



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

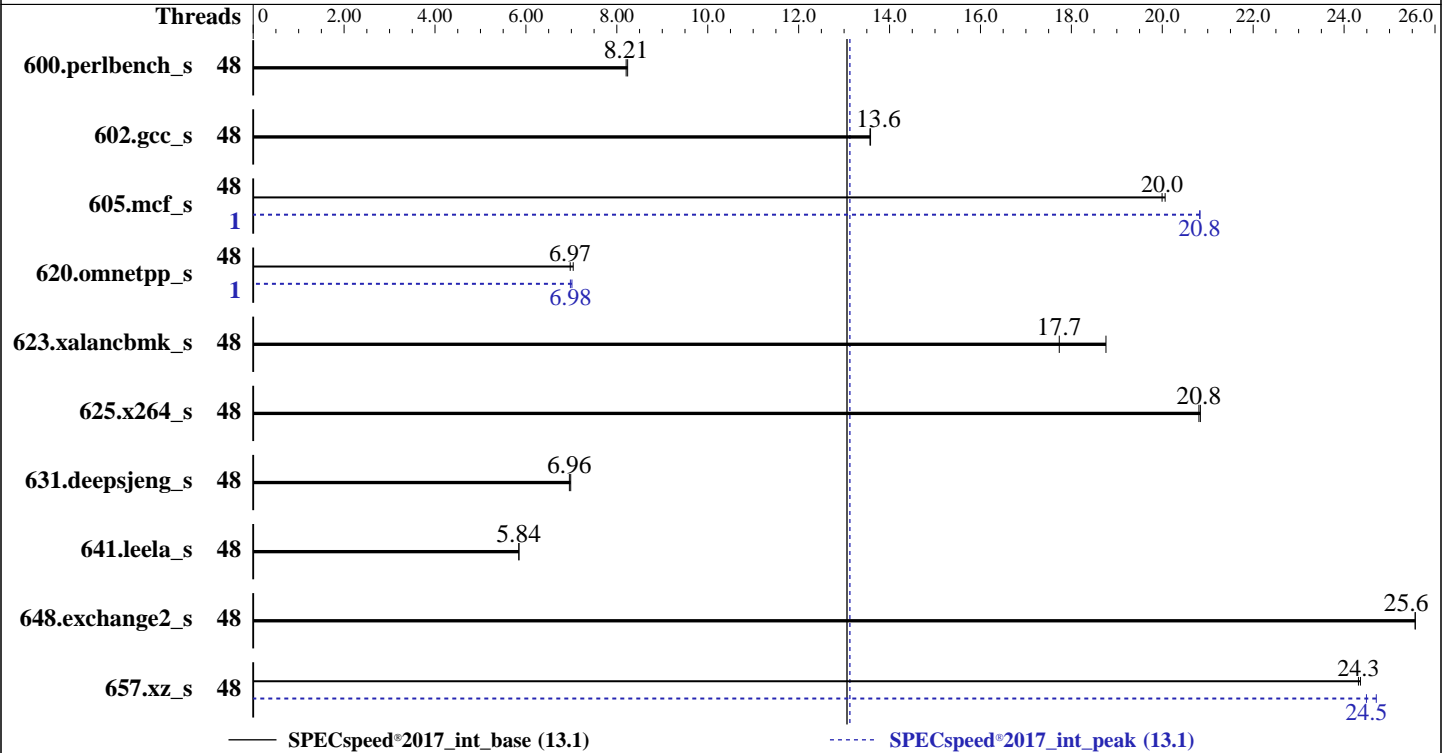
Test Date: Nov-2023

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2023

Tested by: Dell Inc.

Software Availability: Oct-2023



Hardware

CPU Name: AMD EPYC 9224
 Max MHz: 3700
 Nominal: 2500
 Enabled: 48 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: 64 MB I+D on chip per chip, 16 MB shared / 6 cores
 Other: None
 Memory: 768 GB (24 x 32 GB 2Rx8 PC5-4800B-R)
 Storage: 50 GB on tmpfs
 Other: None

Software

OS: Ubuntu 22.04.3 LTS
 5.15.0-86-generic
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
 Parallel: Yes
 Firmware: Version 1.4.6 released Jul-2023
 File System: tmpfs
 System State: Run level 5 (graphical multi-user)
 Base Pointers: 64-bit
 Peak Pointers: 64-bit
 Other: None
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECSpeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECSpeed®2017_int_peak = 13.1

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

Test Date: Nov-2023
Hardware Availability: Feb-2023
Software Availability: Oct-2023

Results Table

| Benchmark | Base | | | | | | | Peak | | | | | | |
|-----------------|---------|-------------------|--------------------|--------------------|--------------------|---------|-------|---------|-------------------|--------------------|--------------------|--------------------|---------|-------|
| | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio | Threads | Seconds | Ratio | Seconds | Ratio | Seconds | Ratio |
| 600.perlbench_s | 48 | 215 | 8.24 | <u>216</u> | <u>8.21</u> | | | 48 | 215 | 8.24 | <u>216</u> | <u>8.21</u> | | |
| 602.gcc_s | 48 | 293 | 13.6 | <u>293</u> | <u>13.6</u> | | | 48 | 293 | 13.6 | <u>293</u> | <u>13.6</u> | | |
| 605.mcf_s | 48 | 235 | 20.1 | <u>236</u> | <u>20.0</u> | | | 1 | 227 | 20.8 | <u>227</u> | <u>20.8</u> | | |
| 620.omnetpp_s | 48 | 232 | 7.04 | <u>234</u> | <u>6.97</u> | | | 1 | 233 | 7.01 | <u>234</u> | <u>6.98</u> | | |
| 623.xalancbmk_s | 48 | 75.5 | 18.8 | <u>79.9</u> | <u>17.7</u> | | | 48 | 75.5 | 18.8 | <u>79.9</u> | <u>17.7</u> | | |
| 625.x264_s | 48 | 84.6 | 20.8 | <u>84.8</u> | <u>20.8</u> | | | 48 | 84.6 | 20.8 | <u>84.8</u> | <u>20.8</u> | | |
| 631.deepsjeng_s | 48 | 205 | 6.99 | <u>206</u> | <u>6.96</u> | | | 48 | 205 | 6.99 | <u>206</u> | <u>6.96</u> | | |
| 641.leela_s | 48 | 292 | 5.85 | <u>292</u> | <u>5.84</u> | | | 48 | 292 | 5.85 | <u>292</u> | <u>5.84</u> | | |
| 648.exchange2_s | 48 | <u>115</u> | <u>25.6</u> | 115 | 25.6 | | | 48 | <u>115</u> | <u>25.6</u> | 115 | 25.6 | | |
| 657.xz_s | 48 | 254 | 24.4 | <u>254</u> | <u>24.3</u> | | | 48 | 250 | 24.7 | <u>252</u> | <u>24.5</u> | | |

SPECSpeed®2017_int_base = **13.1**

SPECSpeed®2017_int_peak = **13.1**

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.



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2023

Hardware Availability: Feb-2023

Software Availability: Oct-2023

Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-47"
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu2017-1.1.9-aocc400-znver4-A1.1/amd_speed_aocc400_znver4_A_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 = "48"
```

Environment variables set by runcpu during the 605.mcf_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 620.omnetpp_s peak run:

```
GOMP_CPU_AFFINITY = "15"
```

Environment variables set by runcpu during the 657.xz_s peak run:

```
GOMP_CPU_AFFINITY = "0-47"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "8"
```

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 50 GB ramdisk created with the cmd: "mount -t tmpfs -o size=50G 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
    NUMA Nodes per Socket : 4
    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-znver4-A1.1/bin/sysinfo

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2023

Hardware Availability: Feb-2023

Software Availability: Oct-2023

Platform Notes (Continued)

Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on amd-spa Mon Nov 6 11:09:51 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 (249.11-0ubuntu3.10)
- 12. Services, from systemctl list-unit-files
- 13. Linux kernel boot-time arguments, from /proc/cmdline
- 14. cpupower frequency-info
- 15. tuned-adm active
- 16. sysctl
- 17. /sys/kernel/mm/transparent_hugepage
- 18. /sys/kernel/mm/transparent_hugepage/khugepaged
- 19. OS release
- 20. Disk information
- 21. /sys/devices/virtual/dmi/id
- 22. dmidecode
- 23. BIOS

1. uname -a
Linux amd-spa 5.15.0-86-generic #96-Ubuntu SMP Wed Sep 20 08:23:49 UTC 2023 x86_64 x86_64 x86_64 GNU/Linux

2. w
11:09:51 up 9 min, 1 user, load average: 0.13, 0.03, 0.01
USER TTY FROM LOGIN@ IDLE JCPU PCPU WHAT
root tty1 - 11:09 30.00s 1.55s 0.32s /bin/bash ./amd_speed_aocc400_znver4_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 3093892
nofiles 1024
vmemory(kbytes) unlimited
locks unlimited

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2023

Hardware Availability: Feb-2023

Software Availability: Oct-2023

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-VERS=v4.8
--output_format html, pdf, txt
python3 ./run_amd_speed_aocc400_znver4_A1.py
/bin/bash ./amd_speed_aocc400_znver4_A1.sh
runcpu --config amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 2 --define
DL-BIOS-L3NUMA=1 --define DL-BIOS-NPS=2 --define DL-BIOSinc=Dell-BIOS_EPYC-4.inc --define DL-VERS=v4.8
--output_format html, pdf, txt intspeed
runcpu --configfile amd_speed_aocc400_znver4_A1.cfg --tune all --reportable --iterations 2 --define
DL-BIOS-L3NUMA=1 --define DL-BIOS-NPS=2 --define DL-BIOSinc=Dell-BIOS_EPYC-4.inc --define DL-VERS=v4.8
--output_format html, pdf, txt --nopower --runmode speed --tune base:peak --size test:train:refspeed
intspeed --nopreenv --note-preenv --logfile $SPEC/tmp/CPU2017.001/templogs/preenv.intspeed.001.0.log
--lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-aocc400-znver4-A1.1

```

6. /proc/cpuinfo

```

model name      : AMD EPYC 9224 24-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 17
stepping       : 1
microcode      : 0xa10113e
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass srso
TLB size      : 3584 4K pages
cpu cores     : 24
siblings      : 24
2 physical ids (chips)
48 processors (hardware threads)
physical id 0: core ids 0-5,16-21,32-37,48-53
physical id 1: core ids 0-5,16-21,32-37,48-53
physical id 0: apicids 0-5,16-21,32-37,48-53
physical id 1: apicids 64-69,80-85,96-101,112-117
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): 48
On-line CPU(s) list: 0-47
Vendor ID: AuthenticAMD
Model name: AMD EPYC 9224 24-Core Processor
CPU family: 25
Model: 17

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

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

Test Date: Nov-2023
Hardware Availability: Feb-2023
Software Availability: Oct-2023

Platform Notes (Continued)

```

Thread(s) per core:      1
Core(s) per socket:     24
Socket(s):               2
Stepping:               1
BogoMIPS:               5001.67
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 bml 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 cpc 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:              1.5 MiB (48 instances)
L1i cache:              1.5 MiB (48 instances)
L2 cache:               48 MiB (48 instances)
L3 cache:               128 MiB (8 instances)
NUMA node(s):          8
NUMA node0 CPU(s):     0-5
NUMA node1 CPU(s):     6-11
NUMA node2 CPU(s):     12-17
NUMA node3 CPU(s):     18-23
NUMA node4 CPU(s):     24-29
NUMA node5 CPU(s):     30-35
NUMA node6 CPU(s):     36-41
NUMA node7 CPU(s):     42-47
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/swappgs barriers and __user pointer sanitization
Vulnerability Spectre v2:           Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, RSB
                                      filling, PBRSE-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 | 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 | 16M | 128M | 16 | Unified | 3 | 16384 | 1 | 64 |

8. numactl --hardware

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Date: Nov-2023

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2023

Tested by: Dell Inc.

Software Availability: Oct-2023

Platform Notes (Continued)

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

```

available: 8 nodes (0-7)
node 0 cpus: 0-5
node 0 size: 96264 MB
node 0 free: 95994 MB
node 1 cpus: 6-11
node 1 size: 96765 MB
node 1 free: 96555 MB
node 2 cpus: 12-17
node 2 size: 96765 MB
node 2 free: 96543 MB
node 3 cpus: 18-23
node 3 size: 96749 MB
node 3 free: 96544 MB
node 4 cpus: 24-29
node 4 size: 96765 MB
node 4 free: 92976 MB
node 5 cpus: 30-35
node 5 size: 96765 MB
node 5 free: 96497 MB
node 6 cpus: 36-41
node 6 size: 96765 MB
node 6 free: 96510 MB
node 7 cpus: 42-47
node 7 size: 96742 MB
node 7 free: 96465 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:      792151984 kB

```

```

-----
10. who -r
run-level 5 Nov 6 11:00

```

```

-----
11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.10)
Default Target Status
graphical      running

```

```

-----
12. Services, from systemctl list-unit-files
STATE UNIT FILES
enabled ModemManager apparmor blk-availability console-setup cron dmesg e2scrub_reap finalrd
getty@ grub-common grub-initrd-fallback irqbalance keyboard-setup lm-sensors lvm2-monitor
lxd-agent multipathd pollinate rsyslog secureboot-db setvtrgb ssh systemd-networkd
systemd-pstore systemd-resolved systemd-timesyncd thermald tuned udisks2
enabled-runtime systemd-fsck-root systemd-remount-fs
disabled console-getty debug-shell iscsid nftables open-iscsi rsync serial-getty@
systemd-boot-check-no-failures systemd-network-generator systemd-sysext

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Date: Nov-2023

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2023

Tested by: Dell Inc.

Software Availability: Oct-2023

Platform Notes (Continued)

```

generated      systemd-time-wait-sync upower
indirect       apport
masked         uidd
               cryptdisks cryptdisks-early gpu-manager hwclock lvm2 multipath-tools-boot
               networkd-dispatcher open-vm-tools rc rcS screen-cleanup sudo systemd-networkd-wait-online
               ua-reboot-cmds ubuntu-advantage ufw vgauth vmttoolsd x11-common

```

```

-----
13. Linux kernel boot-time arguments, from /proc/cmdline
BOOT_IMAGE=/vmlinuz-5.15.0-86-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: 2500MHz

```

```

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

```

```

-----
16. sysctl
kernel.numa_balancing      1
kernel.randomize_va_space  0
vm.compaction_proactiveness 20
vm.dirty_background_bytes  0
vm.dirty_background_ratio  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+madvise madvise never
enabled     [always] madvise never
hpage_pmd_size 2097152
shmem_enabled always within_size advise [never] deny force

```

```

-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs 60000

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2023

Hardware Availability: Feb-2023

Software Availability: Oct-2023

Platform Notes (Continued)

```

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 22.04.3 LTS

```

```

-----
20. Disk information
SPEC is set to: /mnt/ramdisk/cpu2017-1.1.9-aocc400-znver4-A1.1
Filesystem      Type  Size  Used Avail Use% Mounted on
tmpfs           tmpfs 50G   3.4G   47G   7% /mnt/ramdisk

```

```

-----
21. /sys/devices/virtual/dmi/id
Vendor:         Dell Inc.
Product:        PowerEdge R7625
Product Family: PowerEdge
Serial:         1234567

```

```

-----
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.
Memory:
  24x 802C0000802C MTC20F2085S1RC48BA1 32 GB 2 rank 4800

```

```

-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Dell Inc.
BIOS Version:     1.4.6
BIOS Date:        07/06/2023
BIOS Revision:    1.4

```

Compiler Version Notes

```

=====
C          | 600.perlbench_s(base, peak) 602.gcc_s(base, peak) 605.mcf_s(base, peak) 625.x264_s(base, peak)
          | 657.xz_s(base, peak)

```

```

-----
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

```

```

=====
C++       | 620.omnetpp_s(base, peak) 623.xalancbmk_s(base, peak) 631.deepsjeng_s(base, peak)
          | 641.leela_s(base, peak)

```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2023

Hardware Availability: Feb-2023

Software Availability: Oct-2023

Compiler Version Notes (Continued)

```
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
```

```
-----
Fortran | 648.exchange2_s(base, peak)
```

```
AMD clang version 14.0.6 (CLANG: AOCC_4.0.0-Build#434 2022_10_28) (based on LLVM Mirror.Version.14.0.6)
Target: x86_64-unknown-linux-gnu
Thread model: posix
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin
```

Base Compiler Invocation

C benchmarks:

clang

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Base Portability Flags

```
600.perlbench_s: -DSPEC_LINUX_X64 -DSPEC_LP64
602.gcc_s: -DSPEC_LP64
605.mcf_s: -DSPEC_LP64
620.omnetpp_s: -DSPEC_LP64
623.xalancbmk_s: -DSPEC_LINUX -DSPEC_LP64
625.x264_s: -DSPEC_LP64
631.deepsjeng_s: -DSPEC_LP64
641.leela_s: -DSPEC_LP64
648.exchange2_s: -DSPEC_LP64
657.xz_s: -DSPEC_LP64
```

Base Optimization Flags

C benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Date: Nov-2023

Test Sponsor: Dell Inc.

Hardware Availability: Feb-2023

Tested by: Dell Inc.

Software Availability: Oct-2023

Base Optimization Flags (Continued)

C benchmarks (continued):

```
-Wl,-allow-multiple-definition -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 -lflang
-lamdalloc
```

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
-mllvm -unroll-threshold=100 -finline-aggressive
-mllvm -loop-unswitch-threshold=200000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fvirtual-function-elimination -fvisibility=hidden -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc-ext
```

Fortran benchmarks:

```
-m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-mllvm -Wl,-inline-recursion=4 -Wl,-mllvm -Wl,-lsr-in-nested-loop
-Wl,-mllvm -Wl,-enable-iv-split -O3 -march=znver4 -fveclib=AMDLIBM
-ffast-math -fopenmp -flto -mllvm -optimize-strided-mem-cost
-mllvm -unroll-aggressive -mllvm -unroll-threshold=150 -fopenmp=libomp
-lomp -lamdlibm -lflang -lamdalloc
```

Base Other Flags

C benchmarks:

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

C++ benchmarks:

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

Fortran benchmarks:

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

Peak Compiler Invocation

C benchmarks:

```
clang
```

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2023

Hardware Availability: Feb-2023

Software Availability: Oct-2023

Peak Compiler Invocation (Continued)

C++ benchmarks:

clang++

Fortran benchmarks:

flang

Peak Portability Flags

Same as Base Portability Flags

Peak Optimization Flags

C benchmarks:

600.perlbench_s: basepeak = yes

602.gcc_s: basepeak = yes

605.mcf_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3
-Wl,-allow-multiple-definition -Ofast -march=znver4
-fveclib=AMDLIBM -ffast-math -fopenmp -flto
-fstruct-layout=9 -mllvm -unroll-threshold=50
-fremap-arrays -fstrip-mining
-mllvm -inline-threshold=1000
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fopenmp=libomp -lomp -lamdlibm -lamdalloc -lflang

625.x264_s: basepeak = yes

657.xz_s: Same as 605.mcf_s

C++ benchmarks:

620.omnetpp_s: -m64 -Wl,-mllvm -Wl,-align-all-nofallthru-blocks=6
-Wl,-mllvm -Wl,-reduce-array-computations=3 -Ofast
-march=znver4 -fveclib=AMDLIBM -ffast-math -fopenmp
-flto -finline-aggressive -mllvm -unroll-threshold=100
-mllvm -reduce-array-computations=3 -DSPEC_OPENMP -zopt
-fvirtual-function-elimination -fvisibility=hidden

(Continued on next page)



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2024 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.1

PowerEdge R7625 (AMD EPYC 9224 24-Core Processor)

SPECspeed®2017_int_peak = 13.1

CPU2017 License: 6573

Test Sponsor: Dell Inc.

Tested by: Dell Inc.

Test Date: Nov-2023

Hardware Availability: Feb-2023

Software Availability: Oct-2023

Peak Optimization Flags (Continued)

620.omnetpp_s (continued):

-fopenmp=libomp -lomp -lamdlibm -lamdalloc-ext -lflang

623.xalancbmk_s: basepeak = yes

631.deepsjeng_s: basepeak = yes

641.leela_s: basepeak = yes

Fortran benchmarks:

648.exchange2_s: basepeak = yes

Peak Other Flags

C benchmarks:

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

C++ benchmarks:

-Wno-unused-command-line-argument

Fortran benchmarks:

-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_A1.1.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_A1.1.xml

<http://www.spec.org/cpu2017/flags/Dell-Platform-Flags-PowerEdge-AMD-EPYC-v1.1.xml>

SPEC CPU and SPECspeed 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.

Tested with SPEC CPU®2017 v1.1.9 on 2023-11-06 06:09:51-0500.

Report generated on 2024-01-03 17:36:53 by CPU2017 PDF formatter v6716.

Originally published on 2024-01-02.