



SPEC CPU®2017 Integer Speed Result

Copyright 2017-2023 Standard Performance Evaluation Corporation

Dell Inc.

SPECspeed®2017_int_base = 13.9

PowerEdge R6625 (AMD EPYC 9634 84-Core Processor)

SPECspeed®2017_int_peak = Not Run

CPU2017 License: 6573

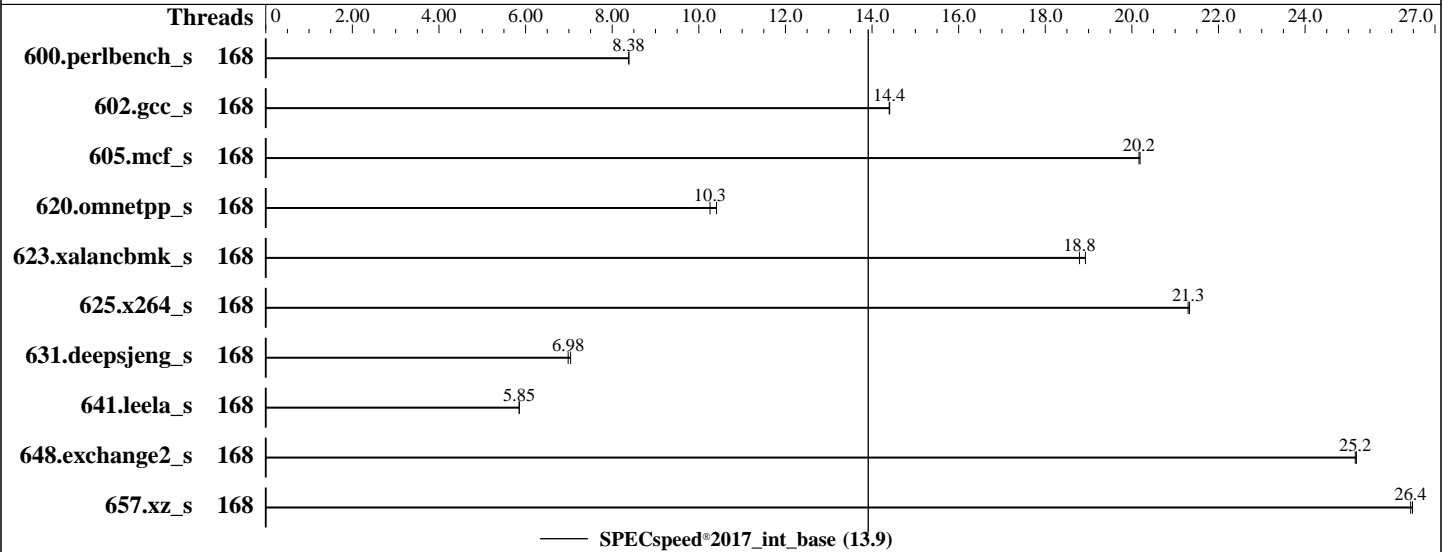
Test Date: Mar-2023

Test Sponsor: Dell Inc.

Hardware Availability: Mar-2023

Tested by: Dell Inc.

Software Availability: Nov-2022



Hardware

CPU Name: AMD EPYC 9634
 Max MHz: 3700
 Nominal: 2250
 Enabled: 168 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: 384 MB I+D on chip per chip, 32 MB shared / 7 cores
 Other: None
 Memory: 1536 GB (24 x 64 GB 2Rx4 PC5-4800B-R)
 Storage: 125 GB on tmpfs
 Other: None

Software

OS: Ubuntu 22.04.1 LTS
 5.15.0-46-generic
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC
 Parallel: Yes
 Firmware: Version 1.3.7 released Mar-2023
 File System: tmpfs
 System State: Run level 3 (multi-user)
 Base Pointers: 64-bit
 Peak Pointers: Not Applicable
 Other: None
 Power Management: BIOS and OS set to prefer performance at the cost of additional power usage.



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Results Table

Benchmark	Base							Peak						
	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Threads	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
600.perlbench_s	168	<u>212</u>	<u>8.38</u>	212	8.39									
602.gcc_s	168	<u>277</u>	<u>14.4</u>	276	14.4									
605.mcf_s	168	234	20.2	<u>234</u>	<u>20.2</u>									
620.omnetpp_s	168	157	10.4	<u>159</u>	<u>10.3</u>									
623.xalancbmk_s	168	74.9	18.9	<u>75.4</u>	<u>18.8</u>									
625.x264_s	168	<u>82.8</u>	<u>21.3</u>	82.7	21.3									
631.deepsjeng_s	168	204	7.04	<u>205</u>	<u>6.98</u>									
641.leela_s	168	291	5.85	<u>292</u>	<u>5.85</u>									
648.exchange2_s	168	117	25.2	<u>117</u>	<u>25.2</u>									
657.xz_s	168	<u>234</u>	<u>26.4</u>	233	26.5									

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Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

Compiler Notes

The AMD64 AOCC Compiler Suite is available at <http://developer.amd.com/amd-aocc/>

Submit Notes

The config file option 'submit' was used.
'numactl' was used to bind copies to the cores.
See the configuration file for details.

Operating System Notes

'ulimit -s unlimited' was used to set environment stack size limit
'ulimit -l 2097152' was used to set environment locked pages in memory limit

runcpu command invoked through numactl i.e.:
numactl --interleave=all runcpu <etc>

To limit dirty cache to 8% of memory, 'sysctl -w vm.dirty_ratio=8' run as root.
To limit swap usage to minimum necessary, 'sysctl -w vm.swappiness=1' run as root.
To free node-local memory and avoid remote memory usage,
'sysctl -w vm.zone_reclaim_mode=1' run as root.
To clear filesystem caches, 'sync; sysctl -w vm.drop_caches=3' run as root.
To disable address space layout randomization (ASLR) to reduce run-to-run
variability, 'sysctl -w kernel.randomize_va_space=0' run as root.

To enable Transparent Hugepages (THP) for all allocations,
'echo always > /sys/kernel/mm/transparent_hugepage/enabled' and
'echo always > /sys/kernel/mm/transparent_hugepage/defrag' run as root.



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Environment Variables Notes

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

```
GOMP_CPU_AFFINITY = "0-167"
LD_LIBRARY_PATH = "/mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e/amd_speed_aocc400_genoa_B_lib/lib:"
LIBOMP_NUM_HIDDEN_HELPER_THREADS = "0"
MALLOC_CONF = "oversize_threshold:0,retain:true"
OMP_DYNAMIC = "false"
OMP_SCHEDULE = "static"
OMP_STACKSIZE = "128M"
OMP_THREAD_LIMIT = "168"
```

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
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-B1e/bin/sysinfo
 Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
 running on genoa-sut Thu Mar 9 17:55:20 2023

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

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1. uname -a
2. w
3. Username

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Platform Notes (Continued)

- 4. ulimit -a
- 5. sysinfo process ancestry
- 6. /proc/cpuinfo
- 7. lscpu
- 8. numactl --hardware
- 9. /proc/meminfo
- 10. who -r
- 11. Systemd service manager version: systemd 249 (249.11-0ubuntu3.4)
- 12. 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 genoa-sut 5.15.0-46-generic #49-Ubuntu SMP Thu Aug 4 18:03:25 UTC 2022 x86_64 x86_64 x86_64 GNU/Linux
-----
```

```
-----
2. w
   17:55:20 up 4 min,  1 user,  load average: 0.26, 0.39, 0.22
USER      TTY      FROM            LOGIN@   IDLE   JCPU   PCPU WHAT
root     tty1      -                17:52   40.00s  1.64s  0.32s /bin/bash ./amd_speed_aocc400_genoa_B1.sh
-----
```

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

```
-----
4. ulimit -a
time(seconds)      unlimited
file(blocks)       unlimited
data(kbytes)       unlimited
stack(kbytes)      unlimited
coredump(blocks)   0
memory(kbytes)     unlimited
locked memory(kbytes) 2097152
process            6190359
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
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-specspeed.sh --output_format csv,html,pdf,txt -define
-----
```

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Platform Notes (Continued)

```
Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --define Dell-BIOS-LogProcD=1
python3 ./run_amd_speed_aocc400_genoa_B1.py
/bin/bash ./amd_speed_aocc400_genoa_B1.sh
runcpu --config amd_speed_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
csv,html,pdf,txt -define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --define Dell-BIOS-LogProcD=1 intspeerd
runcpu --configfile amd_speed_aocc400_genoa_B1.cfg --tune base --reportable --iterations 2 --output_format
csv,html,pdf,txt --define Dell-BIOS-inc=Dell-BIOS_EPYC-4.inc --define Dell-BIOS-LogProcD=1 --nopower
--runmode speed --tune base --size test:train:refspeed intspeerd --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/temlogs/preenv.intspeerd.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /mnt/ramdisk/cpu2017-1.1.9-aocc400-B1e
```

```
6. /proc/cpuinfo
model name      : AMD EPYC 9634 84-Core Processor
vendor_id      : AuthenticAMD
cpu family     : 25
model          : 17
stepping       : 1
microcode      : 0xa101116
bugs           : sysret_ss_attrs spectre_v1 spectre_v2 spec_store_bypass
TLB size      : 3584 4K pages
cpu cores     : 84
siblings      : 84
2 physical ids (chips)
168 processors (hardware threads)
physical id 0: core ids 0-6,16-22,32-38,48-54,64-70,80-86,96-102,112-118,128-134,144-150,160-166,176-182
physical id 1: core ids 0-6,16-22,32-38,48-54,64-70,80-86,96-102,112-118,128-134,144-150,160-166,176-182
physical id 0: apicids 0-6,16-22,32-38,48-54,64-70,80-86,96-102,112-118,128-134,144-150,160-166,176-182
physical id 1: apicids
256-262,272-278,288-294,304-310,320-326,336-342,352-358,368-374,384-390,400-406,416-422,432-438
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):                 168
On-line CPU(s) list:   0-167
Vendor ID:              AuthenticAMD
Model name:             AMD EPYC 9634 84-Core Processor
CPU family:             25
Model:                  17
Thread(s) per core:    1
Core(s) per socket:    84
Socket(s):              2
Stepping:               1
Frequency boost:       enabled
CPU max MHz:           3701.0000
CPU min MHz:           400.0000
BogoMIPS:               4501.22
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
```

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Platform Notes (Continued)

```

popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy
abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext
perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3
invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1
avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin cppc arat npt
lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_lld

```

Virtualization:

```

AMD-V
L1d cache: 5.3 MiB (168 instances)
L1i cache: 5.3 MiB (168 instances)
L2 cache: 168 MiB (168 instances)
L3 cache: 768 MiB (24 instances)

```

```

NUMA node(s): 24
NUMA node0 CPU(s): 0-6
NUMA node1 CPU(s): 28-34
NUMA node2 CPU(s): 56-62
NUMA node3 CPU(s): 14-20
NUMA node4 CPU(s): 42-48
NUMA node5 CPU(s): 70-76
NUMA node6 CPU(s): 21-27
NUMA node7 CPU(s): 49-55
NUMA node8 CPU(s): 77-83
NUMA node9 CPU(s): 7-13
NUMA node10 CPU(s): 35-41
NUMA node11 CPU(s): 63-69
NUMA node12 CPU(s): 84-90
NUMA node13 CPU(s): 112-118
NUMA node14 CPU(s): 140-146
NUMA node15 CPU(s): 98-104
NUMA node16 CPU(s): 126-132
NUMA node17 CPU(s): 154-160
NUMA node18 CPU(s): 105-111
NUMA node19 CPU(s): 133-139
NUMA node20 CPU(s): 161-167
NUMA node21 CPU(s): 91-97
NUMA node22 CPU(s): 119-125
NUMA node23 CPU(s): 147-153

```

```

Vulnerability Itlb multihit: Not affected
Vulnerability L1tf: Not affected
Vulnerability Mds: Not affected
Vulnerability Meltdown: Not affected
Vulnerability Mmio stale data: Not affected
Vulnerability Retbleed: Not affected
Vulnerability Spec store bypass: Mitigation; Speculative Store Bypass disabled via prctl and seccomp
Vulnerability Spectre v1: Mitigation; usercopy/swapgs barriers and __user pointer sanitization
Vulnerability Spectre v2: Mitigation; Retpolines, IBPB conditional, IBRS_FW, STIBP disabled, RSB
filling
Vulnerability Srbds: Not affected
Vulnerability Tsx async abort: Not affected

```

From lscpu --cache:

NAME	ONE-SIZE	ALL-SIZE	WAYS	TYPE	LEVEL	SETS	PHY-LINE	COHERENCY-SIZE
L1d	32K	5.3M	8	Data	1	64	1	64
L1i	32K	5.3M	8	Instruction	1	64	1	64
L2	1M	168M	8	Unified	2	2048	1	64

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Platform Notes (Continued)

L3 32M 768M 16 Unified 3 32768 1 64

8. numactl --hardware

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

available: 24 nodes (0-23)

```

node 0 cpus: 0-6
node 0 size: 64056 MB
node 0 free: 63782 MB
node 1 cpus: 28-34
node 1 size: 64510 MB
node 1 free: 64333 MB
node 2 cpus: 56-62
node 2 size: 64508 MB
node 2 free: 64351 MB
node 3 cpus: 14-20
node 3 size: 64510 MB
node 3 free: 64377 MB
node 4 cpus: 42-48
node 4 size: 64510 MB
node 4 free: 64362 MB
node 5 cpus: 70-76
node 5 size: 64508 MB
node 5 free: 64371 MB
node 6 cpus: 21-27
node 6 size: 64510 MB
node 6 free: 64385 MB
node 7 cpus: 49-55
node 7 size: 64510 MB
node 7 free: 64368 MB
node 8 cpus: 77-83
node 8 size: 64508 MB
node 8 free: 64368 MB
node 9 cpus: 7-13
node 9 size: 64510 MB
node 9 free: 64350 MB
node 10 cpus: 35-41
node 10 size: 64510 MB
node 10 free: 64368 MB
node 11 cpus: 63-69
node 11 size: 64492 MB
node 11 free: 64358 MB
node 12 cpus: 84-90
node 12 size: 64510 MB
node 12 free: 64331 MB
node 13 cpus: 112-118
node 13 size: 64510 MB
node 13 free: 64369 MB
node 14 cpus: 140-146
node 14 size: 64508 MB
node 14 free: 64361 MB
node 15 cpus: 98-104
node 15 size: 64510 MB
node 15 free: 64355 MB
node 16 cpus: 126-132
node 16 size: 64510 MB
node 16 free: 64368 MB
node 17 cpus: 154-160
node 17 size: 64508 MB
node 17 free: 64350 MB

```

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Platform Notes (Continued)

```

node 18 cpus: 105-111
node 18 size: 64510 MB
node 18 free: 64326 MB
node 19 cpus: 133-139
node 19 size: 64510 MB
node 19 free: 60796 MB
node 20 cpus: 161-167
node 20 size: 64508 MB
node 20 free: 64288 MB
node 21 cpus: 91-97
node 21 size: 64510 MB
node 21 free: 64331 MB
node 22 cpus: 119-125
node 22 size: 64474 MB
node 22 free: 64329 MB
node 23 cpus: 147-153
node 23 size: 64482 MB
node 23 free: 64306 MB
node distances:
node 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
0: 10 11 11 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
1: 11 10 11 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
2: 11 11 10 12 12 12 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
3: 12 12 12 10 11 11 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
4: 12 12 12 11 10 11 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
5: 12 12 12 11 11 10 12 12 12 12 12 12 32 32 32 32 32 32 32 32 32 32 32
6: 12 12 12 12 12 12 12 10 11 11 12 12 32 32 32 32 32 32 32 32 32 32 32
7: 12 12 12 12 12 12 12 11 10 11 12 12 32 32 32 32 32 32 32 32 32 32 32
8: 12 12 12 12 12 12 12 11 11 10 12 12 32 32 32 32 32 32 32 32 32 32 32
9: 12 12 12 12 12 12 12 12 12 10 11 11 32 32 32 32 32 32 32 32 32 32 32
10: 12 12 12 12 12 12 12 12 12 11 10 11 32 32 32 32 32 32 32 32 32 32 32
11: 12 12 12 12 12 12 12 12 12 11 11 10 32 32 32 32 32 32 32 32 32 32 32
12: 32 32 32 32 32 32 32 32 32 32 32 32 10 11 11 12 12 12 12 12 12 12 12
13: 32 32 32 32 32 32 32 32 32 32 32 32 11 10 11 12 12 12 12 12 12 12 12
14: 32 32 32 32 32 32 32 32 32 32 32 32 11 11 10 12 12 12 12 12 12 12 12
15: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 10 11 11 12 12 12 12 12 12
16: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 11 10 11 12 12 12 12 12
17: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 11 11 10 12 12 12 12 12
18: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 10 11 11 12 12 12
19: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 11 10 11 12 12 12
20: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 11 11 10 12 12 12
21: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 10 11 11 11
22: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 12 11 10 11
23: 32 32 32 32 32 32 32 32 32 32 32 32 12 12 12 12 12 12 12 11 11 10

```

```

9. /proc/meminfo
MemTotal: 1584845776 kB

```

```

10. who -r
run-level 3 Mar 9 17:50

```

```

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

```

```

12. Services, from systemctl list-unit-files

```

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Platform Notes (Continued)

STATE	UNIT FILES
enabled	ModemManager blk-availability cloud-config cloud-final cloud-init cloud-init-local console-setup cron dmesg e2scrub_reap finalrd getty@ grub-common grub-initrd-fallback irqbalance keyboard-setup lm-sensors lvm2-monitor lxd-agent networkd-dispatcher open-iscsi open-vm-tools pollinate rsync rsyslog secureboot-db setvtrgb ssh systemd-networkd systemd-networkd-wait-online systemd-pstore systemd-resolved systemd-timesyncd thermald tuned ua-reboot-cmds ubuntu-advantage udisks2 vgauth
enabled-runtime	netplan-ovs-cleanup rc-local systemd-remount-fs
disabled	apparmor console-getty debug-shell iscsid multipathd nftables powertop serial-getty@ smartmontools sysstat systemd-boot-check-no-failures systemd-network-generator systemd-sysext systemd-time-wait-sync ufw upower
generated	apport
indirect	uuuid
masked	accounts-daemon alsa-utils atd cryptdisks cryptdisks-early gpu-manager hwclock lvm2 multipath-tools-boot rc rcS screen-cleanup sudo x11-common

13. Linux kernel boot-time arguments, from /proc/cmdline
 BOOT_IMAGE=/vmlinuz-5.15.0-46-generic
 root=/dev/mapper/ubuntu--vg-ubuntu--lv
 ro

14. cpupower frequency-info
 analyzing CPU 0:
 current policy: frequency should be within 400 MHz and 3.70 GHz.
 The governor "performance" may decide which speed to use
 within this range.

boost state support:
 Supported: yes
 Active: yes
 Boost States: 0
 Total States: 3
 Pstate-P0: 2250MHz

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

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PowerEdge R6625 (AMD EPYC 9634 84-Core Processor)

SPECspeed®2017_int_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)

```
-----
17. /sys/kernel/mm/transparent_hugepage
defrag          [always] defer defer+madvise madvise never
enabled         [always] madvise never
hpage_pmd_size 2097152
shmem_enabled   always within_size advise [never] deny force
-----
```

```
-----
18. /sys/kernel/mm/transparent_hugepage/khugepaged
alloc_sleep_millisecs 60000
defrag                 1
max_ptes_none          511
max_ptes_shared        256
max_ptes_swap          64
pages_to_scan          4096
scan_sleep_millisecs  10000
-----
```

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

```
-----
20. 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
-----
```

```
-----
21. /sys/devices/virtual/dmi/id
Vendor:          Dell Inc.
Product:         PowerEdge R6625
Product Family: PowerEdge
Serial:          BGP4016
-----
```

```
-----
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 MTC40F2046S1RC48BA1 64 GB 2 rank 4800
-----
```

```
-----
23. BIOS
(This section combines info from /sys/devices and dmidecode.)
BIOS Vendor:      Dell Inc.
BIOS Version:     1.3.7
BIOS Date:        03/06/2023
BIOS Revision:    1.3
-----
```

Compiler Version Notes

```
-----
C | 600.perlbench_s(base) 602.gcc_s(base) 605.mcf_s(base) 625.x264_s(base) 657.xz_s(base)
-----
```

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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++ | 620.omnetpp_s(base) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)  
=====
```

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

```
=====  
Fortran | 648.exchange2_s(base)  
=====
```

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

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
```



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Base Optimization Flags

C benchmarks:

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

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>



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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>

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