

# **FINTEK**

## **F81232/F81532A/534A/ 535/536**

### **GPIO & UART Mode Setting Guide for Linux**

v1.3.2

Oct 4, 2023

## Datasheet Revision History

Date	Version	Revision History
2018/8/14	v1.0	Initial Version
2019/1/4	V1.2	Mode pin (set_gpio.c) change from push-pull to open drain mode
2020/11/13	V1.3	Change set_mode/gpio can read back current setting Add set_hwflow for F81532A/534A/535/536 to change RTS/CTS or DTR/DSR
2023/10/4	V1.3.2	Add document for F81232 set_mode support.

## 1. Preliminary

This document is for F81232/F81532A/534A/535/536 Evaluation Board to change their UART & GPIO mode to RS232 / RS485 / RS422 without special application. **The F81232 had not GPIO support, so it can be use `set_mode.c` to set mode only.**

## 2. Mode Lists & Examples

GPIO table (output value: M0:M1:M2), the following function text is for EVB only. If your transceiver is not F81437/F81438/F81439, Please select the correct output value for your transceiver:

- 0: 000 – RS422 (EVB)
- 1: 001 – RS232 (EVB)
- 2: 010 – RS485 (TX Enable with RTS Low) (EVB)
- 3: 011 – RS485\_1 (TX Enable with RTS High) (EVB)
- 4: 100
- 5: 101
- 6: 110
- 7: 111

UART Mode table:

- 1: eModeRS232
- 2: eModeRS485 (TX Enable with RTS Low)
- 3: eModeRS485 (TX Enable with RTS High)

## 3. Instructions

We also provide demo application to control mode changing. All following operation should work with root privilege.

- `set_mode.c`
  - Control F81232/F81532A/534A/535/536 internal RTS operation mode.
  - Using Linux RS485 ioctl TIOCGRS485/TIOCSR485 to get/set mode.
- `set_gpio.c`
  - Control F81532A/534A/535/536 M0/M1/M2 output only pin to control target transceiver per port.

## 4.1 Build demo application

- change to demo application folder.
- make clean ; make
- you'll get set\_mode & set\_gpio in the same folder.

## 4.2 Using demo application (For F81532A/534A/535/536)

```
root@code-H11H4-IM:/home/code/ddd/old/hpeter/fintek/F81534A-1608/set_mode# ./set_mode ttyUSB3
./set_mode <port> <mode>

Uart Mode table:
1 --> eModeRS232
2 --> eModeRS485 - DE#/RE (TX Enable with RTS Low)
3 --> eModeRS485_1 - DE/RE# (TX Enable with RTS High)

root@code-H11H4-IM:/home/code/ddd/old/hpeter/fintek/F81534A-1608/set_mode# ./set_gpio ttyUSB3
./set_gpio <port> <mode>
e.g., ./set_gpio ttyUSB0 1

Uart Mode table:
0 --> 0: 000 - RS422 (EVB)
1 --> 1: 001 - RS232 (EVB)
2 --> 2: 010 - RS485 (EVB)
3 --> 3: 011 - RS485_1 (EVB)
4 --> 4: 100 - RS422_Term (EVB)
5 --> 5: 101 - RS232_coexist (EVB)
6 --> 6: 110 - RS485_Term (EVB)
7 --> 7: 111 - Shutdown (EVB)
```

### Examples 1. Change ttyUSB3 to RS232 Mode (Default mode)

- ./set\_mode ttyUSB3 1
- ./set\_gpio ttyUSB3 1

### Examples 2. Change ttyUSB3 to RS485 Mode

- ./set\_mode ttyUSB3 2
- ./set\_gpio ttyUSB3 2

### Examples 3. Change ttyUSB3 to RS422 Mode

- For F81438/F81439, UART Mode is don't care.
- ./set\_gpio ttyUSB3 0

### Examples 4. Read back current mode

- ./set\_mode ttyUSB3
- ./set\_gpio ttyUSB3

#### Examples 5. Change ttyUSB3 HW flow control DTR/DSR

- `./set_hwflow ttyUSB3 0`

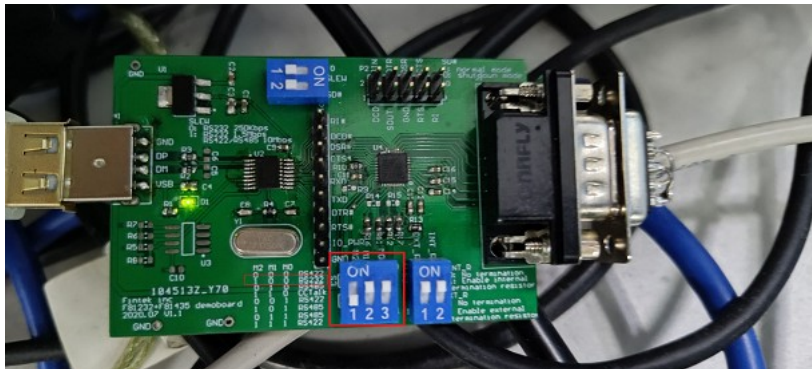
#### Examples 6. Change ttyUSB3 HW flow control RTS/CTS (default)

- `./set_hwflow ttyUSB3 1`

## 4.2 Using demo application (For F81232)

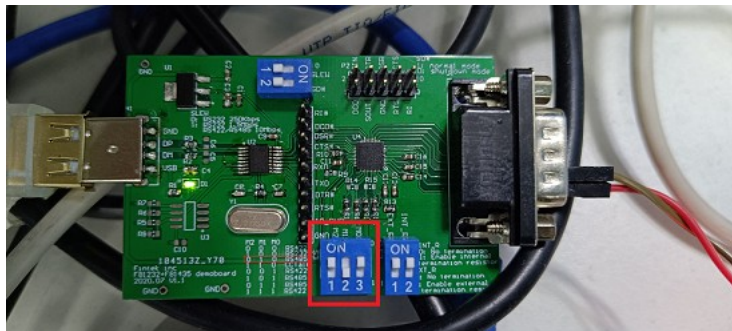
#### Examples 1. Change ttyUSB3 to RS232 Mode (Default mode)

- `./set_mode ttyUSB3 1`
- GPIO setting as following:



#### Examples 2. Change ttyUSB3 to RS485 Mode

- `./set_mode ttyUSB3 3`
- GPIO setting as following:



#### Examples 3. Change ttyUSB3 to RS422 Mode

- UART Mode is don't care.
- GPIO setting as following:

