



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

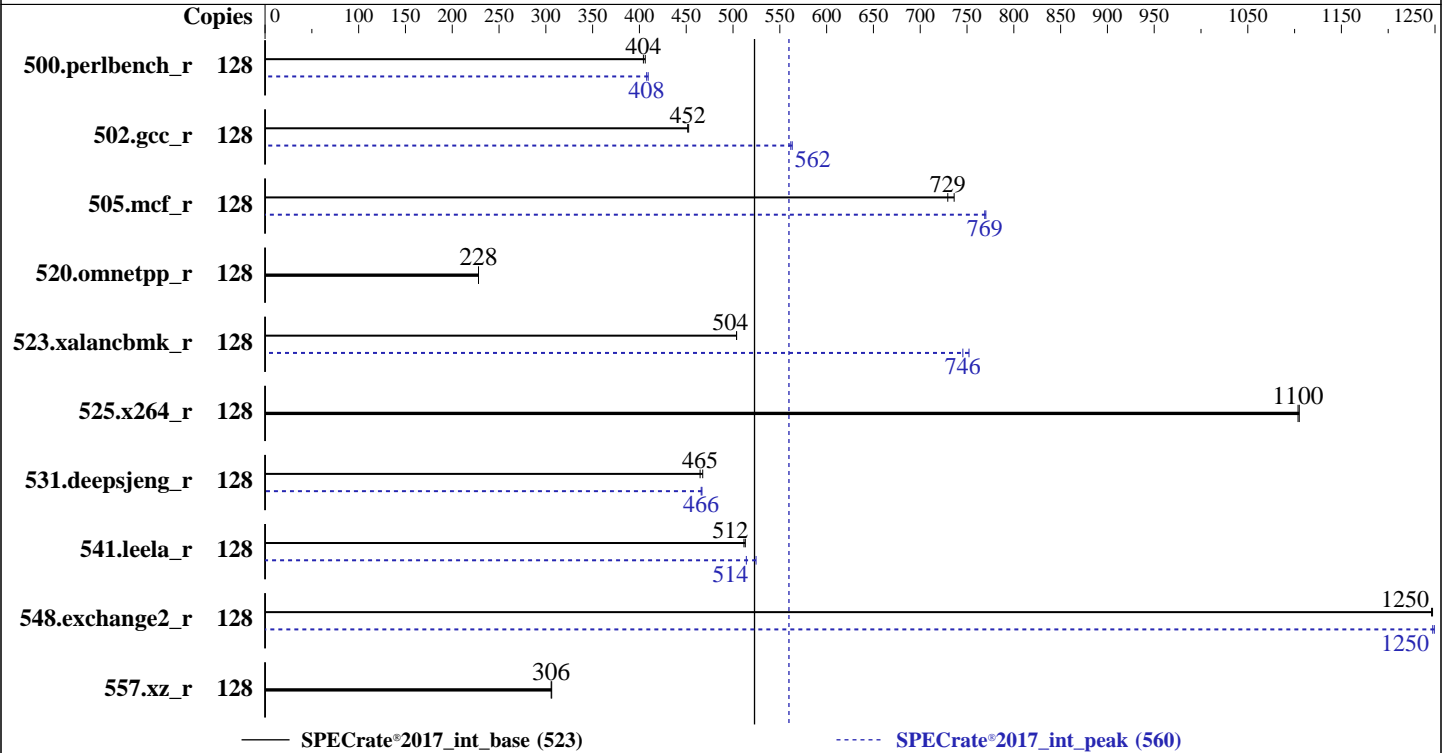
Test Date: Apr-2024

Test Sponsor: Dell Inc.

Hardware Availability: Mar-2021

Tested by: Dell Inc.

Software Availability: Mar-2024



### Hardware

CPU Name: AMD EPYC 7543  
 Max MHz: 3700  
 Nominal: 2800  
 Enabled: 64 cores, 2 chips, 2 threads/core  
 Orderable: 1,2 chips  
 Cache L1: 32 KB I + 32 KB D on chip per core  
 L2: 512 KB I+D on chip per core  
 L3: 256 MB I+D on chip per chip, 32 MB shared / 4 cores  
 Other: None  
 Memory: 1 TB (16 x 64 GB 2Rx4 PC4-3200AA-R)  
 Storage: 80 GB on tmpfs  
 Other: CPU Cooling: Air

### Software

OS: Ubuntu 22.04.4 LTS  
 5.15.0-101-generic  
 Compiler: C/C++/Fortran: Version 3.2.0 of AOCC  
 Parallel: No  
 Firmware: Version 2.8.4 released Jun-2022  
 File System: tmpfs  
 System State: Run level 5 (graphical multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: 32/64-bit  
 Other: jemalloc: jemalloc memory allocator library v5.1.0  
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

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

Test Date: Apr-2024  
Hardware Availability: Mar-2021  
Software Availability: Mar-2024

## Results Table

Benchmark	Base							Peak						
	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Copies	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
500.perlbench_r	128	502	406	<b>504</b>	<b>404</b>			128	498	409	<b>500</b>	<b>408</b>		
502.gcc_r	128	400	453	<b>401</b>	<b>452</b>			128	322	563	<b>323</b>	<b>562</b>		
505.mcf_r	128	281	736	<b>284</b>	<b>729</b>			128	<b>269</b>	<b>769</b>	269	770		
520.omnetpp_r	128	736	228	<b>736</b>	<b>228</b>			128	736	228	<b>736</b>	<b>228</b>		
523.xalancbmk_r	128	<b>268</b>	<b>504</b>	268	504			128	<b>181</b>	<b>746</b>	180	752		
525.x264_r	128	203	1100	<b>203</b>	<b>1100</b>			128	203	1100	<b>203</b>	<b>1100</b>		
531.deepsjeng_r	128	314	468	<b>316</b>	<b>465</b>			128	314	467	<b>315</b>	<b>466</b>		
541.leela_r	128	<b>414</b>	<b>512</b>	413	513			128	<b>412</b>	<b>514</b>	404	525		
548.exchange2_r	128	<b>269</b>	<b>1250</b>	269	1250			128	268	1250	<b>269</b>	<b>1250</b>		
557.xz_r	128	<b>452</b>	<b>306</b>	451	306			128	<b>452</b>	<b>306</b>	451	306		

SPECrate®2017\_int\_base = 523

SPECrate®2017\_int\_peak = 560

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) only on request for base runs,  
'echo madvise > /sys/kernel/mm/transparent\_hugepage/enabled' run as root.  
To enable THP for all allocations for peak runs,  
'echo always > /sys/kernel/mm/transparent\_hugepage/enabled' and  
'echo always > /sys/kernel/mm/transparent\_hugepage/defrag' run as root.



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

## Environment Variables Notes

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

```
LD_LIBRARY_PATH =
"/mnt/ramdisk/cpu2017-1.1.9-aocc320-A1/amd_rate_aocc320_milanx_A_lib/lib:/mnt/ramdisk/cpu2017-1.1.9-aocc320-A1/amd_rate_aocc320_milanx_A_lib/lib32:"
MALLOC_CONF = "retain:true"
```

Environment variables set by runcpu during the 523.xalancbmk\_r peak run:

```
MALLOC_CONF = "thp:never"
```

## General Notes

Binaries were compiled on a system with 2x AMD EPYC 7742 CPU + 1TiB Memory using OpenSUSE 15.2

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.

jemalloc: configured and built with GCC v4.8.2 in RHEL 7.4 (No options specified)

jemalloc 5.1.0 is available here:

<https://github.com/jemalloc/jemalloc/releases/download/5.1.0/jemalloc-5.1.0.tar.bz2>

Benchmark run from a 80 GB ramdisk created with the cmd: "mount -t tmpfs -o size=80G tmpfs /mnt/ramdisk"

## Platform Notes

BIOS settings:

DRAM Refresh Delay : Performance

Memory Interleaving : Disabled

DIMM Self Healing on

Uncorrectable Memory Error : Disabled

Virtualization Technology : Disabled

NUMA Nodes per Socket : 4

L3 cache as NUMA Domain : Enabled

System Profile : Custom

CPU Power Management : Maximum Performance

Memory Patrol Scrub : Disabled

PCI ASPM L1 Link

Power Management : Disabled

Sysinfo program /mnt/ramdisk/cpu2017-1.1.9-aocc320-A1/bin/sysinfo

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197

running on spa-amd Mon Apr 1 22:09:08 2024

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 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

**CPU2017 License:** 6573

**Test Sponsor:** Dell Inc.

**Tested by:** Dell Inc.

**Test Date:** Apr-2024

**Hardware Availability:** Mar-2021

**Software Availability:** Mar-2024

## 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 (249.11-0ubuntu3.12)
- 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 spa-amd 5.15.0-101-generic #111-Ubuntu SMP Tue Mar 5 20:16:58 UTC 2024 x86_64 x86_64 x86_64 GNU/Linux
```

```
-----
2. w
22:09:08 up 45 min, 1 user, load average: 0.14, 0.03, 0.01
USER      TTY      FROM          LOGIN@      IDLE        JCPU        PCPU        WHAT
root      tty1     -             21:24       28.00s     1.74s     0.35s  /bin/bash ./amd_rate_aocc320_milanx_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            4126131
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0
```

```
-----
5. sysinfo process ancestry
/sbin/init
/bin/login -p --
-bash
/bin/bash ./DELL_rate.sh
/bin/bash /home/DellFiles/bin/dell-run-main.sh rate
/bin/bash /home/DellFiles/bin/dell-run-main.sh rate
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

### SPECrate®2017\_int\_base = 523

### PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

### SPECrate®2017\_int\_peak = 560

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

**Test Date:** Apr-2024  
**Hardware Availability:** Mar-2021  
**Software Availability:** Mar-2024

## Platform Notes (Continued)

```
/bin/bash /home/DellFiles/bin/AMD/dell-run-speccpu.sh rate --define DL-BIOSinc=Dell-BIOS_EPYC-3.inc --define
DL-BIOS-LogProc=1 --define DL-BIOS-adddcD=1 --define DL-VERS=5.2 --output_format html,pdf,txt
python3 ./run_amd_rate_aocc320_milanx_A1.py
/bin/bash ./amd_rate_aocc320_milanx_A1.sh
runcpu --config amd_rate_aocc320_milanx_A1.cfg --tune all --reportable --iterations 2 --define
DL-BIOS-L3NUMA=1 --define DL-BIOS-NPS=4 --define DL-BIOSinc=Dell-BIOS_EPYC-3.inc --define
DL-BIOS-LogProc=1 --define DL-BIOS-adddcD=1 --define DL-VERS=5.2 --output_format html,pdf,txt intrate
runcpu --configfile amd_rate_aocc320_milanx_A1.cfg --tune all --reportable --iterations 2 --define
DL-BIOS-L3NUMA=1 --define DL-BIOS-NPS=4 --define DL-BIOSinc=Dell-BIOS_EPYC-3.inc --define
DL-BIOS-LogProc=1 --define DL-BIOS-adddcD=1 --define DL-VERS=5.2 --output_format html,pdf,txt --nopower
--runmode rate --tune base:peak --size test:train:refrate intrate --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/templogs/preenv.intrate.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-aocc320-A1
```

### 6. /proc/cpuinfo

```
model name      : AMD EPYC 7543 32-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 1
stepping      : 1
microcode     : 0xa0011d1
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
TLB size      : 2560 4K pages
cpu cores     : 32
siblings      : 64
2 physical ids (chips)
128 processors (hardware threads)
physical id 0: core ids 0-31
physical id 1: core ids 0-31
physical id 0: apicids 0-63
physical id 1: apicids 64-127
```

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: 48 bits physical, 48 bits virtual
Byte Order: Little Endian
CPU(s): 128
On-line CPU(s) list: 0-127
Vendor ID: AuthenticAMD
Model name: AMD EPYC 7543 32-Core Processor
CPU family: 25
Model: 1
Thread(s) per core: 2
Core(s) per socket: 32
Socket(s): 2
Stepping: 1
BogoMIPS: 5589.79
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
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

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

**Test Date:** Apr-2024  
**Hardware Availability:** Mar-2021  
**Software Availability:** Mar-2024

### Platform Notes (Continued)

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 bmlil avx2 smep bmi2 invpcid cqm rdt\_a rdseed adx smap  
clflushopt clwb sha\_ni xsaveopt xsavec xgetbv1 xsaves cqm\_llc  
cqm\_occup\_llc cqm\_mbm\_total cqm\_mbm\_local clzero irperf xsaveerptr  
rdpru wbnoinvd amd\_ppin arat npt lbrv svm\_lock nrip\_save tsc\_scale  
vmcb\_clean flushbyasid decodeassists pausefilter pfthreshold  
v\_vmsave\_vmload vgif v\_spec\_ctrl umip pku ospke vaes vpclmulqdq rdpid  
overflow\_recov succor smca

**Virtualization:**

AMD-V  
L1d cache: 2 MiB (64 instances)  
L1i cache: 2 MiB (64 instances)  
L2 cache: 32 MiB (64 instances)  
L3 cache: 512 MiB (16 instances)  
NUMA node(s): 16  
NUMA node0 CPU(s): 0-3,64-67  
NUMA node1 CPU(s): 4-7,68-71  
NUMA node2 CPU(s): 8-11,72-75  
NUMA node3 CPU(s): 12-15,76-79  
NUMA node4 CPU(s): 16-19,80-83  
NUMA node5 CPU(s): 20-23,84-87  
NUMA node6 CPU(s): 24-27,88-91  
NUMA node7 CPU(s): 28-31,92-95  
NUMA node8 CPU(s): 32-35,96-99  
NUMA node9 CPU(s): 36-39,100-103  
NUMA node10 CPU(s): 40-43,104-107  
NUMA node11 CPU(s): 44-47,108-111  
NUMA node12 CPU(s): 48-51,112-115  
NUMA node13 CPU(s): 52-55,116-119  
NUMA node14 CPU(s): 56-59,120-123  
NUMA node15 CPU(s): 60-63,124-127

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 Retbleed: Not affected  
Vulnerability Spec rstack overflow: Mitigation; safe RET  
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 always-on, RSB filling, PBRBS-eIBRS 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	32K	2M	8	Data	1	64	1	64
L1i	32K	2M	8	Instruction	1	64	1	64
L2	512K	32M	8	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: 16 nodes (0-15)  
node 0 cpus: 0-3,64-67  
node 0 size: 64072 MB

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

## Platform Notes (Continued)

```

node 0 free: 63796 MB
node 1 cpus: 4-7,68-71
node 1 size: 64507 MB
node 1 free: 64280 MB
node 2 cpus: 8-11,72-75
node 2 size: 64509 MB
node 2 free: 64047 MB
node 3 cpus: 12-15,76-79
node 3 size: 64508 MB
node 3 free: 64239 MB
node 4 cpus: 16-19,80-83
node 4 size: 64509 MB
node 4 free: 64292 MB
node 5 cpus: 20-23,84-87
node 5 size: 64508 MB
node 5 free: 64259 MB
node 6 cpus: 24-27,88-91
node 6 size: 64509 MB
node 6 free: 64189 MB
node 7 cpus: 28-31,92-95
node 7 size: 64496 MB
node 7 free: 60817 MB
node 8 cpus: 32-35,96-99
node 8 size: 64509 MB
node 8 free: 64303 MB
node 9 cpus: 36-39,100-103
node 9 size: 64508 MB
node 9 free: 64314 MB
node 10 cpus: 40-43,104-107
node 10 size: 64462 MB
node 10 free: 64250 MB
node 11 cpus: 44-47,108-111
node 11 size: 64508 MB
node 11 free: 64322 MB
node 12 cpus: 48-51,112-115
node 12 size: 64509 MB
node 12 free: 64319 MB
node 13 cpus: 52-55,116-119
node 13 size: 64508 MB
node 13 free: 64320 MB
node 14 cpus: 56-59,120-123
node 14 size: 64509 MB
node 14 free: 64311 MB
node 15 cpus: 60-63,124-127
node 15 size: 64502 MB
node 15 free: 64313 MB
node distances:
node  0  1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
0:  10 11 12 12 12 12 12 12 32 32 32 32 32 32 32 32
1:  11 10 12 12 12 12 12 12 32 32 32 32 32 32 32 32
2:  12 12 10 11 12 12 12 12 32 32 32 32 32 32 32 32
3:  12 12 11 10 12 12 12 12 32 32 32 32 32 32 32 32
4:  12 12 12 12 10 11 12 12 32 32 32 32 32 32 32 32
5:  12 12 12 12 12 11 10 12 12 32 32 32 32 32 32 32
6:  12 12 12 12 12 12 10 11 32 32 32 32 32 32 32 32
7:  12 12 12 12 12 12 11 10 32 32 32 32 32 32 32 32
8:  32 32 32 32 32 32 32 32 10 11 12 12 12 12 12 12
9:  32 32 32 32 32 32 32 32 11 10 12 12 12 12 12 12
10: 32 32 32 32 32 32 32 32 12 12 10 11 12 12 12 12
11: 32 32 32 32 32 32 32 32 12 12 11 10 12 12 12 12

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

## Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

### Platform Notes (Continued)

12:	32	32	32	32	32	32	32	32	12	12	12	12	10	11	12	12
13:	32	32	32	32	32	32	32	32	12	12	12	12	11	10	12	12
14:	32	32	32	32	32	32	32	32	12	12	12	12	12	10	11	
15:	32	32	32	32	32	32	32	32	12	12	12	12	12	11	10	

```
9. /proc/meminfo
   MemTotal:      1056405628 kB
```

```
10. who -r
    run-level 5 Apr 1 21:23
```

```
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.12)
    Default Target   Status
    graphical        running
```

```
12. Services, from systemctl list-unit-files
    STATE          UNIT FILES
    enabled        ModemManager apparmor 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 irqbalance keyboard-setup lm-sensors lvm2-monitor
                    lxd-agent multipathd 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 ufw vgauth
    enabled-runtime netplan-ovs-cleanup systemd-fsck-root systemd-remount-fs
    disabled        console-getty debug-shell iscsid nftables rsync serial-getty@
                    systemd-boot-check-no-failures systemd-network-generator systemd-sysext
                    systemd-time-wait-sync upower
    generated       apport
    indirect        uuid
    masked          cryptdisks cryptdisks-early hwclock lvm2 multipath-tools-boot rc rcS screen-cleanup sudo
                    systemd-networkd-wait-online x11-common
```

```
13. Linux kernel boot-time arguments, from /proc/cmdline
    BOOT_IMAGE=/vmlinuz-5.15.0-101-generic
    root=/dev/mapper/ubuntu--vg-ubuntu--lv
    ro
```

```
14. cpupower frequency-info
    analyzing CPU 0:
    Unable to determine current policy
    boost state support:
      Supported: yes
      Active: yes
      Boost States: 0
      Total States: 3
      Pstate-P0: 2800MHz
```

```
15. tuned-adm active
    Current active profile: latency-performance
```

```
16. sysctl
    kernel.numa_balancing      1
```

(Continued on next page)





# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

## Platform Notes (Continued)

```

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

```

```

-----
17. /sys/kernel/mm/transparent_hugepage
defrag          always defer defer+madvice [madvice] never
enabled         always [madvice] 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 22.04.4 LTS

```

```

-----
20. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-aocc320-A1
Filesystem      Type  Size  Used Avail Use% Mounted on
tmpfs           tmpfs 80G   3.4G   77G   5% /mnt/ramdisk

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:          Dell Inc.
Product:         PowerEdge R7525
Product Family: PowerEdge
Serial:          GK2D853

```

```

-----
22. 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.

```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

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

Test Date: Apr-2024  
Hardware Availability: Mar-2021  
Software Availability: Mar-2024

## Platform Notes (Continued)

Memory:  
16x 80AD869D80AD HMAA8GR7AJR4N-XN 64 GB 2 rank 3200  
16x Not Specified Not Specified

-----  
23. BIOS  
(This section combines info from /sys/devices and dmidecode.)  
BIOS Vendor: Dell Inc.  
BIOS Version: 2.8.4  
BIOS Date: 06/23/2022  
BIOS Revision: 2.8

## Compiler Version Notes

=====  
C | 502.gcc\_r(peak)

-----  
AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: i386-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

=====  
C | 500.perlbench\_r(base, peak) 502.gcc\_r(base) 505.mcf\_r(base, peak) 525.x264\_r(base, peak)  
| 557.xz\_r(base, peak)

-----  
AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

=====  
C | 502.gcc\_r(peak)

-----  
AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: i386-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

=====  
C | 500.perlbench\_r(base, peak) 502.gcc\_r(base) 505.mcf\_r(base, peak) 525.x264\_r(base, peak)  
| 557.xz\_r(base, peak)

-----  
AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

=====  
C++ | 523.xalancbmk\_r(peak)

-----  
AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: i386-unknown-linux-gnu  
Thread model: posix

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

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

Test Date: Apr-2024  
Hardware Availability: Mar-2021  
Software Availability: Mar-2024

## Compiler Version Notes (Continued)

InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

C++ | 520.omnetpp\_r(base, peak) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base, peak) 541.leela\_r(base, peak)

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

C++ | 523.xalancbmk\_r(peak)

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: i386-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

C++ | 520.omnetpp\_r(base, peak) 523.xalancbmk\_r(base) 531.deepsjeng\_r(base, peak) 541.leela\_r(base, peak)

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

Fortran | 548.exchange2\_r(base, peak)

AMD clang version 13.0.0 (CLANG: AOCC\_3.2.0-Build#128 2021\_11\_12) (based on LLVM Mirror.Version.13.0.0)  
Target: x86\_64-unknown-linux-gnu  
Thread model: posix  
InstalledDir: /opt/AMD/aocc-compiler-3.2.0/bin

## Base Compiler Invocation

C benchmarks:  
clang

C++ benchmarks:  
clang++

Fortran benchmarks:  
flang



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

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

Test Date: Apr-2024  
Hardware Availability: Mar-2021  
Software Availability: Mar-2024

## Base Portability Flags

500.perlbench\_r: -DSPEC\_LINUX\_X64 -DSPEC\_LP64  
502.gcc\_r: -DSPEC\_LP64  
505.mcf\_r: -DSPEC\_LP64  
520.omnetpp\_r: -DSPEC\_LP64  
523.xalancbmk\_r: -DSPEC\_LINUX -DSPEC\_LP64  
525.x264\_r: -DSPEC\_LP64  
531.deepsjeng\_r: -DSPEC\_LP64  
541.leela\_r: -DSPEC\_LP64  
548.exchange2\_r: -DSPEC\_LP64  
557.xz\_r: -DSPEC\_LP64

## Base Optimization Flags

C benchmarks:

```
-m64 -Wl,-allow-multiple-definition -Wl,-mllvm -Wl,-enable-licm-vrp
-flto -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-loop-fusion -O3 -march=znver3 -fveclib=AMDLIBM
-ffast-math -fstruct-layout=5 -mllvm -unroll-threshold=50
-mllvm -inline-threshold=1000 -fremap-arrays
-mllvm -function-specialize -flv-function-specialization
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -enable-licm-vrp -mllvm -reduce-array-computations=3
-mllvm -enable-loop-fusion -z muldefs -lamdlibm -ljemalloc -lflang
```

C++ benchmarks:

```
-m64 -std=c++98 -flto -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-loop-fusion -O3 -march=znver3 -fveclib=AMDLIBM
-ffast-math -mllvm -enable-partial-unswitch
-mllvm -unroll-threshold=100 -finline-aggressive
-flv-function-specialization -mllvm -loop-unswitch-threshold=200000
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -extra-vectorizer-passes -mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true -mllvm -convert-pow-exp-to-int=false
-mllvm -enable-loop-fusion -z muldefs -fvirtual-function-elimination
-fvisibility=hidden -lamdlibm -ljemalloc -lflang
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-inline-recursion=4
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

## Base Optimization Flags (Continued)

Fortran benchmarks (continued):

```
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-flto -Wl,-mllvm -Wl,-region-vectorize
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-enable-loop-fusion -O3 -march=znver3 -fveclib=AMDLIBM
-ffast-math -z muldefs -mllvm -unroll-aggressive
-mllvm -unroll-threshold=500 -lamdlibm -ljemalloc -lflang
```

## Base Other Flags

C benchmarks:

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

C++ benchmarks:

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

## Peak Compiler Invocation

C benchmarks:

```
clang
```

C++ benchmarks:

```
clang++
```

Fortran benchmarks:

```
flang
```

## Peak Portability Flags

```
500.perlbench_r: -DSPEC_LINUX_X64 -DSPEC_LP64
502.gcc_r: -D_FILE_OFFSET_BITS=64
505.mcf_r: -DSPEC_LP64
520.omnetpp_r: -DSPEC_LP64
523.xalancbmk_r: -DSPEC_LINUX -DSPEC_LP64
525.x264_r: -DSPEC_LP64
531.deepsjeng_r: -DSPEC_LP64
541.leela_r: -DSPEC_LP64
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

## Peak Portability Flags (Continued)

548.exchange2\_r: -DSPEC\_LP64

557.xz\_r: -DSPEC\_LP64

## Peak Optimization Flags

C benchmarks:

```
500.perlbench_r: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp -flto
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-fprofile-instr-generate(pass 1)
-fprofile-instr-use(pass 2) -Ofast -march=znver3
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays
-flv-function-specialization -mllvm -inline-threshold=1000
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=false
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -lamdlibm -ljemalloc
```

```
502.gcc_r: -m32 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp -flto
-Wl,-mllvm -Wl,-function-specialize -Ofast -march=znver3
-fveclib=AMDLIBM -ffast-math -fstruct-layout=7
-mllvm -unroll-threshold=50 -fremap-arrays
-flv-function-specialization -mllvm -inline-threshold=1000
-mllvm -enable-gvn-hoist -mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -fgnu89-inline
-ljemalloc
```

```
505.mcf_r: -m64 -Wl,-allow-multiple-definition
-Wl,-mllvm -Wl,-enable-licm-vrp -flto
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math
-fstruct-layout=7 -mllvm -unroll-threshold=50
-fremap-arrays -flv-function-specialization
-mllvm -inline-threshold=1000 -mllvm -enable-gvn-hoist
-mllvm -global-vectorize-slp=true
-mllvm -function-specialize -mllvm -enable-licm-vrp
-mllvm -reduce-array-computations=3 -lamdlibm -ljemalloc
```

(Continued on next page)



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

## Peak Optimization Flags (Continued)

525.x264\_r: basepeak = yes

557.xz\_r: basepeak = yes

C++ benchmarks:

520.omnetpp\_r: basepeak = yes

```
523.xalancbmk_r: -m32 -Wl,-mllvm -Wl,-do-block-reorder=aggressive -flto
-Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math
-inline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-mllvm -do-block-reorder=aggressive
-fvirtual-function-elimination -fvisibility=hidden
-ljemalloc
```

```
531.deepsjeng_r: -m64 -std=c++98 -flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver3 -fveclib=AMDLIBM -ffast-math
-inline-aggressive -mllvm -unroll-threshold=100
-flv-function-specialization -mllvm -enable-licm-vrp
-mllvm -reroll-loops -mllvm -aggressive-loop-unswitch
-mllvm -reduce-array-computations=3
-mllvm -global-vectorize-slp=true
-fvirtual-function-elimination -fvisibility=hidden
-lamdlibm -ljemalloc
```

541.leela\_r: Same as 531.deepsjeng\_r

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-inline-recursion=4
-Wl,-mllvm -Wl,-lsr-in-nested-loop -Wl,-mllvm -Wl,-enable-iv-split
-flto -Wl,-mllvm -Wl,-function-specialize
-Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -O3 -march=znver3
-fveclib=AMDLIBM -ffast-math -mllvm -unroll-aggressive
-mllvm -unroll-threshold=500 -lamdlibm -ljemalloc -lflang
```



# SPEC CPU®2017 Integer Rate Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECrate®2017\_int\_base = 523

PowerEdge R7525 (AMD EPYC 7543 32-Core Processor)

SPECrate®2017\_int\_peak = 560

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Apr-2024

Hardware Availability: Mar-2021

Software Availability: Mar-2024

## Peak Other Flags

C benchmarks (except as noted below):

-Wno-unused-command-line-argument

502.gcc\_r: -L/usr/lib -Wno-unused-command-line-argument

-L/sppo/bin/cpu2017v118-aocc3-milanX/amd\_rate\_aocc320\_milanx\_A\_lib/lib32

C++ benchmarks (except as noted below):

-Wno-unused-command-line-argument

523.xalancbk\_r: -L/usr/lib -Wno-unused-command-line-argument

-L/sppo/bin/cpu2017v118-aocc3-milanX/amd\_rate\_aocc320\_milanx\_A\_lib/lib32

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

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.html>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.2.html>

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

<http://www.spec.org/cpu2017/flags/aocc320-flags-A1.xml>

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.2.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 2024-04-01 18:09:07-0400.

Report generated on 2024-05-07 22:17:23 by CPU2017 PDF formatter v6716.

Originally published on 2024-05-07.