1. Setting Up the Development Environment

* Install Android SDK & NDK
* ARM Compiler (and recent enough Version)

2. Enabling Developer Options and USB Debugging on the Pixel 8

* Go to **Settings** > **About phone** and tap on **Build number** seven times to enable Developer Options.
* Go back to **Settings** > **System** > **Advanced** > **Developer options** and enable **USB debugging**.

3. Using ADB to Install and Debug Applications

* Connect Pixel 8 to laptop
* Use ADB to install APKs on the phone. Here we can push and execute native binaries on the phone
* Use ADB to run apps, debug, and monitor logs

4.’ -march=armv8.5-a+memtag’ to enable MTE in compiled code

[Root guide using Magisk](https://xdaforums.com/t/guide-january-3-2024-root-pixel-8-pro-unlock-bootloader-pass-safetynet-both-slots-bootable-more.4638510/) - Make sure if reflashing to use pixel 8 images “shiba” and not 8 pro “husky”

shiba:/ # free -h

total used free shared buffers

Mem: 7.1G 6.9G 252M 83M 6.8M

-/+ buffers/cache: 6.9G 259M

Swap: 3.5G 799M 2.8G

Swapspace size: 8388604k, UUID=7fe76ce9-588b-4684-b007-7029995aa4ec

shiba:/ # cat /proc/meminfo

MemTotal: 7534128 kB

MemFree: 411856 kB

MemAvailable: 2329736 kB

Buffers: 1796 kB

Cached: 2650696 kB

SwapCached: 455184 kB

Active: 863412 kB

Inactive: 3546096 kB

Active(anon): 47272 kB

Inactive(anon): 2040696 kB

Active(file): 816140 kB

Inactive(file): 1505400 kB

Unevictable: 245300 kB

Mlocked: 245300 kB

SwapTotal: 3767060 kB

SwapFree: 2692728 kB

Dirty: 128 kB

Writeback: 0 kB

AnonPages: 1563328 kB

Mapped: 1102744 kB

Shmem: 87196 kB

KReclaimable: 155296 kB

Slab: 539124 kB

SReclaimable: 155296 kB

SUnreclaim: 383828 kB

KernelStack: 87088 kB

ShadowCallStack: 0 kB

PageTables: 204932 kB

SecPageTables: 0 kB

NFS\_Unstable: 0 kB

Bounce: 0 kB

WritebackTmp: 0 kB

CommitLimit: 7321644 kB

Committed\_AS: 445759400 kB

VmallocTotal: 259653632 kB

VmallocUsed: 253592 kB

VmallocChunk: 0 kB

Percpu: 13680 kB

AnonHugePages: 0 kB

ShmemHugePages: 0 kB

ShmemPmdMapped: 0 kB

FileHugePages: 0 kB

FilePmdMapped: 0 kB

CmaTotal: 708608 kB

CmaFree: 0 kB

ION\_heap: 430944 kB

ION\_heap\_pool: 0 kB

130|shiba:/ # cat /proc/swaps

Filename Type Size Used Priority

/dev/block/zram0 partition 3767060 1624732 -2

Zram1 attempt

shiba:/ # cat /proc/meminfo

MemTotal: 7534128 kB

MemFree: 360292 kB

MemAvailable: 799152 kB

Buffers: 1332 kB

Cached: 3257460 kB

SwapCached: 89848 kB

Active: 683148 kB

Inactive: 3759356 kB

Active(anon): 230212 kB

Inactive(anon): 3368268 kB

Active(file): 452936 kB

Inactive(file): 391088 kB

Unevictable: 266916 kB

Mlocked: 266916 kB

SwapTotal: 3767060 kB

SwapFree: 2719632 kB

Dirty: 92 kB

Writeback: 0 kB

AnonPages: 1362464 kB

Mapped: 917684 kB

Shmem: 2149608 kB

KReclaimable: 152288 kB

Slab: 492412 kB

SReclaimable: 152288 kB

SUnreclaim: 340124 kB

KernelStack: 68960 kB

ShadowCallStack: 0 kB

PageTables: 135320 kB

SecPageTables: 0 kB

NFS\_Unstable: 0 kB

Bounce: 0 kB

WritebackTmp: 0 kB

CommitLimit: 7321644 kB

Committed\_AS: 244583904 kB

VmallocTotal: 259653632 kB

VmallocUsed: 235416 kB

VmallocChunk: 0 kB

Percpu: 13896 kB

AnonHugePages: 0 kB

ShmemHugePages: 0 kB

ShmemPmdMapped: 0 kB

FileHugePages: 0 kB

FilePmdMapped: 0 kB

CmaTotal: 708608 kB

CmaFree: 0 kB

ION\_heap: 457980 kB

ION\_heap\_pool: 0 kB

Look at physical swap routine in the kernel, is there extra data along for the ride with the page?