



# SPEC CPU®2017 Integer Speed Result

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## Quanta Cloud Technology

(Test Sponsor: Quanta Computer Inc.)

### QuantaGrid S44NL-1U

(2.40 GHz,AMD EPYC 9654)

SPECspeed®2017\_int\_base = 13.9

SPECspeed®2017\_int\_peak = Not Run

CPU2017 License: 9050

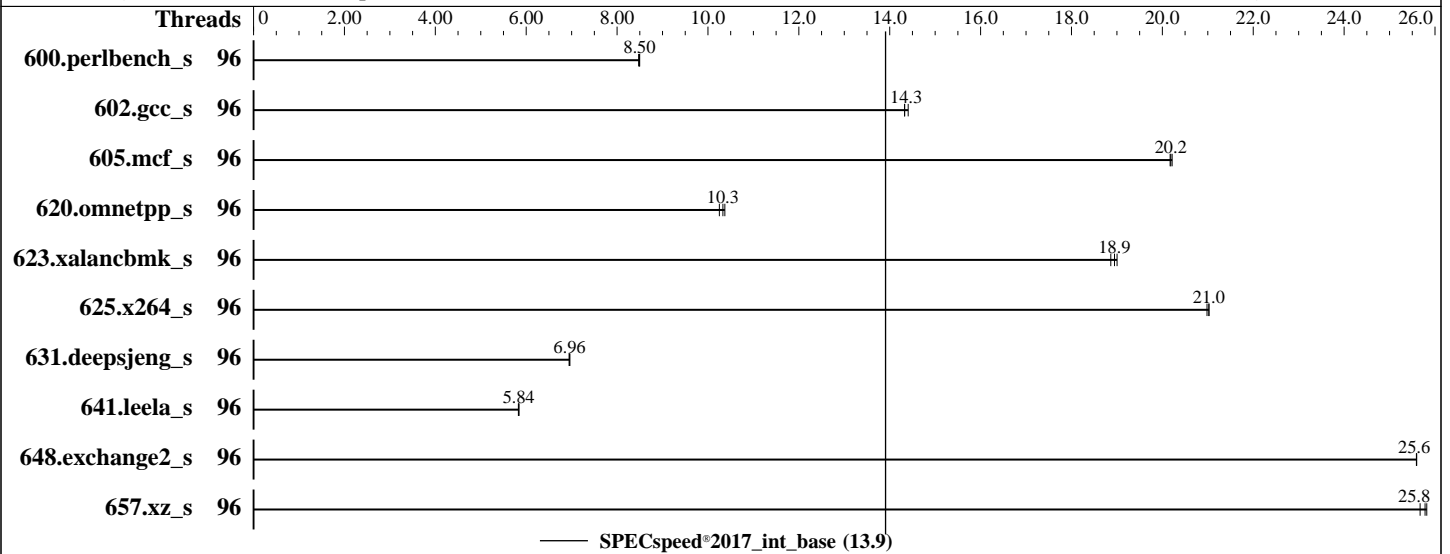
Test Sponsor: Quanta Computer Inc.

Tested by: Quanta Computer Inc.

Test Date: Jul-2023

Hardware Availability: Aug-2023

Software Availability: Jul-2023



### Hardware

CPU Name: AMD EPYC 9654  
 Max MHz: 3700  
 Nominal: 2400  
 Enabled: 96 cores, 1 chip, 2 threads/core  
 Orderable: 1 chip  
 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 / 8 cores  
 Other: None  
 Memory: 768 GB (12 x 64 GB 2Rx4 PC5-4800B-R)  
 Storage: 1 x 960 GB NVMe SSD  
 Other: None

### Software

OS: Ubuntu 22.04.2 LTS  
 kernel version 5.15.0-78-generic  
 Compiler: C/C++/Fortran: Version 4.0.0 of AOCC  
 Parallel: Yes  
 Firmware: Version 3A08 released Jul-2023  
 File System: ext4  
 System State: Run level 3 (multi-user)  
 Base Pointers: 64-bit  
 Peak Pointers: Not Applicable  
 Other: None  
 Power Management: BIOS 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 | 96      | <b>209</b> | <b>8.50</b> | 209        | 8.50        | 209         | 8.47        |         |         |       |         |       |         |       |
| 602.gcc_s       | 96      | 276        | 14.4        | 278        | 14.3        | <b>278</b>  | <b>14.3</b> |         |         |       |         |       |         |       |
| 605.mcf_s       | 96      | 234        | 20.2        | <b>234</b> | <b>20.2</b> | 234         | 20.2        |         |         |       |         |       |         |       |
| 620.omnetpp_s   | 96      | <b>158</b> | <b>10.3</b> | 159        | 10.3        | 157         | 10.4        |         |         |       |         |       |         |       |
| 623.xalancbmk_s | 96      | 74.6       | 19.0        | 75.1       | 18.9        | <b>74.8</b> | <b>18.9</b> |         |         |       |         |       |         |       |
| 625.x264_s      | 96      | 83.9       | 21.0        | 84.1       | 21.0        | <b>83.9</b> | <b>21.0</b> |         |         |       |         |       |         |       |
| 631.deepsjeng_s | 96      | 206        | 6.96        | 206        | 6.94        | <b>206</b>  | <b>6.96</b> |         |         |       |         |       |         |       |
| 641.leela_s     | 96      | <b>292</b> | <b>5.84</b> | 293        | 5.83        | 292         | 5.84        |         |         |       |         |       |         |       |
| 648.exchange2_s | 96      | <b>115</b> | <b>25.6</b> | 115        | 25.6        | 115         | 25.6        |         |         |       |         |       |         |       |
| 657.xz_s        | 96      | 239        | 25.8        | <b>240</b> | <b>25.8</b> | 241         | 25.7        |         |         |       |         |       |         |       |

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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 = "0-191"
LD_LIBRARY_PATH = "/root/cpu2017/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 = "192"
```

## 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.

## Platform Notes

BIOS Configuration

```
ACPI CST C2 Latency set to 18
NUMA nodes per socket set to NPS4
Determinism Control is Manual
Determinism Slider set to Power
cTDP Control set to Manual
cTDP set to 400
PPT Control set to Manual
PPT set to 400
```

```
Sysinfo program /root/cpu2017/bin/sysinfo
Rev: r6732 of 2022-11-07 fe91c89b7ed5c36ae2c92cc097bec197
running on quanta Fri Jul 28 14:13:24 2023
```

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

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

1. uname -a
2. w
3. ulimit -a
4. sysinfo process ancestry
5. /proc/cpuinfo
6. lscpu
7. numactl --hardware
8. /proc/meminfo
9. Systemd service manager version: systemd 249 (249.11-0ubuntu3.7)
10. Services, from systemctl list-unit-files
11. Linux kernel boot-time arguments, from /proc/cmdline
12. cpupower frequency-info
13. sysctl
14. /sys/kernel/mm/transparent\_hugepage

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## Platform Notes (Continued)

```

15. /sys/kernel/mm/transparent_hugepage/khugepaged
16. OS release
17. Disk information
18. /sys/devices/virtual/dmi/id
19. dmidecode
20. BIOS

```

```

-----
1. uname -a
Linux quanta 5.15.0-78-generic #85-Ubuntu SMP Fri Jul 7 15:25:09 UTC 2023 x86_64 x86_64 x86_64 GNU/Linux

```

```

-----
2. w
14:13:24 up 0 min, 0 users, load average: 0.32, 0.09, 0.03
USER      TTY      FROM          LOGIN@   IDLE   JCPU   PCPU WHAT

```

```

-----
3. 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            3094119
nofiles            1024
vmemory(kbytes)    unlimited
locks              unlimited
rtprio             0

```

```

-----
4. sysinfo process ancestry
/sbin/init
/bin/sh -e /etc/rc.local start
/bin/bash ./test.sh
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 base --reportable --iterations 3 intspeed
runcpu --configfile amd_speed_aocc400_znver4_A1.cfg --tune base --reportable --iterations 3 --nopower
--runmode speed --tune base --size test:train:refspeed intspeed --nopreenv --note-preenv --logfile
$SPEC/tmp/CPU2017.001/temlogs/preenv.intspeed.001.0.log --lognum 001.0 --from_runcpu 2
specperl $SPEC/bin/sysinfo
$SPEC = /root/cpu2017

```

```

-----
5. /proc/cpuinfo
model name      : AMD EPYC 9654 96-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
TLB size      : 3584 4K pages
cpu cores     : 96
siblings      : 192
1 physical ids (chips)
192 processors (hardware threads)

```

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## Platform Notes (Continued)

physical id 0: core ids 0-95

physical id 0: apicids 0-191

Caution: /proc/cpuinfo data regarding chips, cores, and threads is not necessarily reliable, especially for virtualized systems. Use the above data carefully.

-----  
6. lscpu

From lscpu from util-linux 2.37.2:

```

Architecture:          x86_64
CPU op-mode(s):        32-bit, 64-bit
Address sizes:         46 bits physical, 57 bits virtual
Byte Order:            Little Endian
CPU(s):                192
On-line CPU(s) list:   0-191
Vendor ID:             AuthenticAMD
Model name:            AMD EPYC 9654 96-Core Processor
CPU family:            25
Model:                 17
Thread(s) per core:    2
Core(s) per socket:    96
Socket(s):             1
Stepping:              1
Frequency boost:       enabled
CPU max MHz:           3707.8120
CPU min MHz:           1500.0000
BogoMIPS:              4792.80
Flags:                 fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36
                        clflush mmx fxsr sse sse2 ht syscall nx mmxext fxsr_opt pdpe1gb rdtscp lm
                        constant_tsc rep_good nopl nonstop_tsc cpuid extd_apicid aperfmperf rapl
                        pni pclmulqdq monitor ssse3 fma cx16 pcid sse4_1 sse4_2 x2apic movbe
                        popcnt aes xsave avx f16c rdrand lahf_lm cmp_legacy svm extapic cr8_legacy
                        abm sse4a misalignsse 3dnowprefetch osvw ibs skinit wdt tce topoext
                        perfctr_core perfctr_nb bpext perfctr_llc mwaitx cpb cat_l3 cdp_l3
                        invpcid_single hw_pstate ssbd mba ibrs ibpb stibp vmmcall fsgsbase bmi1
                        avx2 smep bmi2 erms invpcid cqm rdt_a avx512f avx512dq rdseed adx smap
                        avx512ifma clflushopt clwb avx512cd sha_ni avx512bw avx512vl xsaveopt
                        xsavec xgetbv1 xsaves cqm_llc cqm_occup_llc cqm_mbm_total cqm_mbm_local
                        avx512_bf16 clzero irperf xsaveerptr rdpru wbnoinvd amd_ppin cppc arat npt
                        lbrv svm_lock nrip_save tsc_scale vmcb_clean flushbyasid decodeassists
                        pausefilter pfthreshold avic v_vmsave_vmload vgif v_spec_ctrl avx512vbmi
                        umip pku ospke avx512_vbmi2 gfni vaes vpclmulqdq avx512_vnni avx512_bitalg
                        avx512_vpopcntdq la57 rdpid overflow_recov succor smca fsrm flush_l1d sme
                        sev sev_es
Virtualization:        AMD-V
L1d cache:             3 MiB (96 instances)
L1i cache:             3 MiB (96 instances)
L2 cache:              96 MiB (96 instances)
L3 cache:              384 MiB (12 instances)
NUMA node(s):         4
NUMA node0 CPU(s):    0-23,96-119
NUMA node1 CPU(s):    24-47,120-143
NUMA node2 CPU(s):    48-71,144-167
NUMA node3 CPU(s):    72-95,168-191
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

```

(Continued on next page)



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## Platform Notes (Continued)

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, 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      | 3M       | 8    | Data        | 1     | 64    | 1        | 64             |
| L1i  | 32K      | 3M       | 8    | Instruction | 1     | 64    | 1        | 64             |
| L2   | 1M       | 96M      | 8    | Unified     | 2     | 2048  | 1        | 64             |
| L3   | 32M      | 384M     | 16   | Unified     | 3     | 32768 | 1        | 64             |

7. numactl --hardware

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

```
available: 4 nodes (0-3)
node 0 cpus: 0-23,96-119
node 0 size: 193180 MB
node 0 free: 192069 MB
node 1 cpus: 24-47,120-143
node 1 size: 193473 MB
node 1 free: 192480 MB
node 2 cpus: 48-71,144-167
node 2 size: 193520 MB
node 2 free: 192730 MB
node 3 cpus: 72-95,168-191
node 3 size: 193469 MB
node 3 free: 192451 MB
node distances:
node  0  1  2  3
 0:  10  12  12  12
 1:  12  10  12  12
 2:  12  12  10  12
 3:  12  12  12  10
```

8. /proc/meminfo

MemTotal: 792211552 kB

'who -r' did not return a run level

9. Systemd service manager version: systemd 249 (249.11-0ubuntu3.7)

```
Default Target Status
graphical      starting
```

10. 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 irqbalance keyboard-setup lvm2-monitor lxd-agent multipathd
networkd-dispatcher open-iscsi open-vm-tools pollinate rpcbind rsyslog secureboot-db
setvtrgb snapd ssh systemd-networkd systemd-networkd-wait-online systemd-pstore
systemd-resolved systemd-timesyncd thermald ua-reboot-cmds ubuntu-advantage udisks2 ufw
unattended-upgrades vgauth
enabled-runtime netplan-ovs-cleanup rc-local systemd-fsck-root systemd-remount-fs
disabled console-getty debug-shell grub-initrd-fallback ipmievd iscsid nftables rsync serial-getty@
```

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## Platform Notes (Continued)

```

systemd-boot-check-no-failures systemd-network-generator systemd-sysext
systemd-time-wait-sync upower
generated
indirect
masked
apport openipmi
uidd
cryptdisks cryptdisks-early hwclock lvm2 multipath-tools-boot nfs-common rc rcS
screen-cleanup sudo x11-common

```

-----  
11. Linux kernel boot-time arguments, from /proc/cmdline

```

BOOT_IMAGE=/boot/vmlinuz-5.15.0-78-generic
root=UUID=7ec7e92d-c582-4c54-a7c3-94f8b85ecdc2
ro
pcie_aspm=off

```

-----  
12. cpupower frequency-info

```

analyzing CPU 0:
  current policy: frequency should be within 1.50 GHz and 2.40 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: 2400MHz

```

-----  
13. 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

```

-----  
14. /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

```

-----  
15. /sys/kernel/mm/transparent\_hugepage/khugepaged

```

alloc_sleep_millisecs 60000
defrag                 1

```

(Continued on next page)



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## Platform Notes (Continued)

```

max_ptes_none          511
max_ptes_shared        256
max_ptes_swap           64
pages_to_scan           4096
scan_sleep_millisecs   10000

```

### 16. OS release

```

From /etc/*-release /etc/*-version
os-release Ubuntu 22.04.2 LTS

```

### 17. Disk information

```

SPEC is set to: /root/cpu2017
Filesystem      Type  Size  Used Avail Use% Mounted on
/dev/nvme0n1p2 ext4  879G   21G  813G   3% /

```

### 18. /sys/devices/virtual/dmi/id

```

Vendor:          Quanta Cloud Technology Inc.
Product:         QuantaGrid S44NL-1U
Product Family:  S6NL

```

### 19. 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:
12x SK Hynix HMC94MEBRA123N 64 GB 2 rank 4800
12x Unknown Unknown

```

### 20. BIOS

(This section combines info from /sys/devices and dmidecode.)

```

BIOS Vendor:      American Megatrends International, LLC.
BIOS Version:     3A08
BIOS Date:        07/14/2023
BIOS Revision:    5.27
Firmware Revision: 3.12

```

## Compiler Version Notes

```

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

```

```

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) 623.xalancbmk_s(base) 631.deepsjeng_s(base) 641.leela_s(base)
=====

```

```

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

```

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## Compiler Version Notes (Continued)

Thread model: posix  
InstalledDir: /opt/AMD/aocc/aocc-compiler-4.0.0/bin

-----  
Fortran | 648.exchange2\_s(base)

-----  
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  
-Wl,-allow-multiple-definition -O3 -march=znver4 -fveclib=AMDLIBM  
-ffast-math -fopenmp -flto -fstruct-layout=7

(Continued on next page)



# SPEC CPU®2017 Integer Speed Result

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**Quanta Cloud Technology**

(Test Sponsor: Quanta Computer Inc.)

**QuantaGrid S44NL-1U**

(2.40 GHz,AMD EPYC 9654)

SPECspeed®2017\_int\_base = 13.9

SPECspeed®2017\_int\_peak = Not Run

**CPU2017 License:** 9050

**Test Sponsor:** Quanta Computer Inc.

**Tested by:** Quanta Computer Inc.

**Test Date:** Jul-2023

**Hardware Availability:** Aug-2023

**Software Availability:** Jul-2023

## Base Optimization Flags (Continued)

C benchmarks (continued):

```
-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/Quanta-Computer-Inc-amd-speccpu-setting-v1\\_AMD\\_Genoa.html](http://www.spec.org/cpu2017/flags/Quanta-Computer-Inc-amd-speccpu-setting-v1_AMD_Genoa.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/Quanta-Computer-Inc-amd-speccpu-setting-v1\\_AMD\\_Genoa.xml](http://www.spec.org/cpu2017/flags/Quanta-Computer-Inc-amd-speccpu-setting-v1_AMD_Genoa.xml)



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