**SnapDragon Chipset and Memory Partitions**

SnapDragon has there processors running inside the SOC, namely:

**Krait CPU**: General purpose processor that usually runs android applications.

**Adreno GPU**: This is largely used for graphics processing like rendering.

**Hexagon DSP**: Hexagon specially designed for multi-media acceleration, this helps CPU to offload the task to DSP and save energy and thereby offering optimum performance.

Hexagon has two instances, one is for modem DSP (mDSP) dedicated to modem processing whereas the other instance is application DSP (aDSP) used for multimedia application. With V4 and V5 hexagon aDSP is expanded to support image processing for camera and video.

QCN: Qualcomm Calibrated Network

QPST: Qualcomm Product Support Tools

QXDM: Qualcomm Extensible Diagnostic Tool

Qualcomm build is divided into 2 parts. Meta and apps.

**Meta contains below Images:**

**RPM**: Resource and Power Manager

**TZ**: Trust Zone for security

**ADSP**: Application Digital Signal Processor to support image processing for camera and video

**Modemst1, Modemst2**: Partitions to store qcn file with relavent IMEI numbers for each device

**ABOOT**: AP Bootloader

**SBL1, SBL2**: Secondary Boot loaders

Most boot loaders load in two stages due to the very small amount of data the BIOS can access.

**NON-HLOS.bin**: modem firmware

**Modem**: RF/baseband firmware

**APPS contains below Images:**

**bootloader.img**

The bootloader initializes memory. It loads and boot kernel and initial ram file system.

**boot.img**

The boot image contains all required kernel changes and used to boot the android device/OS.

**cache.img**

The cache partition stores temporary data.

**radio.img**

This one controls connectivity on your device like RF/Baseband

**recovery.img**

Used to boot device into recovery mode, booted during the OTA process.

**system.img**

File system image for /system partition where actual OS presents. This file includes all framework related changes, some packages and some lib file...

**userdata.img**

The userdata partition contains user-installed applications and data, including customization data.

**persist.img**

persist.img contains data which shouldn't be changed after the device shipped.

for example: DRM related files, sensor reg file, calibration data of chips(wifi, bt, camera, etc.), certificates and other security related files

**vendor.img**

Vendor image contains device-specific hardware drivers (hw specific code), and universal for all apps within my smart phone or tablet which is not part of Android Open Source Project (AOSP). If there is no proprietary information, this partition may be omitted.

/vendor partition for hardware specific code, /system containing only generic code from AOSP. Interaction with AOSP code will be through HIDL (HAL interface definition language) interfaces.

**Note:** Some more images may add/some are removed based on the Qualcomm chipset

**General Build flashing commands:**

To check connected devices:

adb devices

To boot into bootloader/fastboot mode:

adb reboot bootloader

To check connected devices when in bootloader mode:

fastboot devices

To boot into ROM:

fastboot reboot

Generally in Qualcomm, meta and apps images are combined and there will be a fastboot\_complete.py file. If we just execute this file by keeping device in fastboot mode, all meta and apps binaries will gets flashed onto the device.

If we want to flash apps images separately, need to use below commands:

fastboot flash boot boot.img

fastboot flash system system.img

fastboot flash cache cache.img

fastboot flash radio radio.img

fastboot flash recovery recovery.img

fastboot flash userdata userdata.img