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Function Description

This document is used to tell users about the use of generic fsk TX mode and there is a simple example in this document. Through this document, user can learn how to send data in generic fsk TX mode.

This document needs to be used with the generic fsk TX mode demo (gen_fsk_tx demo). The function of the generic fsk TX mode demo is to send data to receiver which in the generic fsk RX mode.

Platform

if you want to send data with the generic fsk TX mode, you need to configure the generic fsk TX mode environment as follows。

Hardware Platform

- Telink TLSR8258 EVK(C1T139A30_V1.2)
- Telink Burning EVK(V1.0.0.0)

Note: You need an external antenna to work normally.

Figure 1 Telink burning EVK

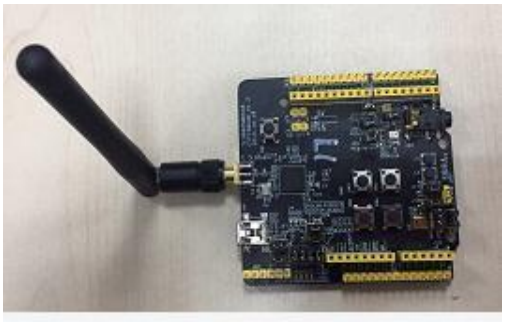

Figure 2 Telink TLSR8258 EVK

Software Platform

- Telink Burning and Debugging Tool
- generic fsk TX software (GEN_FSK_TX.bin)

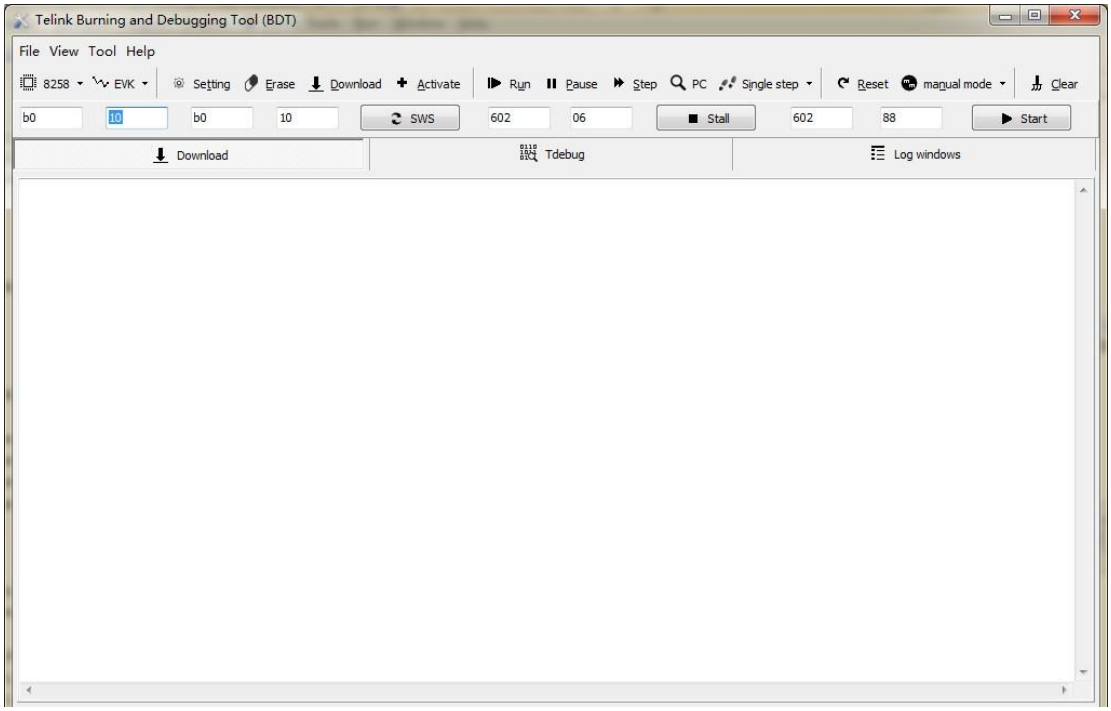

Figure 3 Telink Burning and Debugging Tool

Burning Step

Step1

Connect Telink Burning EVK and Telink TLSR8258 EVK with an usb cable, then connect with PC. Note： you also need connect Telink Burning EVK SWM pin and Telink TLSR8258 EVK SWS pin with a wire.

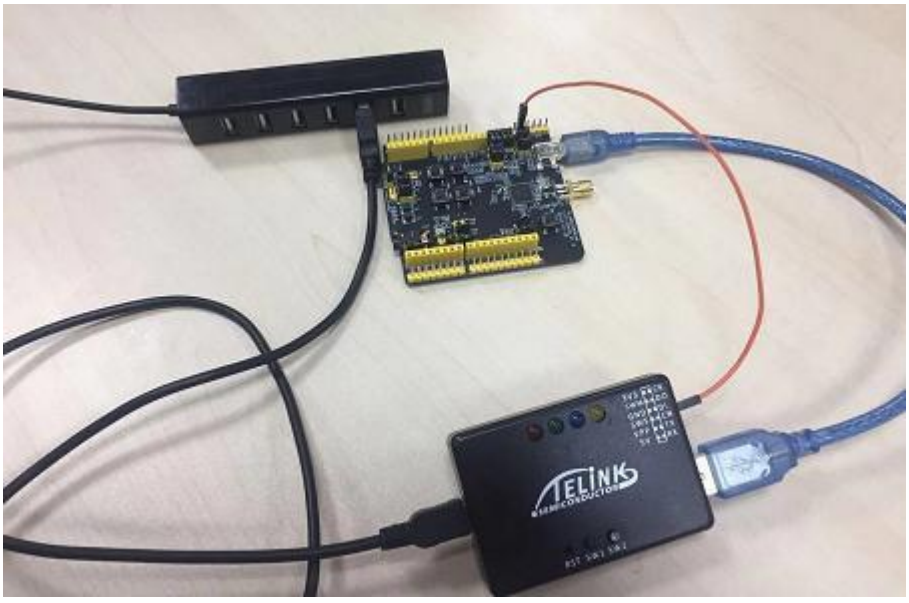

Figure 4 Connect way

Step2

Open Telink Burning and Debugging Tool (BDT) and select 8258 chip, then click on SWS. If BDT shows ‘’no evk device!’’, you should check whether the hardware connection is correct. If BDT shows “Swire ok!” that means hardware is ok.

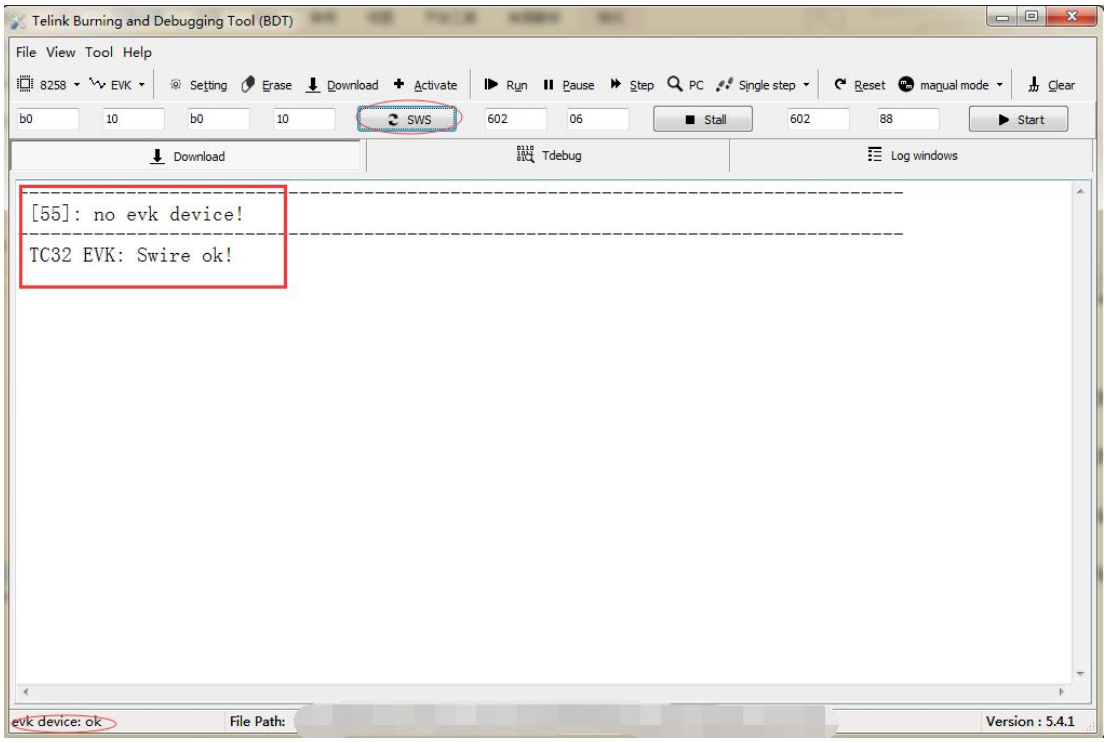

Figure 5 BDT information

step3

Burning the program to the 8258 TLSR8258 EVK. You should click on "file" button to select your target bin file, then click on “Download” button, it will show download information correctly. Whereas, if the BDT shows “Swire err!” check your hardware or click on "Active" button, it may solves your problem!

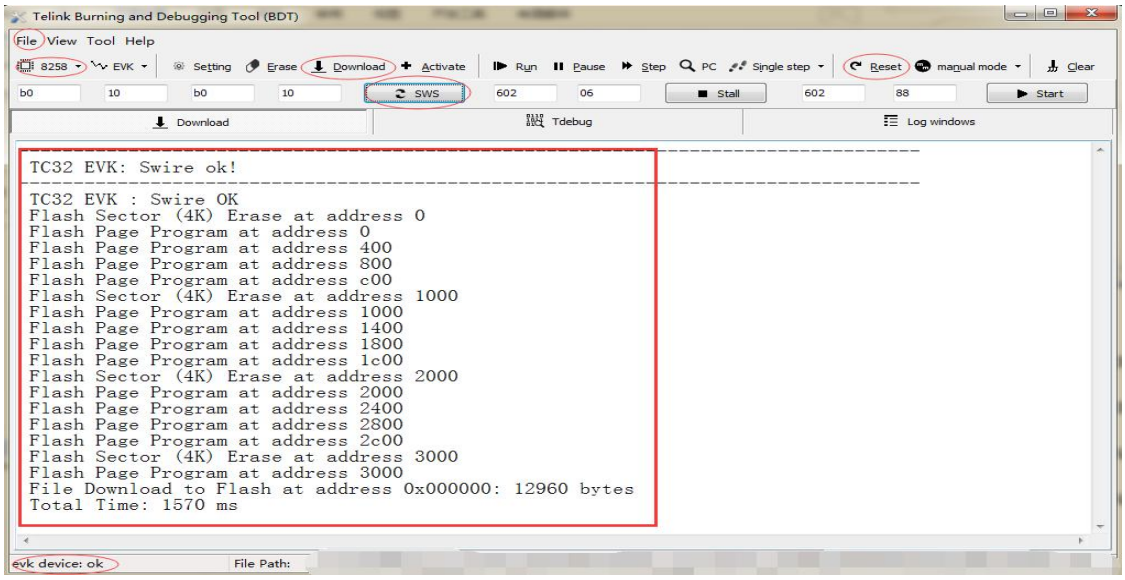

Figure 6 BDT information

Code Structure

System initialization

Include cpu initialization ,read calibration value, and clock initialization.

```
cpu_wakeup_init(LDO_MODE, EXTERNAL_XTAL_24M);

user_read_flash_value_calib();

clock_init(SYS_CLK_24M_Crystal);
```

RF configuration

You need to set the basic parameter of RF in generic fsk TX mode before you send the data.

```
//generic FSK Link Layer configuratioin
gen_fsk_datarate_set(GEN_FSK_DATARATE_2MBPS); //Note that this API must be invoked first before all other APIs
gen_fsk_preamble_len_set(4);
gen_fsk_sync_word_len_set(SYNC_WORD_LEN_4BYTE);
gen_fsk_sync_word_set(GEN_FSK_PIPE0, sync_word); //set pipe0's sync word
gen_fsk_pipe_open(GEN_FSK_PIPE0); //enable pipe0's reception
gen_fsk_tx_pipe_set(GEN_FSK_PIPE0); //set pipe0 as the TX pipe
gen_fsk_packet_format_set(GEN_FSK_PACKET_FORMAT_FIXED_PAYLOAD, sizeof(tx_payload));
gen_fsk_radio_power_set(GEN_FSK_RADIO_POWER_0DBM);
gen_fsk_channel_set(7); //set rf freq as 2403.5MHz
gen_fsk_radio_state_set(GEN_FSK_STATE_TX); //set transceiver to basic TX state
gen_fsk_tx_settle_set(149);
WaitUs(130); //wait for tx settle
```

API *gen_fsk_datarate_set* is used for setting RF data rate, we provide 4 bitrate options, 2Mbps, 1Mbps, 500kbps, and 250kbpps.

API *gen_fsk_preamble_len_set* is used for setting preamble length, the length of preamble is set to range from 1 to 16 bytes.

API gen_fsk_sync_word_len_set is used for setting the length of synchronization word, you can set it at the range from 3 to 5 bytes.

API gen_fsk_sync_word_set is used for setting address and pipe.

API gen_fsk_packet_format_set is used for setting the packet format of on-air data.

API gen_fsk_channel_set is used for setting RF channel, notice that the unit of channel is 500kHz.

API gen_fsk_radio_state_set is used for setting the generic fsk mode, you can choose generic fsk TX mode or generic fsk RX mode.

Other APIs are used to set up the RF basic configuration. Note: This version of 8258 only has pipe0.

Generic fsk TX mode packet setting

Once the RF initialization is complete, you can send data with API *gen_fsk_tx_start*.

```
gen_fsk_tx_start(tx_buffer); //start the Radio transmission
```

Result analysis

If the data is sent successfully, LED D2 will start blinking per 500ms.

To get some information when system running, you can debug with BDT.

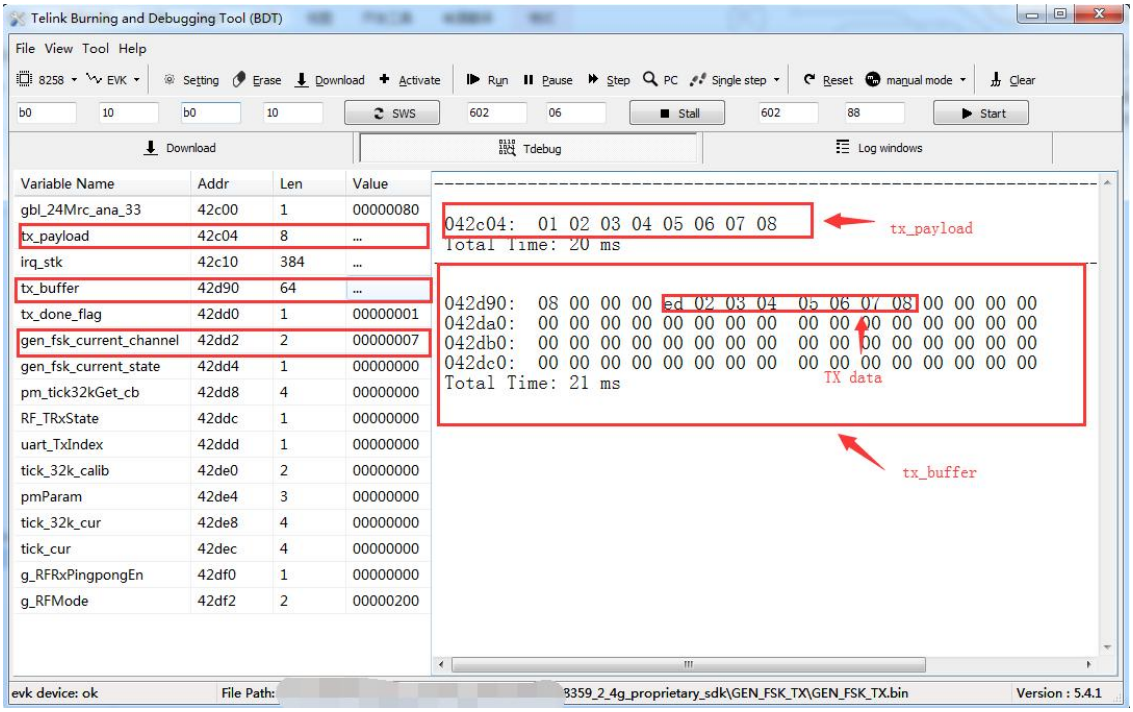

Figure 7 generic fsk tx demo debug information

From Figure 7, you can know what data you have sent, and what the RF channel you have set is.