SPEC CPU®2017 Floating Point Speed Result

Dell Inc.

$SPECspeed®2017\_fp\_base =$ **405**

PowerEdge R7625 (AMD EPYC 9754 128-Core Processor)

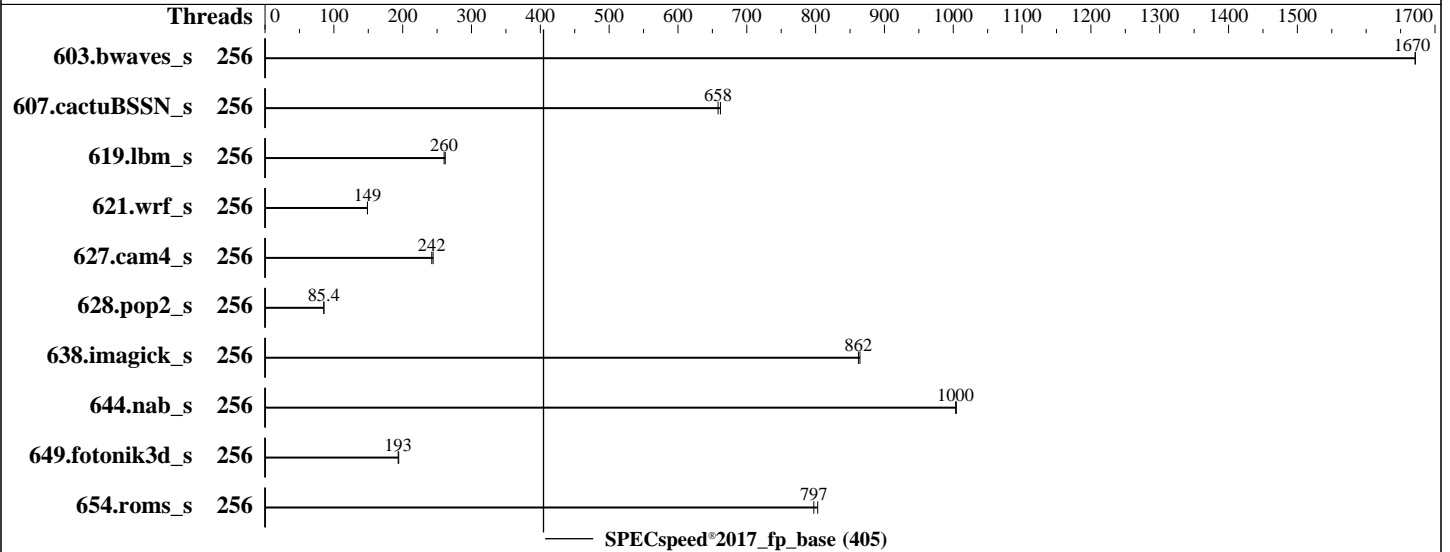$SPECspeed®2017\_fp\_peak =$ Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Nov-2022

Threads

Benchmark	Threads	Result
603.bwaves_s	256	1670
607.cactuBSSN_s	256	658
619.lbm_s	256	260
621.wrf_s	256	149
627.cam4_s	256	242
628.pop2_s	256	85.4
638.imagick_s	256	862
644.nab_s	256	1000
649.fotonik3d_s	256	193
654.roms_s	256	797

SPECspeed®2017_fp_base (405)

Hardware

CPU Name: AMD EPYC 9754
 Max MHz: 3100
 Nominal: 2250
Enabled: 256 cores, 2 chips
Orderable: 1,2 chips
Cache L1: 32 KB I + 32 KB D on chip per core
 L2: 1 MB I+D on chip per core
 L3: 256 MB I+D on chip per chip, 16 MB shared / 8 cores
 Other: None
Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)
Storage: 130 GB on tmpfs
Other: None

Software

OS: Ubuntu 22.04.1 LTS
 5.15.0-46-generic
Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
Parallel: Yes
Firmware: Version 1.4.0 released Apr-2023
File System: tmpfs
System State: Run level 3 (multi-user)
Base Pointers: 64-bit
Peak Pointers: Not Applicable
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	256	**35.3**	**1670**	35.3	1670									
607.cactuBSSN_s	256	**25.3**	**658**	25.2	662									
619.lbm_s	256	20.0	262	**20.1**	**260**									
621.wrf_s	256	**88.9**	**149**	88.9	149									
627.cam4_s	256	36.3	244	**36.6**	**242**									
628.pop2_s	256	139	85.5	**139**	**85.4**									
638.imagick_s	256	**16.7**	**862**	16.7	864									
644.nab_s	256	17.4	1000	**17.4**	**1000**									
649.fotonik3d_s	256	46.9	194	**47.1**	**193**									
654.roms_s	256	19.6	803	**19.7**	**797**									
SPECspeed®2017_fp_base =			**405**											
SPECspeed®2017_fp_peak =			**Not Run**											

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.
To always enable THP for peak runs of:
603.bwaves_s, 607.cactuBSSN_s, 619.lbm_s, 627.cam4_s, 628.pop2_s, 638.imagick_s, 644.nab_s, 649.fotonik3d_s:
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled; echo always > /sys/kernel/mm/transparent_hugepage/defrag'
run as root.
```

(Continued on next page)

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Operating System Notes (Continued)

```
To disable THP for peak runs of 621.wrf_s:
'echo never > /sys/kernel/mm/transparent_hugepage/enabled; echo always > /sys/kernel/mm/transparent_hugepage/defrag'
run as root.
To enable THP only on request for peak runs of 654.roms_s:
'echo madvise > /sys/kernel/mm/transparent_hugepage/enabled; echo madvise > /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 = "0-255"
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu2017-1.1.9-aocc400-B1f/amd_speed_aocc400_genoa_B_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "256"
```

General Notes

```
Binaries were compiled on a system with 2x AMD EPYC 9174F CPU + 1.5TiB Memory using RHEL 8.6

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.


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

Platform Notes

```
 BIOS settings:
          DRAM Refresh Delay : Performance
         DIMM Self Healing on
   Uncorrectable Memory Error : Disabled
           Logical Processor : Disabled
    Virtualization Technology : Disabled
      L3 Cache as NUMA Domain : Enabled

              System Profile : Custom
                    C-States : Disabled
          Memory Patrol Scrub : Disabled
          PCI ASPM L1 Link
            Power Management : Disabled
          Determinism Slider : Power Determinism
     Algorithm Performance
        Boost Disable (ApbDis) : Enabled

 Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1f/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
```

(Continued on next page)

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Platform Notes (Continued)

```
running on amd-sut Fri May 12 21:22:44 2023

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 249 (249.11-0ubuntu3.4)
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. tuned-adm active
17. sysctl
18. /sys/kernel/mm/transparent_hugepage
19. /sys/kernel/mm/transparent_hugepage/khugepaged
20. OS release
21. Disk information
22. /sys/devices/virtual/dmi/id
23. dmidecode
24. BIOS
------------------------------------------------------------


------------------------------------------------------------
1. uname -a
  Linux amd-sut 5.15.0-46-generic #49-Ubuntu SMP Thu Aug 4 18:03:25 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux


------------------------------------------------------------
2. w
  21:22:44 up  1:37,  1 user,  load average: 5.92, 6.34, 3.66
  USER     TTY      FROM             LOGIN@   IDLE   JCPU   PCPU WHAT
  root     tty1     -                19:54    1:25m  2.48s  0.54s /bin/bash ./amd_speed_aocc400_genoa_B1.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              6190249
  nofiles              1024
  vmemory(kbytes)      unlimited
  locks                unlimited
```

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Platform Notes (Continued)

```
  rtprio               0


  ---------------------------------------------------------
5. sysinfo process ancestry
 /sbin/init
 /bin/login -p --
 -bash
 /bin/bash ./DELL_speed.sh
 /bin/bash ./dell-run-main.sh speed
 /bin/bash ./dell-run-main.sh speed
 /bin/bash ./dell-run-speccpu.sh speed --define DL-BIOSinc=Dell-BIOS_EPYC-4.inc --define DL-BIOS-LogProcD=1
    --define DL-BIOS-adddcD=1 --define DL-BIOS-VirtD=1 --define DL-VERS=v4.5 --output_format csv,html,pdf,txt
 python3 ./run_amd_speed_aocc400_genoa_B1.py
 /bin/bash ./amd_speed_aocc400_genoa_B1.sh
 runcpu --config amd_speed_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --define
   DL-BIOSinc=Dell-BIOS_EPYC-4.inc --define DL-BIOS-LogProcD=1 --define DL-BIOS-adddcD=1 --define
   DL-BIOS-VirtD=1 --define DL-VERS=v4.5 --output_format csv,html,pdf,txt fpspeed
 runcpu --configfile amd_speed_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --define
   DL-BIOSinc=Dell-BIOS_EPYC-4.inc --define DL-BIOS-LogProcD=1 --define DL-BIOS-adddcD=1 --define
   DL-BIOS-VirtD=1 --define DL-VERS=v4.5 --output_format csv,html,pdf,txt --nopower --runmode speed --tune
   base --size test:train:refspeed fpspeed --nopreenv --note-preenv --logfile
   $SPEC/tmp/CPU2017.002/templogs/preenv.fpspeed.002.0.log --lognum 002.0 --from_runcpu 2
 specperl $SPEC/bin/sysinfo
 $SPEC = /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1f


  ---------------------------------------------------------
6. /proc/cpuinfo
    model name      : AMD EPYC 9754 128-Core Processor
    vendor_id       : AuthenticAMD
    cpu family      : 25
    model           : 160
    stepping        : 2
    microcode       : 0xaa00208
    bugs            : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
    TLB size        : 3584 4K pages
    cpu cores       : 128
    siblings        : 128
    2 physical ids (chips)
    256 processors (hardware threads)
    physical id 0: core ids
    0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
    240-247
    physical id 1: core ids
    0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
    240-247
    physical id 0: apicids
    0-7,16-23,32-39,48-55,64-71,80-87,96-103,112-119,128-135,144-151,160-167,176-183,192-199,208-215,224-231,
    240-247
    physical id 1: apicids
    256-263,272-279,288-295,304-311,320-327,336-343,352-359,368-375,384-391,400-407,416-423,432-439,448-455,4
    64-471,480-487,496-503
  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 2.37.2:
  Architecture:                  x86_64
  CPU op-mode(s):                32-bit, 64-bit
```

(Continued on next page)

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Platform Notes (Continued)

```
   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
   Model name:                 AMD EPYC 9754 128-Core Processor
   CPU family:                 25
   Model:                      160
   Thread(s) per core:         1
   Core(s) per socket:         128
   Socket(s):                  2
   Stepping:                   2
   Frequency boost:            enabled
   CPU max MHz:                3101.0000
   CPU min MHz:                400.0000
   BogoMIPS:                   4500.96
   Flags:                      fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                               clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
                               constant_tsc rep_good nopl 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 bpext 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 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
                               avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin cppc arat npt
                               lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
                               pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
                               umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                               avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d
   Virtualization:             AMD-V
   L1d cache:                  8 MiB (256 instances)
   L1i cache:                  8 MiB (256 instances)
   L2 cache:                   256 MiB (256 instances)
   L3 cache:                   512 MiB (32 instances)
   NUMA node(s):               2
   NUMA node0 CPU(s):          0-127
   NUMA node1 CPU(s):          128-255
   Vulnerability Itlb multihit: Not affected
   Vulnerability L1tf:          Not affected
   Vulnerability Mds:           Not affected
   Vulnerability Meltdown:      Not affected
   Vulnerability Mmio stale data: Not affected
   Vulnerability Retbleed:      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; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, RSB
                                filling
   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       32K       8M    8 Data          1     64       1              64
     L1i       32K       8M    8 Instruction   1     64       1              64
     L2         1M     256M    8 Unified       2   2048       1              64
     L3        16M     512M   16 Unified       3  16384       1              64
```

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Platform Notes (Continued)

```
--------------------------------------------------------------
8. numactl --hardware
NOTE: a numactl 'node' might or might not correspond to a physical chip.
  available: 2 nodes (0-1)
  node 0 cpus: 0-127
  node 0 size: 773635 MB
  node 0 free: 767830 MB
  node 1 cpus: 128-255
  node 1 size: 774037 MB
  node 1 free: 772378 MB
  node distances:
  node   0   1
    0:  10  32
    1:  32  10


--------------------------------------------------------------
9. /proc/meminfo
  MemTotal:       1584817836 kB


--------------------------------------------------------------
10. who -r
  run-level 3 May 12 19:47


--------------------------------------------------------------
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.4)
  Default Target  Status
  multi-user      degraded


--------------------------------------------------------------
12. Failed units, from systemctl list-units --state=failed
    UNIT                                LOAD   ACTIVE SUB    DESCRIPTION
  * systemd-networkd-wait-online.service loaded failed failed Wait for Network to be Configured


--------------------------------------------------------------
13. Services, from systemctl list-unit-files
  STATE           UNIT FILES
  enabled         blk-availability console-setup cron dmesg e2scrub_reap finalrd getty@ gpu-manager
                  grub-common grub-initrd-fallback irqbalance keyboard-setup lm-sensors networkd-dispatcher
                  open-iscsi open-vm-tools pollinate rsyslog secureboot-db setvtrgb ssh systemd-networkd
                  systemd-pstore systemd-resolved systemd-timesyncd thermald tuned ua-reboot-cmds
                  ubuntu-advantage udisks2 vgauth wpa_supplicant
  enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-networkd-wait-online systemd-remount-fs
  disabled        ModemManager apparmor console-getty debug-shell iscsid lvm2-monitor lxd-agent multipathd
                  nftables rsync serial-getty@ systemd-boot-check-no-failures systemd-network-generator
                  systemd-sysext systemd-time-wait-sync ufw upower wpa_supplicant-nl80211@
                  wpa_supplicant-wired@ wpa_supplicant@
  generated       apport
  indirect        uuidd
  masked          NetworkManager NetworkManager-dispatcher NetworkManager-wait-online cryptdisks
                  cryptdisks-early hwclock lvm2 multipath-tools-boot rc rcS screen-cleanup sudo x11-common


--------------------------------------------------------------
14. Linux kernel boot-time arguments, from /proc/cmdline
  BOOT_IMAGE=/boot/vmlinuz-5.15.0-46-generic
  root=UUID=593ab29a-c8fe-4d75-821a-b60d5c945311
  ro


--------------------------------------------------------------
15. cpupower frequency-info
  analyzing CPU 0:
```

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Platform Notes (Continued)

```
      current policy: frequency should be within 400 MHz and 3.10 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:  2250MHz


    ----------------------------------------------------------------
    16. tuned-adm active
      Current active profile: latency-performance


    ----------------------------------------------------------------
    17. sysctl
      kernel.numa_balancing           1
      kernel.randomize_va_space       0
      vm.compaction_proactiveness     20
      vm.dirty_background_bytes       0
      vm.dirty_background_ratio       3
      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

    ----------------------------------------------------------------
    18. /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


    ----------------------------------------------------------------
    19. /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


    ----------------------------------------------------------------
    20. OS release
      From /etc/*-release /etc/*-version
      os-release Ubuntu 22.04.1 LTS


    ----------------------------------------------------------------
    21. Disk information
```

(Continued on next page)

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Platform Notes (Continued)

```
 SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1f
   Filesystem      Type   Size  Used Avail Use% Mounted on
   tmpfs           tmpfs  130G  3.5G  127G   3% /mnt/ramdisk


   -------------------------------------------------------------
 22. /sys/devices/virtual/dmi/id
     Vendor:          Dell Inc.
     Product:         PowerEdge R7625
     Product Family:  PowerEdge
     Serial:          BRZ5015


   -------------------------------------------------------------
 23. dmidecode
   Additional information from dmidecode 3.3 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 802C0000802C MTC40F2046S1RC48BA1 64 GB 2 rank 4800



   -------------------------------------------------------------
 24. BIOS
   (This section combines info from /sys/devices and dmidecode.)
     BIOS Vendor:       Dell Inc.
     BIOS Version:      1.4.0
     BIOS Date:         04/11/2023
     BIOS Revision:     1.4
```

Compiler Version Notes

```
==============================================================================================
C               | 619.lbm_s(base) 638.imagick_s(base) 644.nab_s(base)
----------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
----------------------------------------------------------------------------------------------


==============================================================================================
C++, C, Fortran | 607.cactuBSSN_s(base)
----------------------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
----------------------------------------------------------------------------------------------


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

(Continued on next page)

Dell Inc.

$SPECspeed^{®}2017\_fp\_base =$ 405

PowerEdge R7625 (AMD EPYC 9754 128-Core Processor)

$SPECspeed^{®}2017\_fp\_peak =$ Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Nov-2022

Compiler Version Notes (Continued)

```
--------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
--------------------------------------------------------------------------------


================================================================================
Fortran, C    | 621.wrf_s(base) 627.cam4_s(base) 628.pop2_s(base)
--------------------------------------------------------------------------------
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/bin
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#389 2022_10_07) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-rel-4.0-3206-389/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`

SPEC CPU®2017 Floating Point Speed Result

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Dell Inc.

PowerEdge R7625 (AMD EPYC 9754 128-Core Processor)

SPECspeed®2017_fp_base =   405

SPECspeed®2017_fp_peak = Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Nov-2022

Base Optimization Flags

C benchmarks:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -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=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -Mrecursive
-funroll-loops -mllvm -lsr-in-nested-loop
-mllvm -reduce-array-computations=3 -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=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang
```

Benchmarks using Fortran, C, and C++:
```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-x86-use-vzeroupper=false -O3 -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-DSPEC_OPENMP -zopt -mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000 -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -fopenmp=libomp -lomp -lamdlibm -lamdalloc
-lflang
```

Standard Performance Evaluation Corporation (info@spec.org)   https://www.spec.org/

Dell Inc.

PowerEdge R7625 (AMD EPYC 9754 128-Core Processor)

SPECspeed®2017_fp_base =   405

SPECspeed®2017_fp_peak = Not Run

CPU2017 License: 6573
Test Sponsor: Dell Inc.
Tested by: Dell Inc.

Test Date: May-2023
Hardware Availability: Jun-2023
Software Availability: Nov-2022

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`

The flags files that were used to format this result can be browsed at
`http://www.spec.org/cpu2017/flags/aocc400-flags.html`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.1.html`

You can also download the XML flags sources by saving the following links:
`http://www.spec.org/cpu2017/flags/aocc400-flags.xml`
`http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.1.xml`

For questions about this result, please contact the tester. For other inquiries, please contact info@spec.org.

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