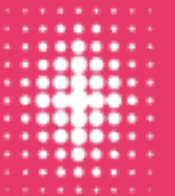


FPC253X ALLKEY DEVELOPMENT KIT

EXAMPLE APPLICATION FOR ZEPHYR OS

GETTING STARTED – USER GUIDE



FINGERPRINTS

Introduction

These slides provide step-by-step guidelines for setting up the FPC253x AllKey development kit, then building and running the included example application on an Adafruit Feather nRF52840 development board.

To get started, a few components and software tools are required:

① Hardware components

- ① FPC253x AllKey development kit, which includes:
 - ① FPC5789 Feather wing
- ① Nordic Adafruit Feather nRF52840 development board (Not provided by FPC)
- ① Stacking Headers for Feather - 12-pin and 16-pin female headers ID (Not provided by FPC)
- ① USB micro cable (Not provided by FPC)
- ① 10-pin JTAG cable (SWD) (Not provided by FPC)
- ① SWD compatible debugger (example uses SEGGER J-link) (Not provided by FPC)

① Software prerequisites

- ① PuTTY downloaded and installed
 - ① Available at: <https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>
 - ① **Note:** Other tools for reading serial ports work just fine
- ① SEGGER JLink installation
 - ① Available at: <https://www.segger.com/downloads/jlink/>

Setup and Building the App

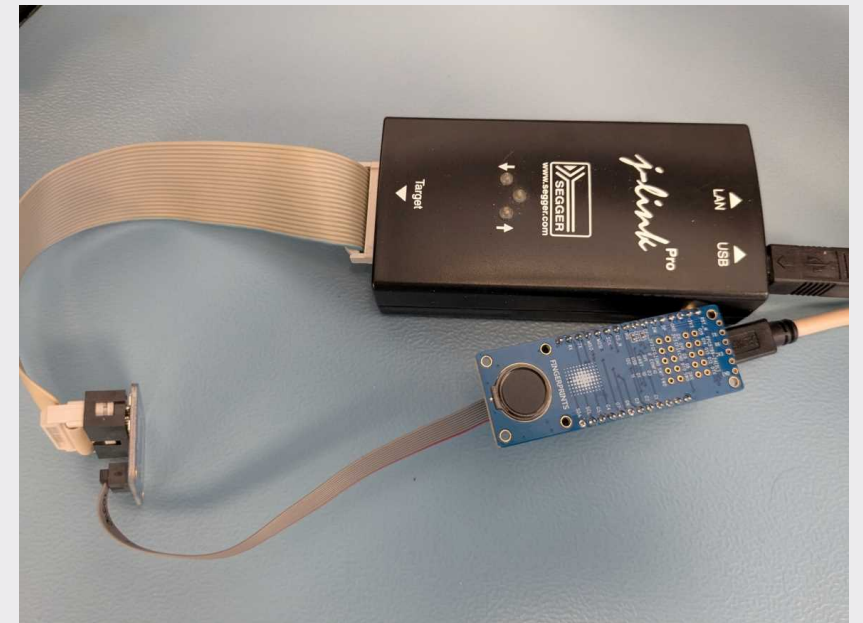
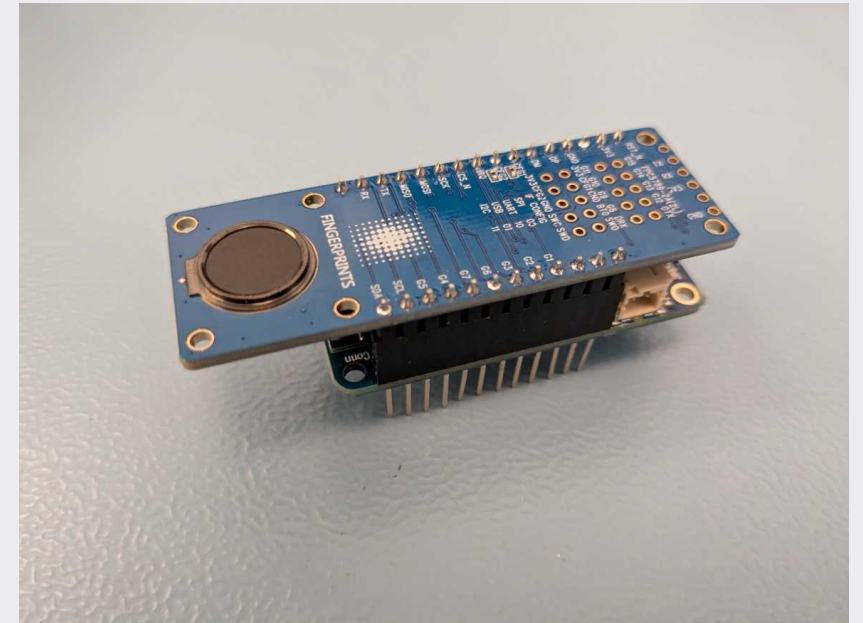
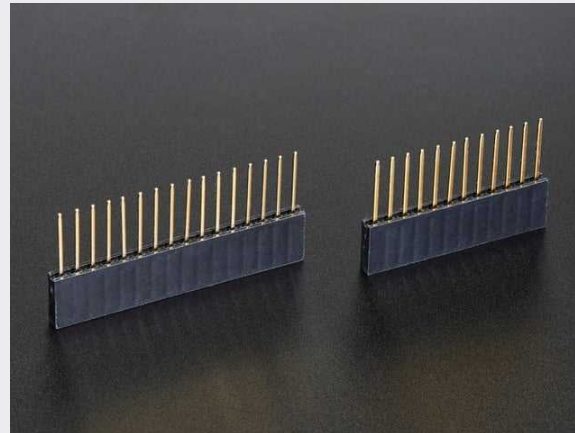
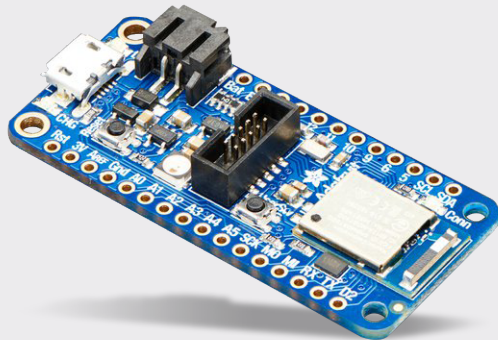
Below is a summary of steps to setup and build the project. These can also be found in the README file in the example code root directory.

Start here: https://docs.zephyrproject.org/latest/develop/getting_started/index.html

- ① Unzip the example code package in <root>/fpc2530
- ① Run in terminal
 - ① `python3 -m venv .venv`
 - ① Linux: `source .venv/bin/activate`, Windows: `.venv\Scripts\activate.bat`
 - ① `pip install west`
 - ① `west init -l fpc2530`
 - ① `west update`
 - ① `west zephyr-export`
 - ① `pip3 install -r deps/zephyr/scripts/requirements.txt`
 - ① In <root>/deps/zephyr: `west sdk install -t arm-zephyr-eabi`
 - ① `west build -p always -b adafruit_feather_nrf52840 <path to example app>`

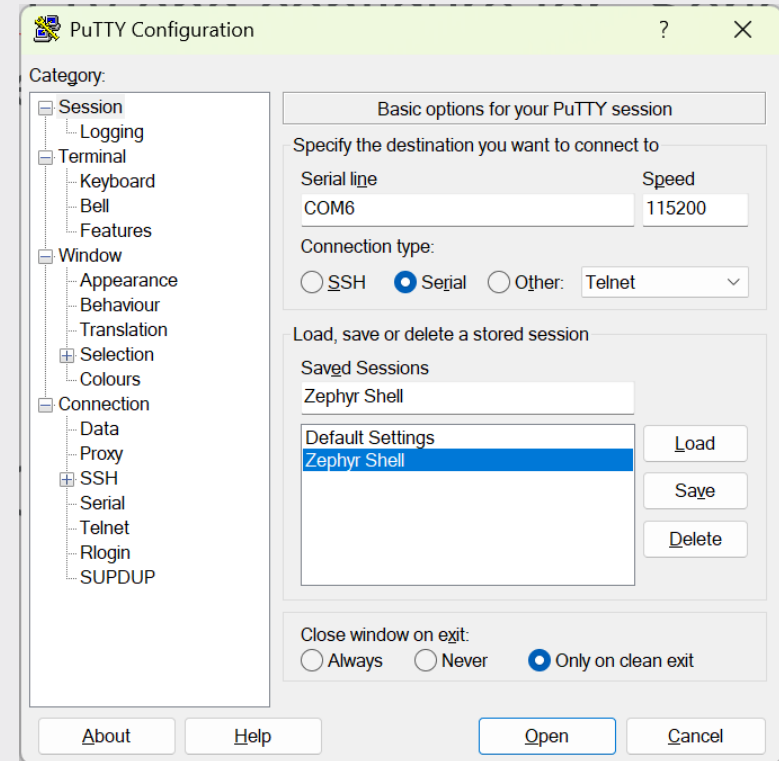
Connecting the device

- ① Attach the AllKey Feather Wing onto the Adafruit Feather Board. See image to the right.
- ② Connect to a PC via USB.
- ③ Connect Debugger (SEGGER J-Link in this example) to PC



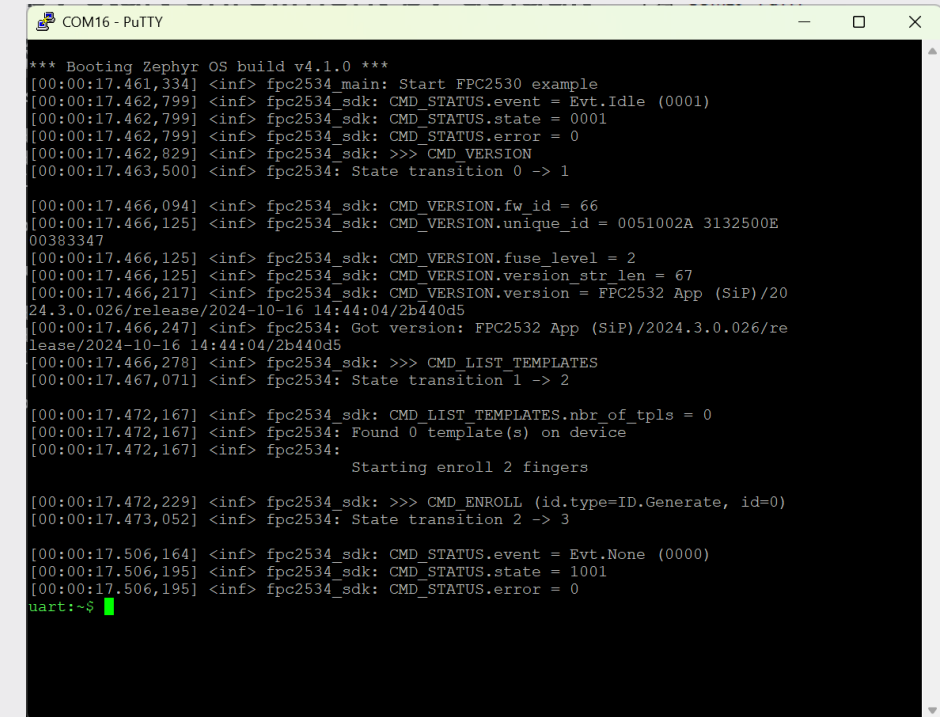
Flash and run the Example Application

- To flash the application onto the development board, do the following in a terminal:
 - west flash
- Reconnect the board after flashing. A VCP device should show up and can now be connected to using Putty (see next page) or another Serial Terminal.
- Start PuTTY and configure for “Serial” connection type and speed 115200, as seen in the image
 - **Note:** Serial line (COM port) might differ. Check in Device Manager which port is assigned to the device
 - **Note:** For readability, consider checking “Implicit CR in every LF” under the “Terminal” category
- Press “Open” and a new PuTTY terminal should open



Running Example Code – Enroll & Identify

- On startup, the software will by start enrollment by default or start identifying if already enrolled.
- Enrollment starts as soon as you place your finger on the sensor. Repeatedly lift and place the same finger on the sensor to progress enrollment
- Once two fingers are enrolled, subsequent touches will try to match/identify against either of the enrolled fingers
 - To delete the stored templates and restart enrollment, send “allkey restart” in the shell followed by touching the sensor



```
*** Booting Zephyr OS build v4.1.0 ***
[00:00:17.461,334] <inf> fpc2534_main: Start FPC2530 example
[00:00:17.462,799] <inf> fpc2534_sdk: CMD_STATUS.event = Evt.Idle (0001)
[00:00:17.462,799] <inf> fpc2534_sdk: CMD_STATUS.state = 0001
[00:00:17.462,799] <inf> fpc2534_sdk: CMD_STATUS.error = 0
[00:00:17.462,829] <inf> fpc2534_sdk: >>> CMD_VERSION
[00:00:17.463,500] <inf> fpc2534: State transition 0 -> 1

[00:00:17.466,094] <inf> fpc2534_sdk: CMD_VERSION.fw_id = 66
[00:00:17.466,125] <inf> fpc2534_sdk: CMD_VERSION.unique_id = 0051002A 3132500E
00383347
[00:00:17.466,125] <inf> fpc2534_sdk: CMD_VERSION.fuse_level = 2
[00:00:17.466,125] <inf> fpc2534_sdk: CMD_VERSION.version_str_len = 67
[00:00:17.466,217] <inf> fpc2534_sdk: CMD_VERSION.version = FPC2532 App (SiP)/20
24.3.0.026/release/2024-10-16 14:44:04/2b440d5
[00:00:17.466,247] <inf> fpc2534: Got version: FPC2532 App (SiP)/2024.3.0.026/re
lease/2024-10-16 14:44:04/2b440d5
[00:00:17.466,278] <inf> fpc2534_sdk: >>> CMD_LIST_TEMPLATES
[00:00:17.467,071] <inf> fpc2534: State transition 1 -> 2

[00:00:17.472,167] <inf> fpc2534_sdk: CMD_LIST_TEMPLATES.nbr_of_tpls = 0
[00:00:17.472,167] <inf> fpc2534: Found 0 template(s) on device
[00:00:17.472,167] <inf> fpc2534:
Starting enroll 2 fingers

[00:00:17.472,229] <inf> fpc2534_sdk: >>> CMD_ENROLL (id.type=ID.Generate, id=0)
[00:00:17.473,052] <inf> fpc2534: State transition 2 -> 3

[00:00:17.506,164] <inf> fpc2534_sdk: CMD_STATUS.event = Evt.None (0000)
[00:00:17.506,195] <inf> fpc2534_sdk: CMD_STATUS.state = 1001
[00:00:17.506,195] <inf> fpc2534_sdk: CMD_STATUS.error = 0
uart:~$
```