
Compiler: C/C++/Fortran: Version 5.0.0 of AOCC
Parallel: Yes
Firmware: Version 1.4.1 released Aug-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	128	25.2	2340	<u>25.3</u>	<u>2330</u>			128	25.2	2340	<u>25.3</u>	<u>2330</u>		
607.cactuBSSN_s	128	<u>19.0</u>	<u>876</u>	18.7	891			128	<u>19.0</u>	<u>876</u>	18.7	891		
619.lbm_s	128	12.6	417	<u>12.6</u>	<u>416</u>			128	12.6	417	<u>12.6</u>	<u>416</u>		
621.wrf_s	128	73.2	181	<u>74.2</u>	<u>178</u>			64	48.6	272	<u>48.9</u>	<u>271</u>		
627.cam4_s	128	24.3	365	<u>24.3</u>	<u>364</u>			128	24.3	365	<u>24.3</u>	<u>364</u>		
628.pop2_s	128	103	116	<u>105</u>	<u>113</u>			64	102	116	<u>103</u>	<u>115</u>		
638.imagick_s	128	13.8	1050	<u>13.9</u>	<u>1040</u>			128	13.8	1050	<u>13.9</u>	<u>1040</u>		
644.nab_s	128	13.9	1260	<u>14.1</u>	<u>1240</u>			128	13.9	1260	<u>14.1</u>	<u>1240</u>		
649.fotonik3d_s	128	29.3	311	<u>29.6</u>	<u>308</u>			128	29.3	311	<u>29.6</u>	<u>308</u>		
654.roms_s	128	<u>16.4</u>	<u>961</u>	16.4	962			128	<u>16.4</u>	<u>961</u>	16.4	962		

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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 = "0-255"

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 = "256"

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

GOMP_CPU_AFFINITY =

"0,128,1,129,2,130,3,131,4,132,5,133,6,134,7,135,8,136,9,137,10,138,11,139,12,140,13,141,14,142,15,143,16,144,17,145,18,146,19,147,20,148,21,149,22,150,23,151,24,152,25,153,26,154,27,155,28,156,29,157,30,158,31,159"

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

GOMP_CPU_AFFINITY = "0-63"

General Notes

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

Benchmark run from a 130 GB ramdisk created with the cmd: "mount -t tmpfs -o size=130G 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

Determinism Control : Manual

Determinism Slider : Power Determinism

Optimizer Mode : Enabled

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 SLR7726-R7725 Wed Nov 5 04:44:57 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 (255.4-1ubuntu8.8)
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 SLR7726-R7725 6.8.0-62-generic #65-Ubuntu SMP PREEMPT_DYNAMIC Mon May 19 17:15:03 UTC 2025 x86_64
x86_64 x86_64 GNU/Linux
-----

2. w
04:44:57 up 1:39, 1 user, load average: 7.75, 6.56, 4.07
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU   WHAT
root      tty1      -              03:07    1:36m  1.83s  0.51s  /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            6189192
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
-----

5. sysinfo process ancestry
/sbin/init splash
/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/CPU2017.002/temlogs/preenv.fpspeed.002.0.log --lognum 002.0 --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 9575F 64-Core Processor
vendor_id       : AuthenticAMD
cpu family      : 26
model           : 2
stepping        : 1
microcode       : 0xb002152
bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size        : 192 4K pages
cpu cores       : 64
siblings        : 128
2 physical ids (chips)
256 processors (hardware threads)
physical id 0:  core ids 0-63
physical id 1:  core ids 0-63
physical id 0:  apicids 0-127
physical id 1:  apicids 128-255
```

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):                 256
On-line CPU(s) list:    0-255
Vendor ID:              AuthenticAMD
BIOS Vendor ID:         AMD
Model name:             AMD EPYC 9575F 64-Core Processor
BIOS Model name:        AMD EPYC 9575F 64-Core Processor
BIOS CPU family:        107
CPU family:             26
Model:                  2
Thread(s) per core:     2
Core(s) per socket:     64
Socket(s):              2
Stepping:               1
Frequency boost:        enabled
CPU(s) scaling MHz:     30%
CPU max MHz:            5008.0000
```

CPU @ 3.3GHz

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Platform Notes (Continued)

CPU min MHz: 1200.0000
BogoMIPS: 6591.24
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 bpxext 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 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 vnmi 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: 6 MiB (128 instances)
L1i cache: 4 MiB (128 instances)
L2 cache: 128 MiB (128 instances)
L3 cache: 512 MiB (16 instances)
NUMA node(s): 2
NUMA node0 CPU(s): 0-63,128-191
NUMA node1 CPU(s): 64-127,192-255
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; PBRSE-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	6M	12	Data	1	64	1	64
L1i	32K	4M	8	Instruction	1	64	1	64
L2	1M	128M	16	Unified	2	1024	1	64
L3	32M	512M	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: 0-63,128-191
node 0 size: 773323 MB
node 0 free: 771169 MB
node 1 cpus: 64-127,192-255

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Platform Notes (Continued)

```
node 1 size: 774052 MB
node 1 free: 769121 MB
node distances:
node   0   1
  0:  10  32
  1:  32  10
```

```
-----
9. /proc/meminfo
   MemTotal:      1584512864 kB
```

```
-----
10. who -r
    run-level 5  Nov 5 03:05
```

```
-----
11. Systemd service manager version: systemd 255 (255.4-1ubuntu8.8)
    Default Target   Status
    graphical        degraded
```

```
-----
12. Failed units, from systemctl list-units --state=failed
    UNIT          LOAD    ACTIVE SUB    DESCRIPTION
* pwrctrl.service loaded failed failed Power Daemon
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.
1 loaded units listed.
```

```
-----
13. Services, from systemctl list-unit-files
    STATE          UNIT FILES
enabled           ModemManager apparmor apport avahi-daemon blk-availability cloud-config cloud-final
cloud-init cloud-init-local console-setup cron e2scrub_reap finalrd getty@ gpu-manager
grub-common grub-initrd-fallback keyboard-setup lm-sensors lvm2-monitor multipathd
networkd-dispatcher open-iscsi pollinate pwrctrl secureboot-db setvtrgb ssh
systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved
systemd-timesyncd thermald udisks2 ufw wpa_supplicant
enabled-runtime  netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
disabled         console-getty debug-shell ipmievd iscsid nftables powertop rtkit-daemon serial-getty@
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 wpa_supplicant-nl80211@ wpa_supplicant-wired@
wpa_supplicant@
generated        cpufrequtils loadcpufreq openipmi
indirect         systemd-sysupdate systemd-sysupdate-reboot
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-6.8.0-62-generic
root=UUID=24c22b24-b79c-4fae-9365-376646cd2341
ro
quiet
splash
amd_pstate=passive
vt.handoff=7
```

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Platform Notes (Continued)

```
-----
15. cpupower frequency-info
    analyzing CPU 255:
        current policy: frequency should be within 1.20 GHz and 5.01 GHz.
                        The governor "ondemand" may decide which speed to use
                        within this range.
    boost state support:
        Supported: yes
        Active: yes
-----
```

```
-----
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 24.04.2 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 130G  3.3G 127G   3% /mnt/ramdisk
-----
```

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Platform Notes (Continued)

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

Vendor: Dell Inc.
Product: PowerEdge R7725
Product Family: PowerEdge
Serial: SLR7726

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:

19x 80AD000080AD HMC94AHBRA277N 64 GB 2 rank 6400
4x 80AD000080AD HMC94AHBRA480N 64 GB 2 rank 6400
1x 80CE000080CE M321R8GA0PB1-CCPQC 64 GB 2 rank 6400

23. BIOS

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

BIOS Vendor: Dell Inc.
BIOS Version: 1.4.1
BIOS Date: 08/13/2025
BIOS Revision: 1.4

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)

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SPECspeed®2017_fp_base = 546

SPECspeed®2017_fp_peak = 571

PowerEdge R7725 (AMD EPYC 9575F 64-Core Processor)

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2025

Hardware Availability: Nov-2025

Software Availability: Jun-2025

Compiler Version Notes (Continued)

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)
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



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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
-freemap-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
-lamdlbm -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 -lamdlbm -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
-freemap-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 -lamdlbm -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
-freemap-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 -lamdlbm -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: basepeak = yes

638.imagick_s: basepeak = yes

644.nab_s: basepeak = yes

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Software Availability: Jun-2025

Peak Optimization Flags (Continued)

Fortran benchmarks:

603.bwaves_s: basepeak = yes

649.fotonik3d_s: basepeak = yes

654.roms_s: basepeak = yes

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
-flt0 -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: basepeak = yes

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
-flt0 -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

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Software Availability: Jun-2025

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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