



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

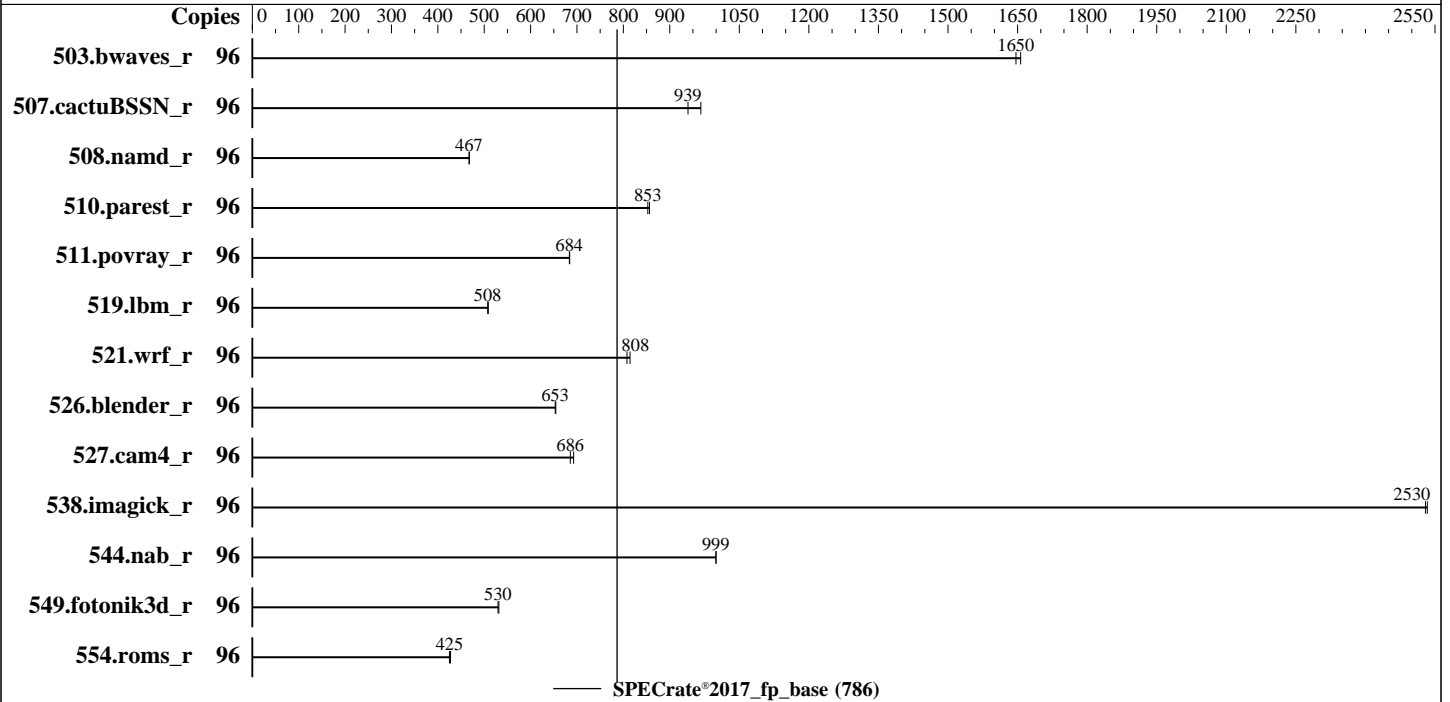
Test Date: Mar-2023

Test Sponsor: Dell Inc.

Hardware Availability: Mar-2023

Tested by: Dell Inc.

Software Availability: Nov-2022



### Hardware

CPU Name: AMD EPYC 9274F  
 Max MHz: 4300  
 Nominal: 4050  
 Enabled: 48 cores, 2 chips, 2 threads/core  
 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, 32 MB shared / 3 cores  
 Other: None  
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 125 GB on tmpfs  
 Other: None

### Software

OS: SUSE Linux Enterprise Server 15 SP4 5.14.21-150400.22-default  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: No  
 Firmware: Version 1.1.3 released Jan-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.



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

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

Test Date: Mar-2023  
Hardware Availability: Mar-2023  
Software Availability: Nov-2022

## Results Table

Benchmark	Base						Peak							
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.bwaves_r	96	581	1660	<b>585</b>	<b>1650</b>									
507.cactuBSSN_r	96	<b>129</b>	<b>939</b>	126	967									
508.namd_r	96	195	468	<b>195</b>	<b>467</b>									
510.parest_r	96	<b>294</b>	<b>853</b>	293	856									
511.povray_r	96	<b>328</b>	<b>684</b>	328	684									
519.lbm_r	96	199	509	<b>199</b>	<b>508</b>									
521.wrf_r	96	264	814	<b>266</b>	<b>808</b>									
526.blender_r	96	<b>224</b>	<b>653</b>	223	654									
527.cam4_r	96	242	693	<b>245</b>	<b>686</b>									
538.imagick_r	96	94.2	2530	<b>94.4</b>	<b>2530</b>									
544.nab_r	96	162	1000	<b>162</b>	<b>999</b>									
549.fotonik3d_r	96	<b>706</b>	<b>530</b>	704	532									
554.roms_r	96	<b>359</b>	<b>425</b>	357	427									

SPECrate®2017\_fp\_base = 786

SPECrate®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,

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2023

Hardware Availability: Mar-2023

Software Availability: Nov-2022

## Operating System Notes (Continued)

'echo always > /sys/kernel/mm/transparent\_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent\_hugepage/defrag' run as root.

## Environment Variables Notes

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

```
LD_LIBRARY_PATH =  
    "/mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e/amd_rate_aocc400_genoa_B_lib/lib:/mnt/ramdisk/cpu2017-1.1.9-ao  
cc400-B1e/amd_rate_aocc400_genoa_B_lib/lib32:"  
MALLOC_CONF = "retain:true"
```

## 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 125 GB ramdisk created with the cmd: "mount -t tmpfs -o size=125G tmpfs /mnt/ramdisk"

## Platform Notes

BIOS settings:

```
    DRAM Refresh Delay : Performance  
    DIMM Self Healing on  
Uncorrectable Memory Error : Disabled  
Virtualization Technology : Disabled  
    L1 Stride Prefetcher: : Disabled  
    NUMA Nodes per Socket : 4  
    L3 Cache as NUMA Domain : Enabled
```

```
    System Profile : Custom  
    Memory Patrol Scrub : Disabled  
    PCI ASPM L1 Link  
    Power Management : Disabled  
    Determinism Slider : Power Determinism
```

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e/bin/sysinfo  
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197  
running on localhost.localdomain Mon Mar 20 12:00:59 2023

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

-----  
Table of contents  
-----

1. uname -a
2. w

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

Test Date: Mar-2023

Test Sponsor: Dell Inc.

Hardware Availability: Mar-2023

Tested by: Dell Inc.

Software Availability: Nov-2022

## Platform Notes (Continued)

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+suse.124.g2bc0b2c447)
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 localhost.localdomain 5.14.21-150400.22-default #1 SMP PREEMPT_DYNAMIC Wed May 11 06:57:18 UTC 2022
(49db222) x86_64 x86_64 x86_64 GNU/Linux
-----
```

```
-----
2. w
12:01:00 up 1:27, 1 user, load average: 76.07, 90.62, 92.58
USER      TTY      FROM          LOGIN@      IDLE        JCPU   PCPU   WHAT
root     tty1      -             10:34       1:25m      2.17s  0.34s /bin/bash ./amd_rate_aocc400_genoa_B1.sh
-----
```

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

```
-----
4. ulimit -a
core file size          (blocks, -c) unlimited
data seg size           (kbytes, -d) unlimited
scheduling priority     (-e) 0
file size               (blocks, -f) unlimited
pending signals         (-i) 6190710
max locked memory       (kbytes, -l) 2097152
max memory size         (kbytes, -m) unlimited
open files              (-n) 1024
pipe size               (512 bytes, -p) 8
POSIX message queues    (bytes, -q) 819200
real-time priority      (-r) 0
stack size              (kbytes, -s) unlimited
cpu time                (seconds, -t) unlimited
max user processes      (-u) 6190710
virtual memory          (kbytes, -v) unlimited
file locks              (-x) unlimited
-----
```

```
-----
5. sysinfo process ancestry
-----
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

Test Date: Mar-2023

Test Sponsor: Dell Inc.

Hardware Availability: Mar-2023

Tested by: Dell Inc.

Software Availability: Nov-2022

## Platform Notes (Continued)

```

/usr/lib/systemd/systemd linux --switched-root --system --deserialize 30
login -- root
-bash
/bin/bash ./DELL_rate.sh
/bin/bash ./dell-run-main.sh rate
/bin/bash ./dell-run-main.sh rate
/bin/bash ./dell-run-specrate.sh --output_format csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc
python3 ./run_amd_rate_aocc400_genoa_B1.py
/bin/bash ./amd_rate_aocc400_genoa_B1.sh
runcpu --config amd_rate_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc fprate
runcpu --configfile amd_rate_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --nopower --runmode rate --tune base --size
test:train:refrate fprate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.002/templogs/preenv.fprate.002.0.log --lognum 002.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e

```

### 6. /proc/cpuinfo

```

model name      : AMD EPYC 9274F 24-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 17
stepping       : 1
microcode      : 0xa101111
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size      : 3584 4K pages
cpu cores     : 24
siblings       : 48
2 physical ids (chips)
96 processors (hardware threads)
physical id 0: core ids 0-2,8-10,16-18,24-26,32-34,40-42,48-50,56-58
physical id 1: core ids 0-2,8-10,16-18,24-26,32-34,40-42,48-50,56-58
physical id 0: apicids 0-5,16-21,32-37,48-53,64-69,80-85,96-101,112-117
physical id 1: apicids 128-133,144-149,160-165,176-181,192-197,208-213,224-229,240-245

```

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
Address sizes: 52 bits physical, 57 bits virtual
Byte Order: Little Endian
CPU(s): 96
On-line CPU(s) list: 0-95
Vendor ID: AuthenticAMD
Model name: AMD EPYC 9274F 24-Core Processor
CPU family: 25
Model: 17
Thread(s) per core: 2
Core(s) per socket: 24
Socket(s): 2
Stepping: 1
Frequency boost: enabled
CPU max MHz: 4303.1250
CPU min MHz: 1500.0000

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

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

**Test Date:** Mar-2023  
**Hardware Availability:** Mar-2023  
**Software Availability:** Nov-2022

### Platform Notes (Continued)

```

BogoMIPS:      8102.44
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 bpeext 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 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
AMD-V
Virtualization:
L1d cache:    1.5 MiB (48 instances)
L1i cache:    1.5 MiB (48 instances)
L2 cache:     48 MiB (48 instances)
L3 cache:     512 MiB (16 instances)
NUMA node(s): 8
NUMA node0 CPU(s): 0-2,12-14,48-50,60-62
NUMA node1 CPU(s): 6-8,18-20,54-56,66-68
NUMA node2 CPU(s): 9-11,21-23,57-59,69-71
NUMA node3 CPU(s): 3-5,15-17,51-53,63-65
NUMA node4 CPU(s): 24-26,36-38,72-74,84-86
NUMA node5 CPU(s): 30-32,42-44,78-80,90-92
NUMA node6 CPU(s): 33-35,45-47,81-83,93-95
NUMA node7 CPU(s): 27-29,39-41,75-77,87-89
Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swaps barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP always-on, 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    1.5M    8 Data          1    64      1           64
L1i   32K    1.5M    8 Instruction   1    64      1           64
L2    1M     48M     8 Unified       2  2048     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: 8 nodes (0-7)
node 0 cpus: 0-2,12-14,48-50,60-62
node 0 size: 193078 MB
node 0 free: 192074 MB
node 1 cpus: 6-8,18-20,54-56,66-68
node 1 size: 193497 MB
node 1 free: 192887 MB
node 2 cpus: 9-11,21-23,57-59,69-71

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2023

Hardware Availability: Mar-2023

Software Availability: Nov-2022

## Platform Notes (Continued)

```

node 2 size: 193531 MB
node 2 free: 192980 MB
node 3 cpus: 3-5,15-17,51-53,63-65
node 3 size: 193515 MB
node 3 free: 192954 MB
node 4 cpus: 24-26,36-38,72-74,84-86
node 4 size: 193531 MB
node 4 free: 189397 MB
node 5 cpus: 30-32,42-44,78-80,90-92
node 5 size: 193531 MB
node 5 free: 192999 MB
node 6 cpus: 33-35,45-47,81-83,93-95
node 6 size: 193531 MB
node 6 free: 193004 MB
node 7 cpus: 27-29,39-41,75-77,87-89
node 7 size: 193483 MB
node 7 free: 192976 MB
node distances:
node  0  1  2  3  4  5  6  7
0:  10 12 12 12 32 32 32 32
1:  12 10 12 12 32 32 32 32
2:  12 12 10 12 32 32 32 32
3:  12 12 12 10 32 32 32 32
4:  32 32 32 32 10 12 12 12
5:  32 32 32 32 12 10 12 12
6:  32 32 32 32 12 12 10 12
7:  32 32 32 32 12 12 12 10

```

```

-----
9. /proc/meminfo
MemTotal:      1584846716 kB

```

```

-----
10. who -r
run-level 3 Mar 20 10:33

```

```

-----
11. Systemd service manager version: systemd 249 (249.11+suse.124.g2bc0b2c447)
Default Target Status
multi-user          degraded

```

```

-----
12. Failed units, from systemctl list-units --state=failed
UNIT                                LOAD    ACTIVE SUB    DESCRIPTION
* NetworkManager-wait-online.service loaded failed failed Network Manager Wait Online

```

```

-----
13. Services, from systemctl list-unit-files
STATE    UNIT FILES
enabled  NetworkManager NetworkManager-dispatcher NetworkManager-wait-online YaST2-Firstboot
YaST2-Second-Stage apparmor auditd cron display-manager firewalld getty@ haveged
irqbalance issue-generator kbdsettings klog lvm2-monitor nscd purge-kernels rollback
rsyslog smartd sshd wpa_supplicant
enabled-runtime systemd-remount-fs
disabled  ModemManager accounts-daemon appstream-sync-cache autofs autoyast-initscripts
blk-availability bluetooth bluetooth-mesh boot-sysctl ca-certificates chrony-wait chronyd
console-getty cups cups-browsed debug-shell dnsmasq ebttables exchange-bmc-os-info gpm
grub2-once haveged-switch-root hwloc-dump-hwdata ipmi ipmievdevd iscsi iscsi-init iscsid
iscsiuio issue-add-ssh-keys kexec-load lunmask man-db-create multipathd nfs nfs-blkmap
nm-cloud-setup nmb ostree-remount postfix rdisc rpcbind rpmconfigcheck rsyncd rtkit-daemon

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

Test Date: Mar-2023

Test Sponsor: Dell Inc.

Hardware Availability: Mar-2023

Tested by: Dell Inc.

Software Availability: Nov-2022

## Platform Notes (Continued)

```

indirect
serial-getty@ smartd_generate_opts smb snmpd snmptrapd speech-dispatcherd
systemd-boot-check-no-failures systemd-network-generator systemd-sysext
systemd-time-wait-sync systemd-timesyncd tuned udisks2 upower wicked wickedd-auto4
wickedd-dhcp4 wickedd-dhcp6 wickedd-nanny wpa_supplicant@
wickedd

```

```

-----
14. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.14.21-150400.22-default
root=UUID=ef117b4a-6c89-42a3-b0a0-2cc3fe661a68
linux
splash=silent
quiet
security=
mitigations=auto

```

```

-----
15. cpupower frequency-info
analyzing CPU 0:
  current policy: frequency should be within 1.50 GHz and 4.05 GHz.
                  The governor "ondemand" may decide which speed to use
                  within this range.

  boost state support:
    Supported: yes
    Active: yes

```

```

-----
16. tuned-adm active
It seems that tuned daemon is not running, preset profile is not activated.
Preset 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     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

```

```

-----
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

```

(Continued on next page)





# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

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

Test Date: Mar-2023  
Hardware Availability: Mar-2023  
Software Availability: Nov-2022

## Platform Notes (Continued)

```

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 SUSE Linux Enterprise Server 15 SP4

```

```

21. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e
Filesystem Type Size Used Avail Use% Mounted on
tmpfs tmpfs 125G 3.5G 122G 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 3.2 follows. WARNING: Use caution when you interpret this section.
The 'dmidecode' program reads system data which is "intended to allow hardware to be accurately
determined", but the intent may not be met, as there are frequent changes to hardware, firmware, and the
"DMTF SMBIOS" standard.
Memory:
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: 1.1.3
BIOS Date: 01/20/2023
BIOS Revision: 1.1

```

## Compiler Version Notes

```

=====
C | 519.lbm_r(base) 538.imagick_r(base) 544.nab_r(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++ | 508.namd_r(base) 510.parest_r(base)
=====

```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

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

Test Date: Mar-2023  
Hardware Availability: Mar-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  
-----

=====  
C++, C | 511.povray\_r(base) 526.blender\_r(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  
-----

=====  
C++, C, Fortran | 507.cactuBSSN\_r(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 | 503.bwaves\_r(base) 549.fotonik3d\_r(base) 554.roms\_r(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  
-----

=====  
Fortran, C | 521.wrf\_r(base) 527.cam4\_r(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  
-----



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2023

Hardware Availability: Mar-2023

Software Availability: Nov-2022

## Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Benchmarks using both Fortran and C:

flang clang

Benchmarks using both C and C++:

clang++ clang

Benchmarks using Fortran, C, and C++:

clang++ clang flang

## Base Portability Flags

503.bwaves\_r: -DSPEC\_LP64  
 507.cactuBSSN\_r: -DSPEC\_LP64  
 508.namd\_r: -DSPEC\_LP64  
 510.parest\_r: -DSPEC\_LP64  
 511.povray\_r: -DSPEC\_LP64  
 519.lbm\_r: -DSPEC\_LP64  
 521.wrf\_r: -DSPEC\_CASE\_FLAG -Mbyteswapio -DSPEC\_LP64  
 526.blender\_r: -funsigned-char -DSPEC\_LP64  
 527.cam4\_r: -DSPEC\_CASE\_FLAG -DSPEC\_LP64  
 538.imagick\_r: -DSPEC\_LP64  
 544.nab\_r: -DSPEC\_LP64  
 549.fotonik3d\_r: -DSPEC\_LP64  
 554.roms\_r: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

-m64 -flto -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6  
 -Wl,-mllvm -Wl,-reduce-array-computations=3  
 -Wl,-mllvm -Wl,-ldist-scalar-expand -fenable-aggressive-gather -O3  
 -march=znver4 -fveclib=AMDLIBM -ffast-math -fstruct-layout=7  
 -mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Mar-2023

Hardware Availability: Mar-2023

Software Availability: Nov-2022

## Base Optimization Flags (Continued)

C benchmarks (continued):

```
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-zopt -lamdlibm -lamdalloc -lflang
```

C++ benchmarks:

```
-m64 -flto -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 -mllvm -unroll-threshold=100
-finline-aggressive -mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -zopt -lamdlibm -lamdalloc
-lflang
```

Fortran benchmarks:

```
-m64 -flto -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 -Kieee -Mrecursive -funroll-loops
-mllvm -lsr-in-nested-loop -mllvm -reduce-array-computations=3
-fepilog-vectorization-of-inductions -zopt -lamdlibm -lamdalloc
-lflang
```

Benchmarks using both Fortran and C:

```
-m64 -flto -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 -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-zopt -Kieee -Mrecursive -funroll-loops -mllvm -lsr-in-nested-loop
-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc -lflang
```

Benchmarks using both C and C++:

```
-m64 -flto -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 -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-zopt -mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000 -lamdlibm -lamdalloc -lflang
```

Benchmarks using Fortran, C, and C++:

```
-m64 -flto -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
```

(Continued on next page)



# SPEC CPU®2017 Floating Point Rate Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

**Dell Inc.**

SPECrate®2017\_fp\_base = 786

PowerEdge R7625 (AMD EPYC 9274F 24-Core Processor)

SPECrate®2017\_fp\_peak = Not Run

**CPU2017 License:** 6573

**Test Sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test Date:** Mar-2023

**Hardware Availability:** Mar-2023

**Software Availability:** Nov-2022

## Base Optimization Flags (Continued)

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

```
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -mllvm -inline-threshold=1000
-fremap-arrays -fstrip-mining -mllvm -reduce-array-computations=3
-zopt -mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000 -Kieee -Mrecursive
-funroll-loops -mllvm -lsr-in-nested-loop
-fepilog-vectorization-of-inductions -lamdlibm -lamdalloc -lflang
```

## Base Other Flags

C benchmarks:

```
-Wno-unused-command-line-argument
```

C++ benchmarks:

```
-Wno-unused-command-line-argument
```

Fortran benchmarks:

```
-Wno-unused-command-line-argument
```

Benchmarks using both Fortran and C:

```
-Wno-unused-command-line-argument
```

Benchmarks using both C and C++:

```
-Wno-unused-command-line-argument
```

Benchmarks using Fortran, C, and C++:

```
-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-v1.0.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-v1.0.xml>

SPEC CPU and SPECrate are registered trademarks of the Standard Performance Evaluation Corporation. All other brand and product names appearing in this result are trademarks or registered trademarks of their respective holders.

For questions about this result, please contact the tester. For other inquiries, please contact [info@spec.org](mailto:info@spec.org).

Tested with SPEC CPU®2017 v1.1.9 on 2023-03-20 13:00:59-0400.

Report generated on 2023-05-09 15:57:19 by CPU2017 PDF formatter v6716.

Originally published on 2023-05-09.