

**GigaDevice Semiconductor Inc.**

**GD32F310F-START**  
**Arm® Cortex®-M4 32-bit MCU**

**User Guide**

Revision 1.0

(Mar. 2022)

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## 1. Summary

GD32F310F-START uses GD32F310F8P6 as the main controller. It uses Mini USB interface to supply 5V power. Reset, Boot, User key, LED, GD-Link are also included. For more details please refer to GD32F310F-START-V1.0 schematic.

## 2. Function Pin Assign

Table 2-1. Function pin assignment

Function	Pin	Description
LED	PA1	LED1
LED	PA2	LED2
RESET		K2-Reset
KEY	PA0	K1-User Key

## 3. Getting started

The EVAL board uses Mini USB connector to get power DC +5V, which is the hardware system normal work voltage. A GD-Link on board is necessary in order to download and debug programs. Select the correct boot mode and then power on, the LEDPWR will turn on, which indicates that the power supply is OK.

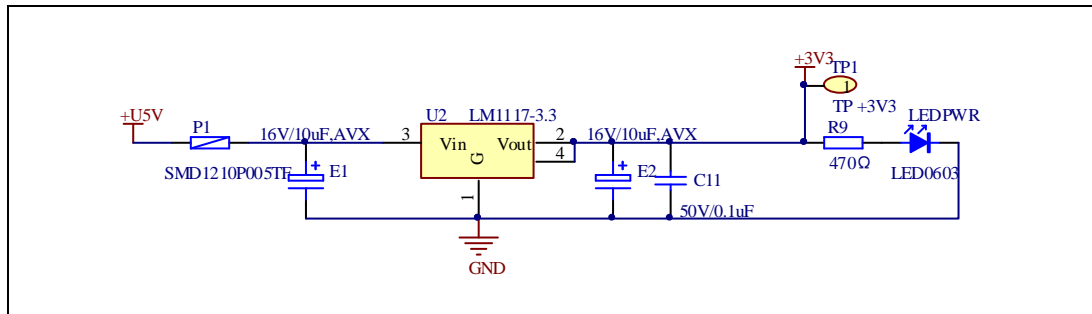
There are Keil version and IAR version of all projects. Keil version of the projects are created based on Keil MDK-ARM 4.74 uVision4. IAR version of the projects are created based on IAR Embedded Workbench for ARM 7.40.2. During use, the following points should be noted:

1. If you use Keil uVision4 to open the project. In order to solve the "Device Missing (s)" problem, you can install GigaDevice.GD32F3x0\_DFP.3.0.0.pack.
2. If you use IAR to open the project, install IAR\_GD32F3x0\_ADDON\_3.0.0.exe to load the associated files.

## 4. Hardware layout overview

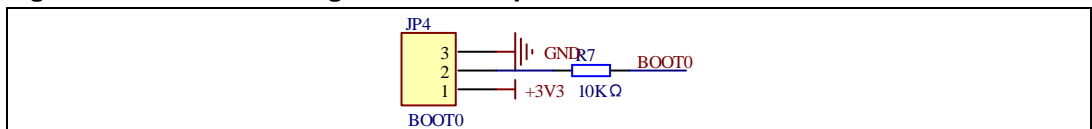
### 4.1. Power supply

Figure 4-1. Schematic diagram of power supply



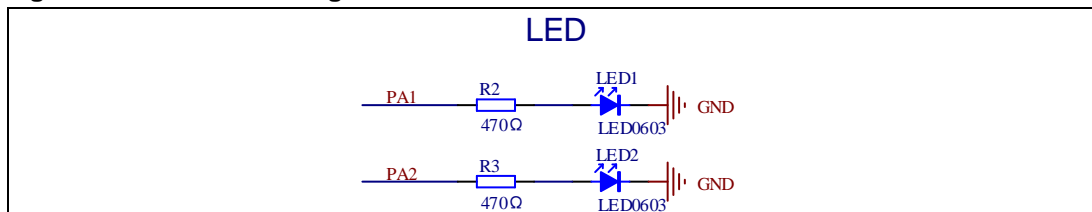
### 4.2. Boot option

Figure 4-2. Schematic diagram of boot option



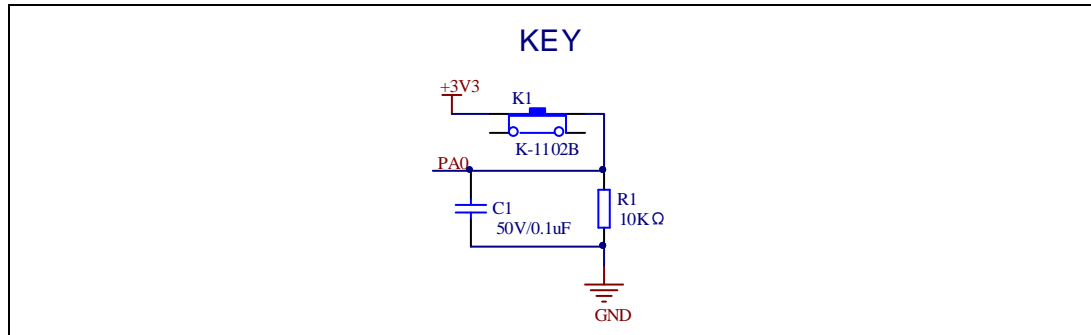
### 4.3. LED

Figure 4-3. Schematic diagram of LED function



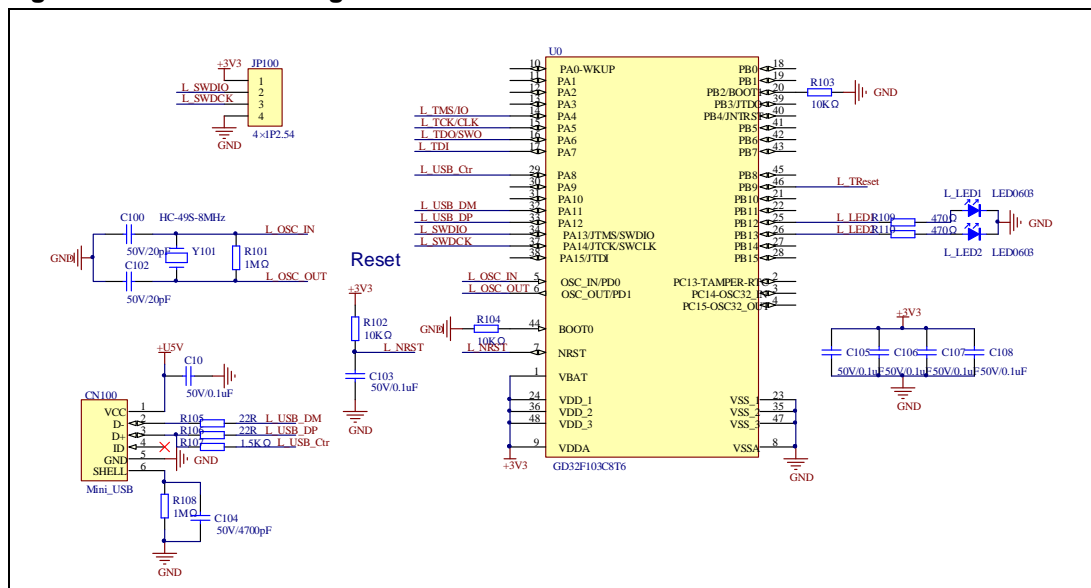
## 4.4. KEY

Figure 4-4. Schematic diagram of Key function



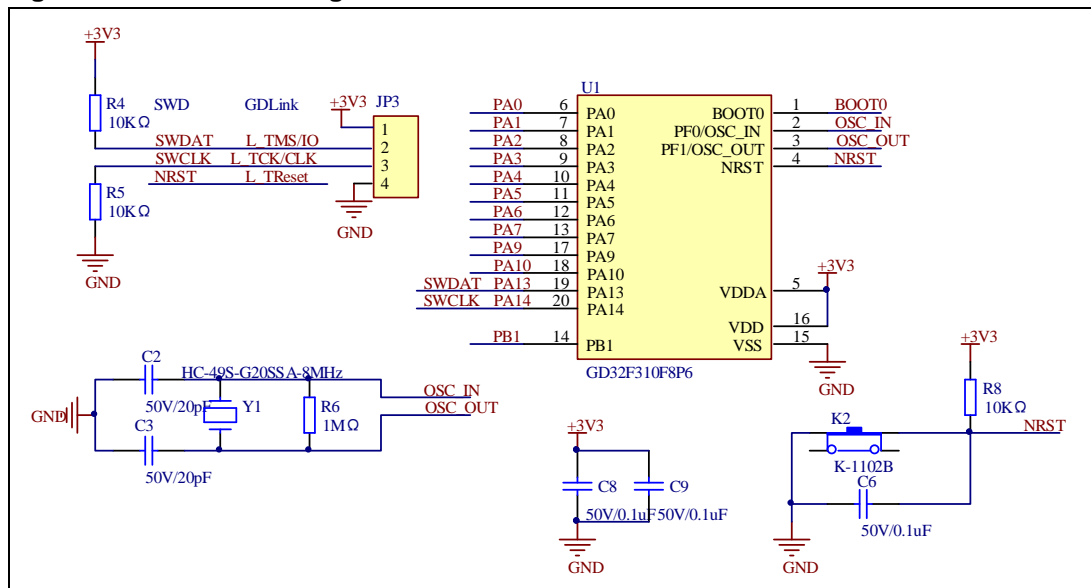
## 4.5. GD-Link

Figure 4-5. Schematic diagram of GD-Link



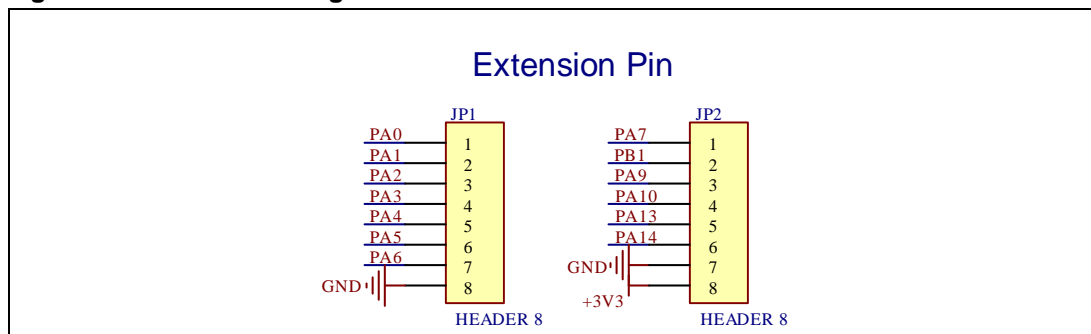
## 4.6. MCU

Figure 4-6. Schematic diagram of MCU



## 4.7. Extension

Figure 4-7. Schematic diagram of Arduino





## 5. Routine use guide

### 5.1. GPIO\_Running\_LED

#### 5.1.1. DEMO purpose

This demo includes the following functions of GD32 MCU:

- Learn to use GPIO control the LED
- Learn to use SysTick to generate 1ms delay

GD32F310F-START board has two LEDs. The LEDs are controlled by GPIO. This demo will show how to light the LEDs.

#### 5.1.2. DEMO running result

Download the program <01\_GPIO\_Running\_LED> to the EVAL board, LED1 and LED2 will turn on and off in sequence with interval of 1s, repeat the process.

### 5.2. GPIO\_Key\_Polling\_mode

#### 5.2.1. DEMO purpose

This demo includes the following functions of GD32 MCU:

- Learn to use GPIO control the LED and the KEY
- Learn to use SysTick to generate 1ms delay

GD32F310F-START board has two keys and two LEDs. The two keys are Reset key and User key. The LEDs are controlled by GPIO.

This demo will show how to use the User key to control the LED1. When press down the User Key, it will check the input value of the IO port. If the value is 1 and will wait for 50ms. Check the input value of the IO port again. If the value still is 1, it indicates that the button is pressed successfully and toggle LED1.

#### 5.2.2. DEMO running result

Download the program <02\_GPIO\_Key\_Polling\_mode> to the EVAL board, all the LEDs are flashed once for test and LED1 and LED2 are on, press down the User Key, LED1 will be turned off. Press down the User Key again, LED1 will be turned on.

## 5.3. EXTI\_Key\_Interrupt\_mode

### 5.3.1. DEMO purpose

This demo includes the following functions of GD32 MCU:

- Learn to use GPIO control the LED and the KEY
- Learn to use EXTI to generate external interrupt

GD32F310F-START board has two keys and two LEDs. The two keys are Reset key and User key. The LEDs are controlled by GPIO.

This demo will show how to use the EXTI interrupt line to control the LED1. When press down the User Key, it will produce an interrupt. In the interrupt service function, the demo will toggle LED1.

### 5.3.2. DEMO running result

Download the program <03\_EXTI\_Key\_Interrupt\_mode> to the EVAL board, all the LEDs are flashed once for test and LED1 and LED2 are on, press down the User Key, LED1 will be turned off. Press down the User Key again, LED1 will be turned on.

## 5.4. TIMER\_Key\_EXTI

### 5.4.1. DEMO purpose

This demo includes the following functions of GD32 MCU:

- Learn to use GPIO control the LED and the KEY
- Learn to use EXTI to generate external interrupt
- Learn to use TIMER to generate PWM

GD32F310F-START board has two keys and two LEDs. The two keys are Reset key and User key. The LEDs are controlled by GPIO.

This demo will show how to use the User Key and TIMER PWM to trigger EXTI interrupt line to toggle the state of LEDs. When press down the User Key, it will produce an interrupt. In the corresponding interrupt service function, the demo will toggle LED1. When connect PA6(TIMER2\_CH0) and PA4 with DuPont line, EXTI interrupt occurs on the falling edge of the PWM signal. In the corresponding interrupt service function, the demo will toggle LED2.

### 5.4.2. DEMO running result

Download the program <04\_TIMER\_Key\_EXTI> to the EVAL board, all the LEDs are

flashed once for test, press down the User Key, LED1 will be turned on. Press down the User Key again, LED1 will be turned off. Connect PA6(TIMER2\_CH0) and PA4 with DuPont line. The LED2 will be toggled every 500ms.

## 6. Revision history

Table 6-1. Revision history

Revision No.	Description	Date
1.0	Initial Release	Mar.06, 2022

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