Free custom firmware for pine phone SDK

NS-48[1]

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ABSTRACT

Pinephone Modem SDK: Tools to build your own bootloader, kernel and rootfs.
Devices:
- Pinephone
- Pinephone Pro
- EG25-G connected via USB audio

INTRODUCTION

This project is built upon a set of other key projects that that have an essential role in its operation and development.

Yocto

Yocto allows to create customized Linux distributions that meet the specific requirements of projects. Link docs : https://docs.yoctoproject.org/

OpenEmbedded

OpenEmbedded offers a highly flexible and configurable build system that allows developers to create custom Linux distributions by selecting and configuring components, layers, and packages to suit their specific project requirements , particularly for embedded systems and IoT embedded systems and IoT. Repo OpenEmbedded

for EG25-G connected we have quectel modem Kernel quectel also in other solution we have qualcom MDM9x07 repo url

This project is to explain a firmware based on a streamlined Linux architecture using Yocto, with inspiration conception from the Quectel and Qualcomm firmware. This reop encompasses multiple components which are the most critical aspects of the project:

1. AT-command handled
   Handled by can be

   DSP: Handled by the ADSP firmware with no interaction from the userspace
   Userspace: Handled only by the userspace
   Userspace+DSP: Handled by the ADSP first, then notified to the userspace via IPC
   list AT-command link

2. **mcfg-sw** is Qualcomm's binary config to get HW and SW configuration. Results from this repo that we find

   The modem doesn't give any error message except for OK/ERROR/Crash and reboot if the file is malformed, so it's not really easy to debug if the file is good enough for it to load but then doesn't work in a specific provider.
   that's why the repo use : api distro modem to get some updated information

3. ADSP firmware modem : related to NS-49. The term "ADSP firmware" typically refers to the firmware that manages the Digital Signal Processor (DSP) in a modem.
   "The ADSP is used to control all electronic and radio communication."
   "The ADSP firmware is integrated into the modem as an essential hardware and software component."

4. When flashing a Qualcomm modem, the firmware debugging is halted in the fastboot phase.

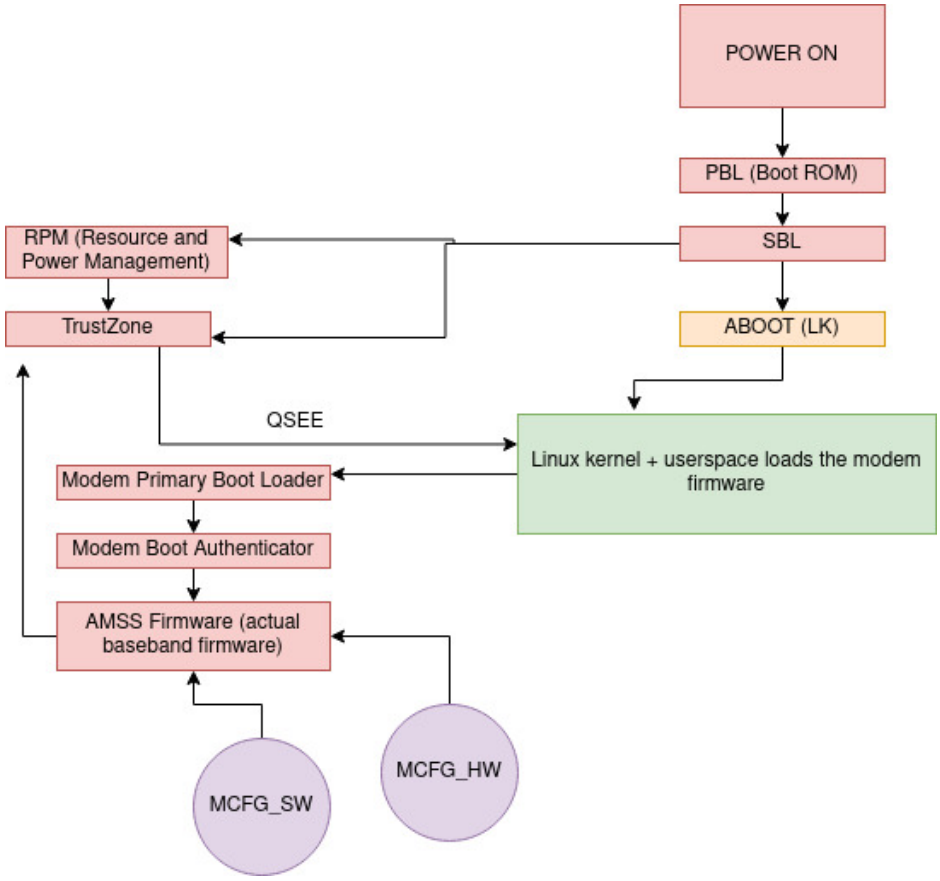

Figure 1. Soc Modem qualcom.