

**GigaDevice Semiconductor Inc.**

**GDSCN832R-EVAL**

## **User Guide**

Revision 1.1

(Jul. 2025)

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## 1. Summary

GDSCN832R-EVAL uses GDSCN832xx as the main device. It uses DC-005 connector to supply 5V power. EXMC, SPI, OSPI, Digital IO and Extension Pins are also included. For more details please refer to GDSCN832R-EVAL-V1.1 and GD32H759I-ESC-EVAL-V1.0 schematic.

## 2. Function pin assignment

**Table 2-1 Function pin assignment**

Function	Pin	Description
SPI	SCK	SPI GPIO Function pin
	SCS	
	SIO0	
	SIO1	
OSPI	SCK	OSPI GPIO Function pin
	SCS	
	SIO0	
	SIO1	
	SIO2	
	SIO3	
	SIO4	
	SIO5	
	SIO6	
	SIO7	
EXMC	EXMC_NOE	EXMC GPIO Function pin
	EXMC_NWE	
	EXMC_NE	
	EXMC_NWAIT	
	EXMC_CLK	
	EXMC_NL/NADV	
	AD0	
	AD1	
	AD2	
	AD3	
	AD4	
	AD5	
	AD6	
	AD7	
	AD8	
	AD9	
	AD10	

	AD11	
	AD12	
	AD13	
	AD14	
	AD15	
Digital IO	LATCH_IN	Digital IO GPIO Function pin
	WD_STATE	
	WD_TRIG	
	OE_EXT	
	EOF	
	SOF	
	GPIO0	
	GPIO1	
	GPIO2	
	GPIO3	
	GPIO4	
	GPIO5	
	GPIO6	
	GPIO7	
	GPIO8	
	GPIO9	
	GPIO10	
	GPIO11	
	GPIO12	
	GPIO13	
	GPIO14	
	GPIO15	
IRQ	IRQ	IRQ(SPI/OSPI/EXMC)
LATCH0	LATCH0	LATCH0(SPI/OSPI/EXMC)
LATCH1	LATCH1	LATCH1(SPI/OSPI/EXMC)
GDETHC_NRST	RSTN	RSTN

### 3. Getting started

The EVAL board uses DC-005 connector to get power DC +5V.

Power supply to the chip through JP1. To download programs to the GD32H7xx series chips, you need a J-Link or use the GD-Link tool. After selecting the correct startup mode and powering up, the LEDPWR will turn on, which indicates that the power supply is OK.

There are Keil version of all projects. Keil version of the projects are created based on Keil MDK-ARM 5.28 uVision5. During use, the following points should be noted:

1. If you use Keil uVision5 to open the project, install the GigaDevice.GD32H7xx\_DFP.1.2.0.pack to load the associated files.

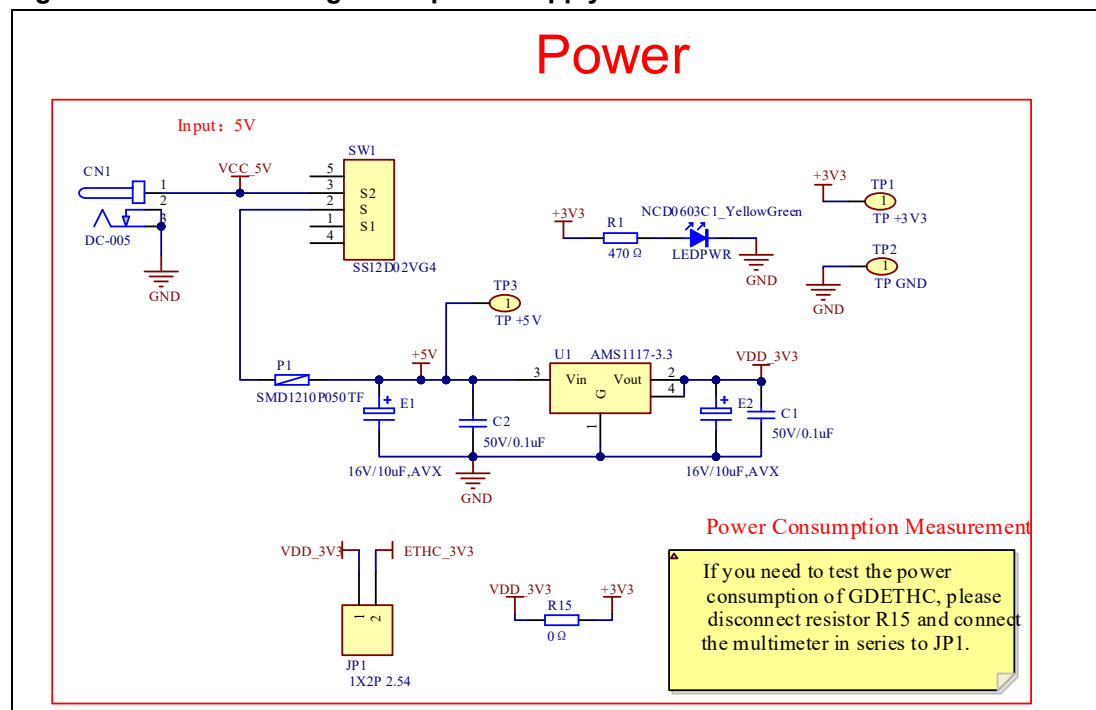
2. Before using the EVAL board, please ensure that the corresponding configuration file has been downloaded to the EEPROM on the development board. If the relevant configuration file has not been updated, please refer to the EEPROM update section in Document AN246 to update the relevant XML file.

## 4. Hardware layout overview

## 4.1. GDSCN832R-EVAL-V1.1

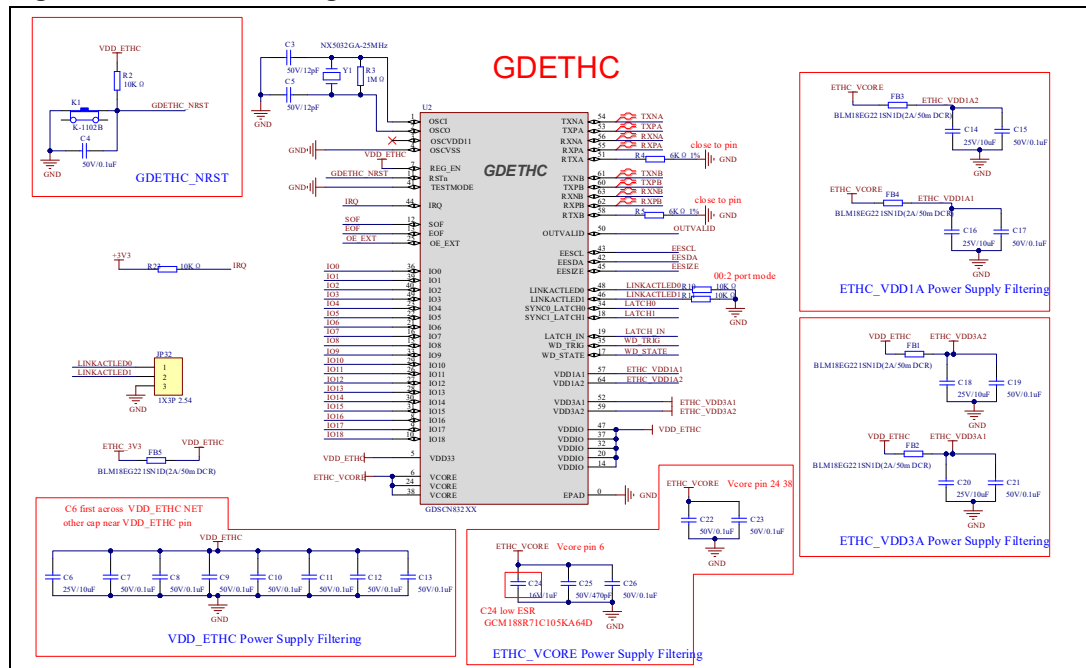
#### 4.1.1. Power supply

**Figure 4-1 Schematic diagram of power supply**



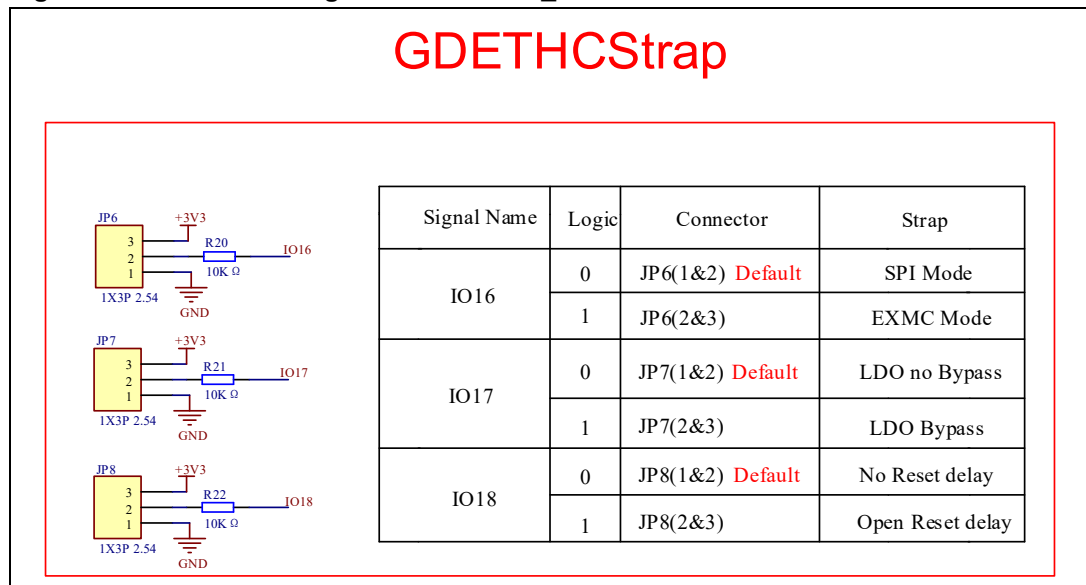
### 4.1.2. GDETHC

Figure 4-2 Schematic diagram of GDETHC function



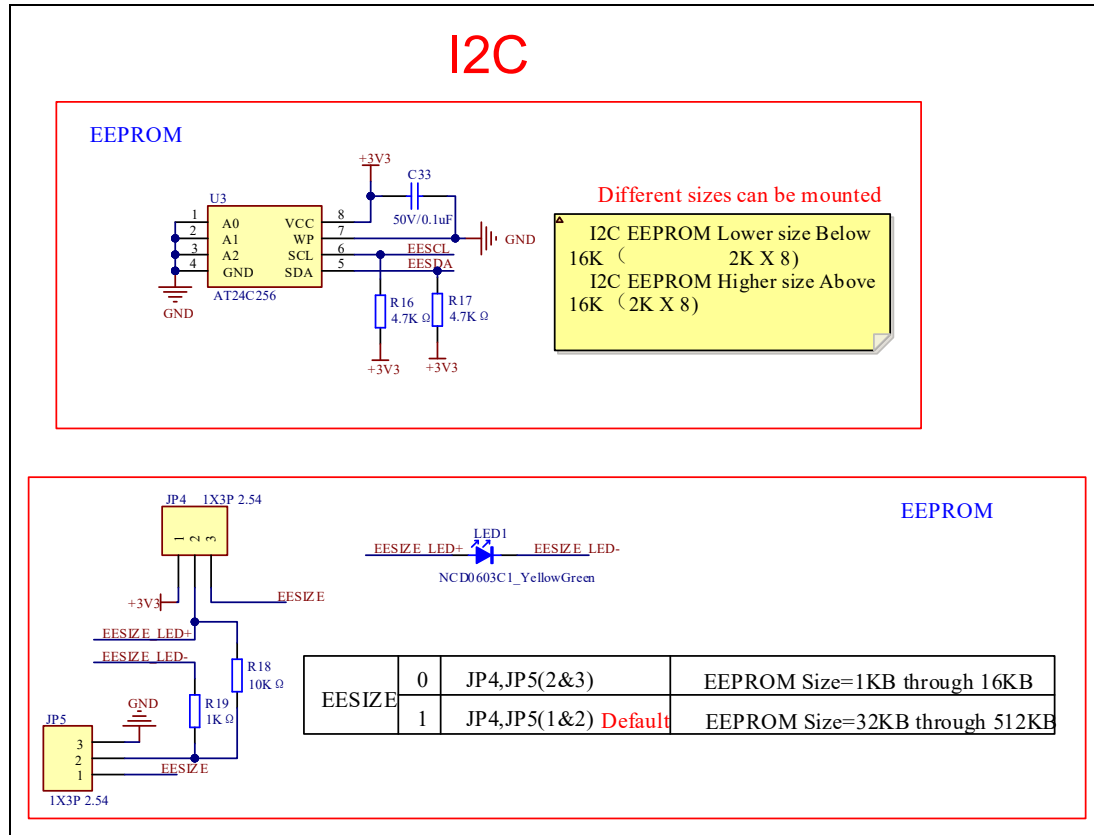
### 4.1.3. GDEHC\_STRAP

Figure 4-3 Schematic diagram of GDETHC\_STRAP function



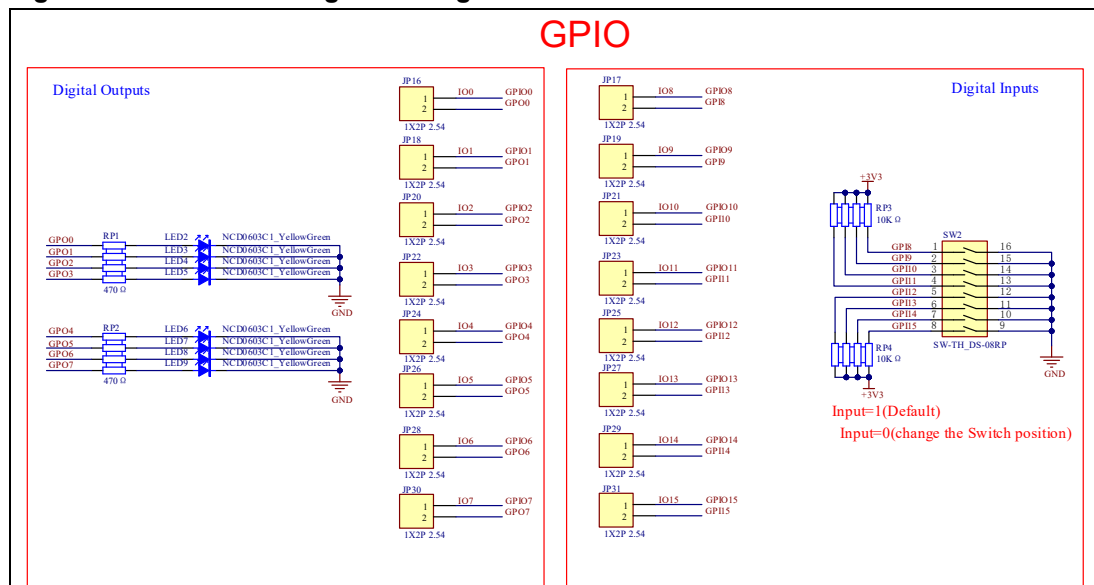
#### 4.1.4. I2C EEPROM

Figure 4-4 Schematic diagram of I2C EEPROM function



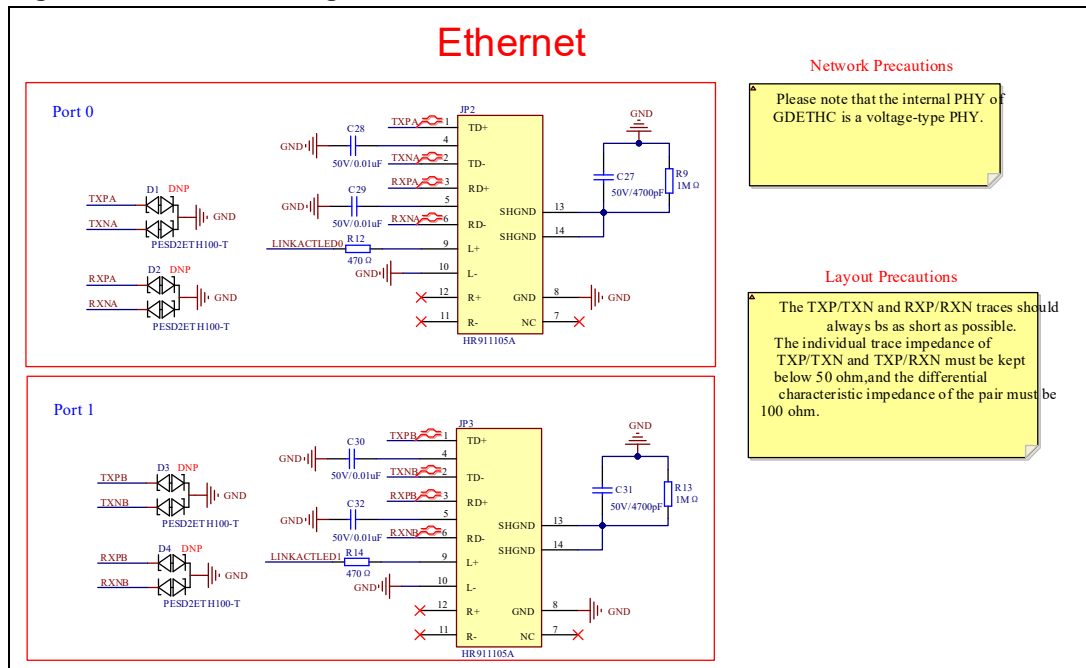
#### 4.1.5. Digital IO

Figure 4-5 Schematic diagram of Digital IO function



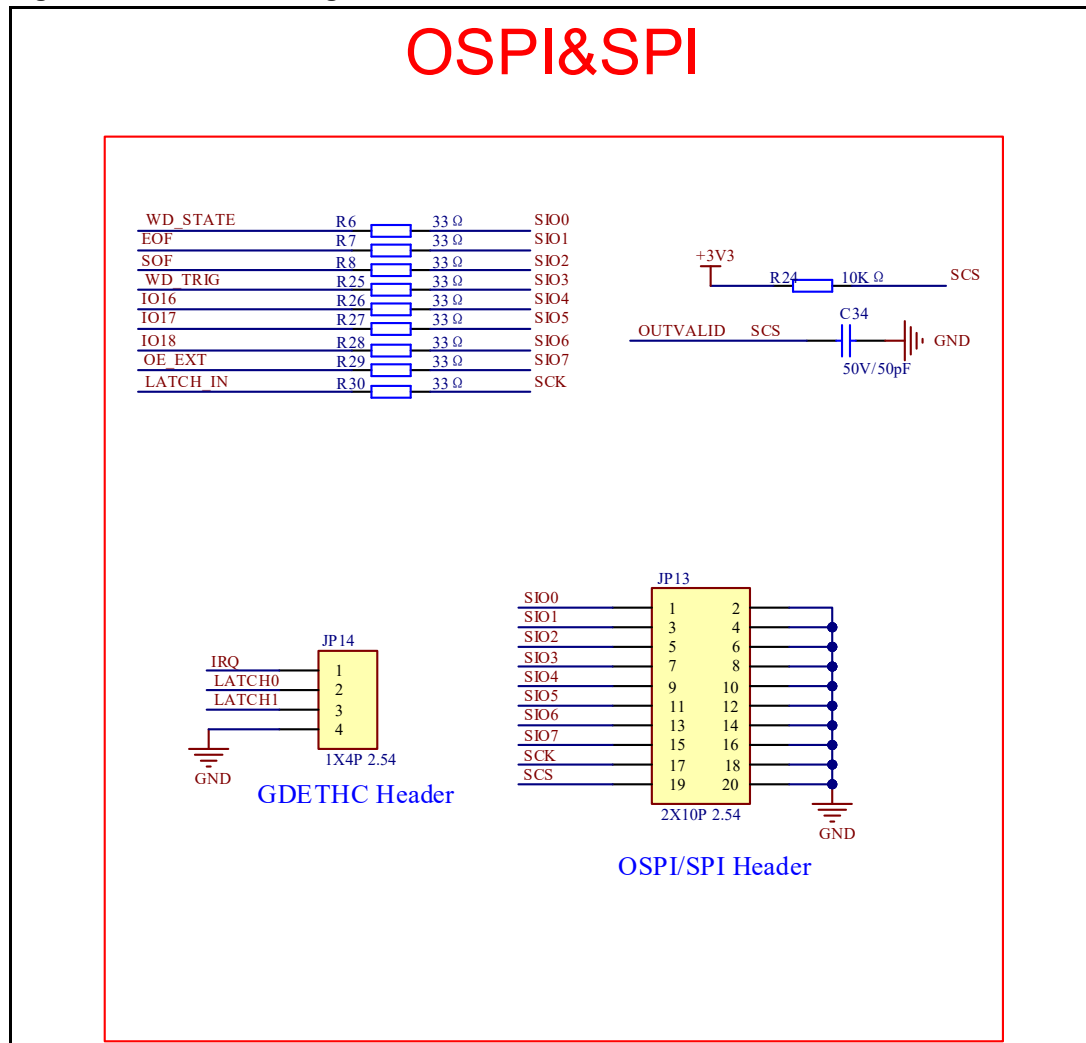
## 4.1.6. Ethernet

Figure 4-6 Schematic diagram of Ethernet function



#### 4.1.7. SPI+OSPI

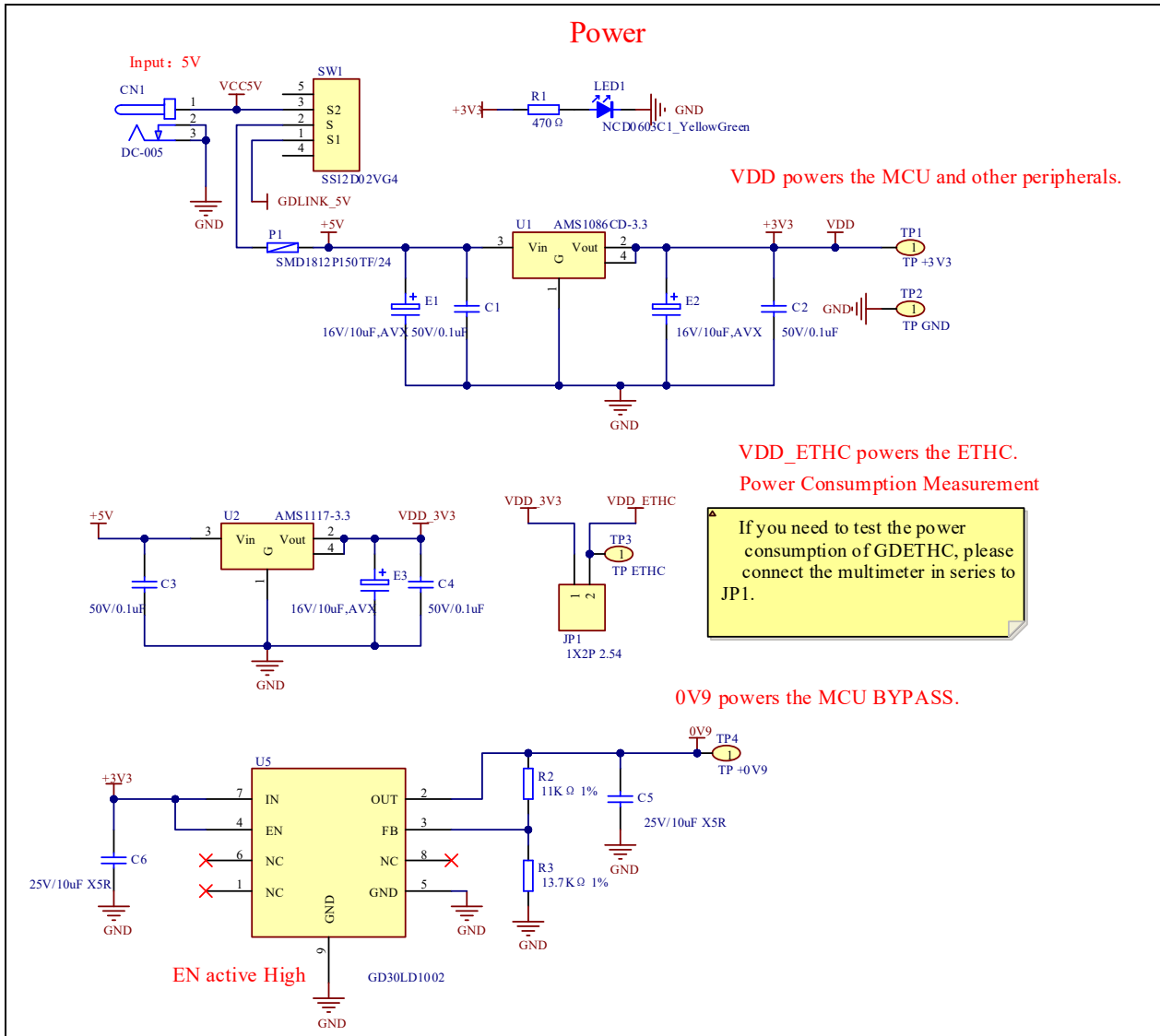
Figure 4-7 Schematic diagram of SPI+OSPI



## 4.2. GD32H759I-ESC-EVAL-V1.0

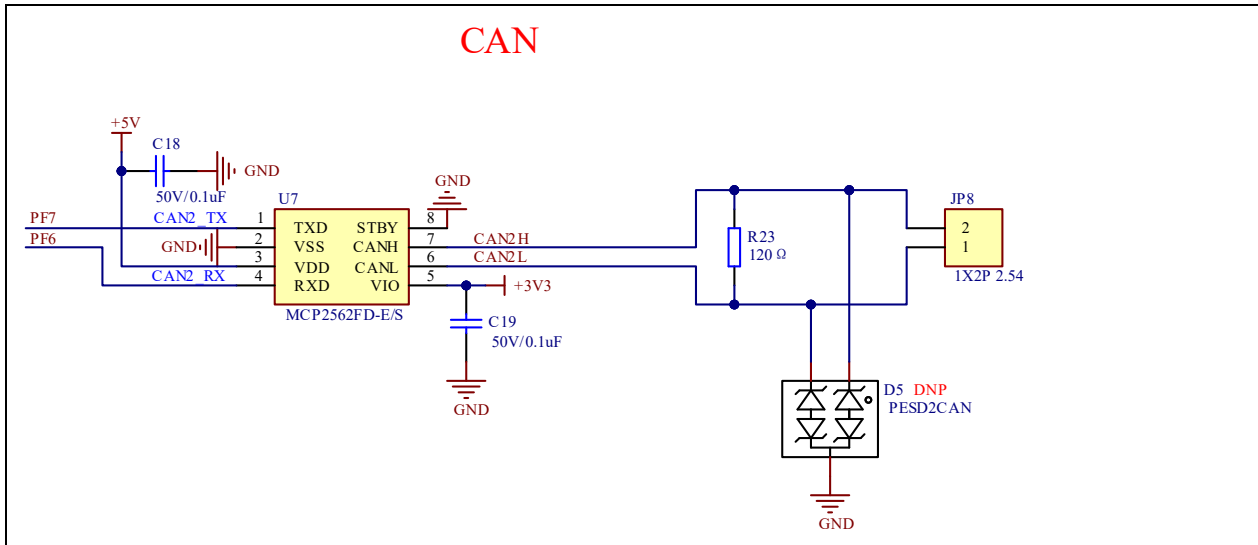
### 4.2.1. Power supply

Figure 4-8 Schematic diagram of power supply



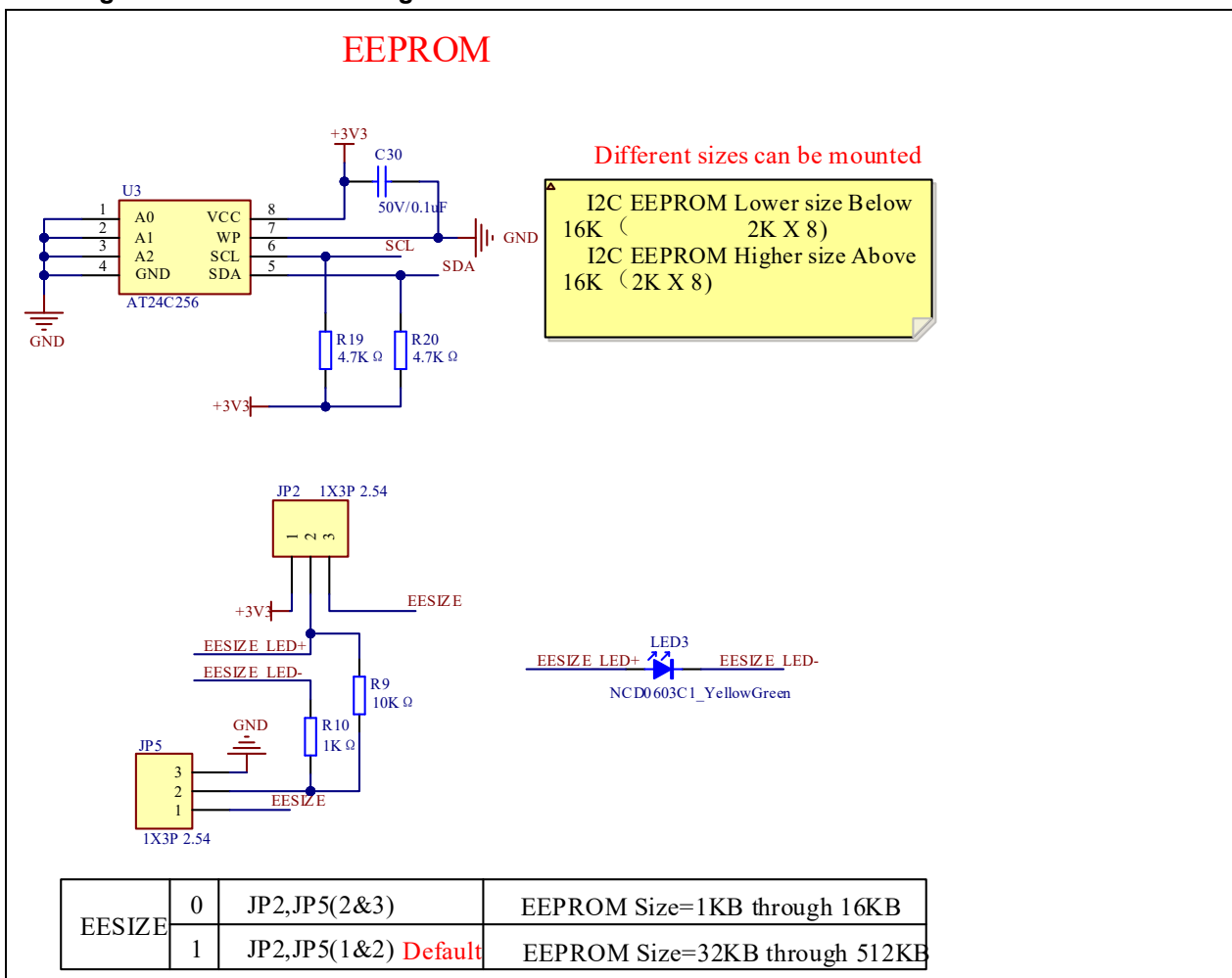
## 4.2.2. CAN

Figure 4-9 Schematic diagram of CAN



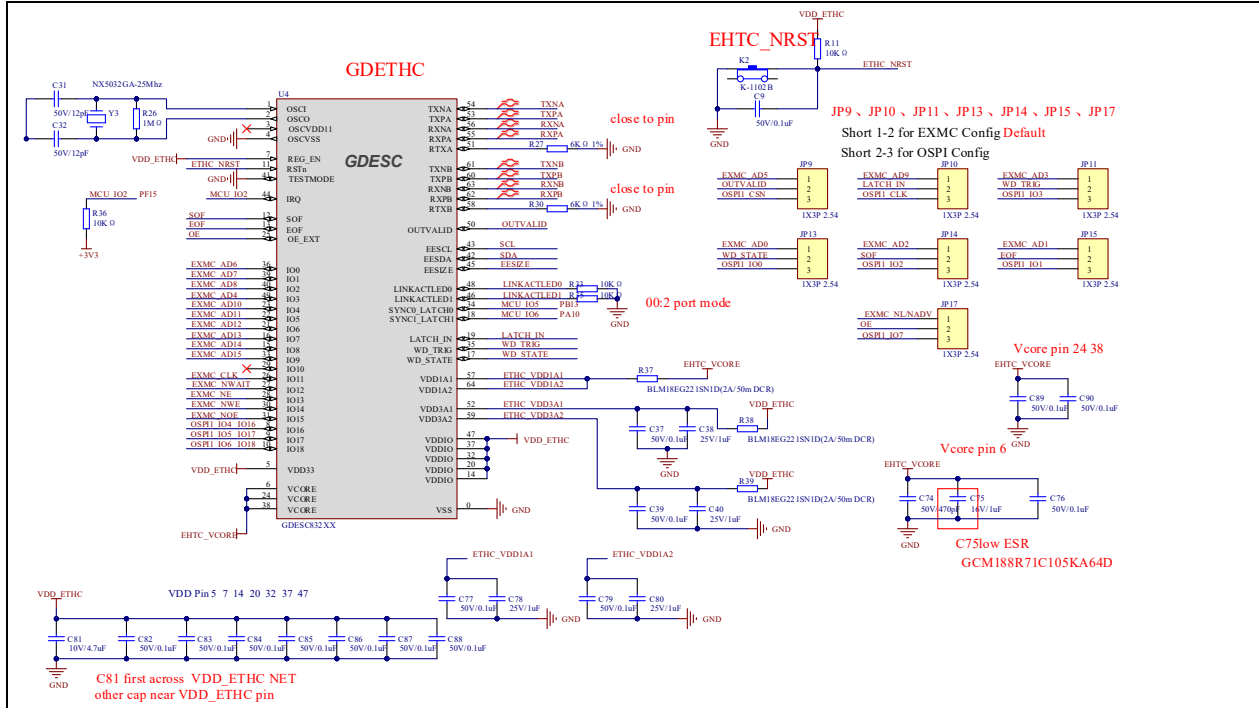
## 4.2.3. I2C EEPROM

Figure 4-10 Schematic diagram of I2C EEPROM



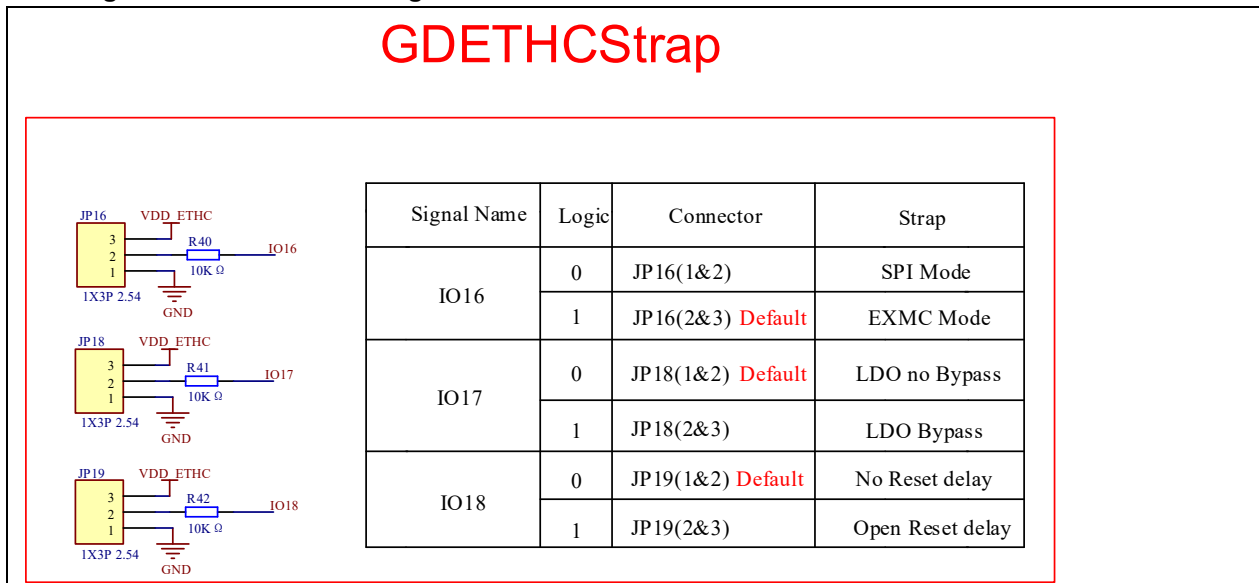
#### 4.2.4. GDETHC

Figure 4-11 Schematic diagram of GDETHC



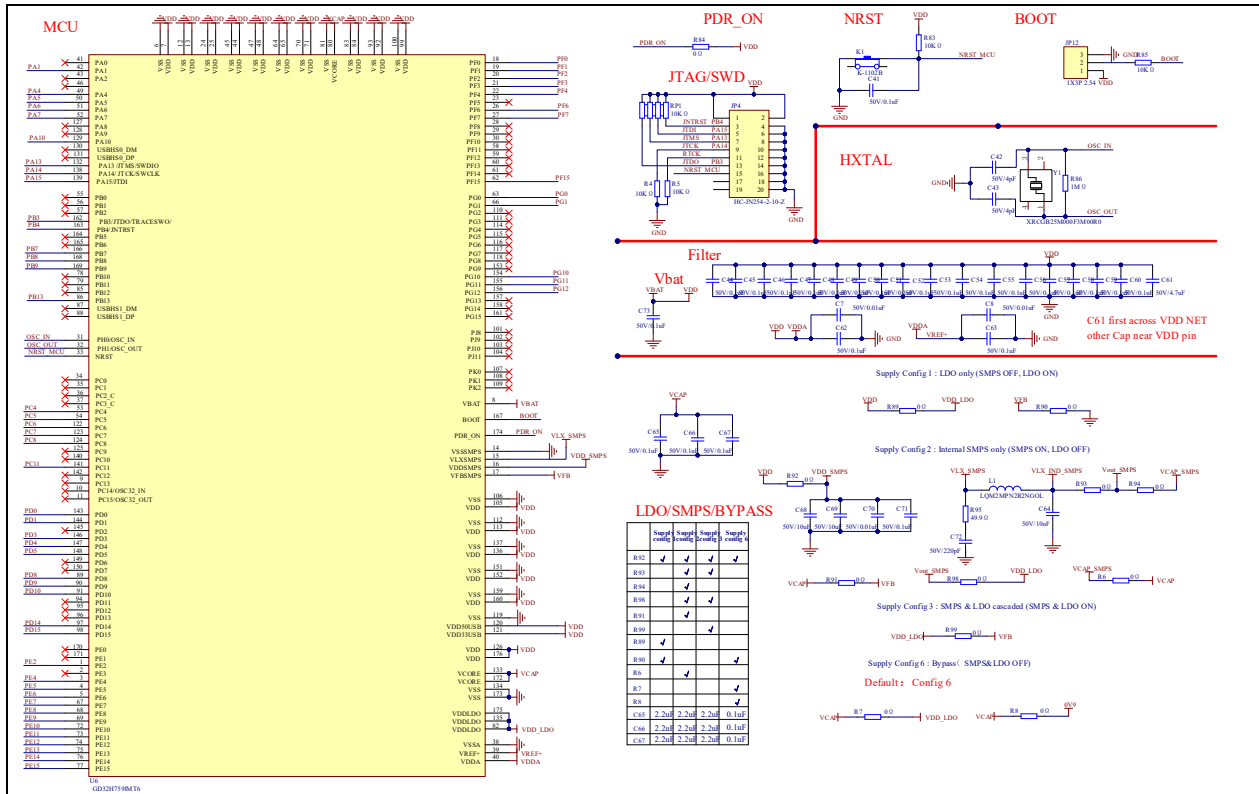
#### 4.2.5. GDETHC STRAP

Figure 4-12 Schematic diagram of GDETHC STRAP



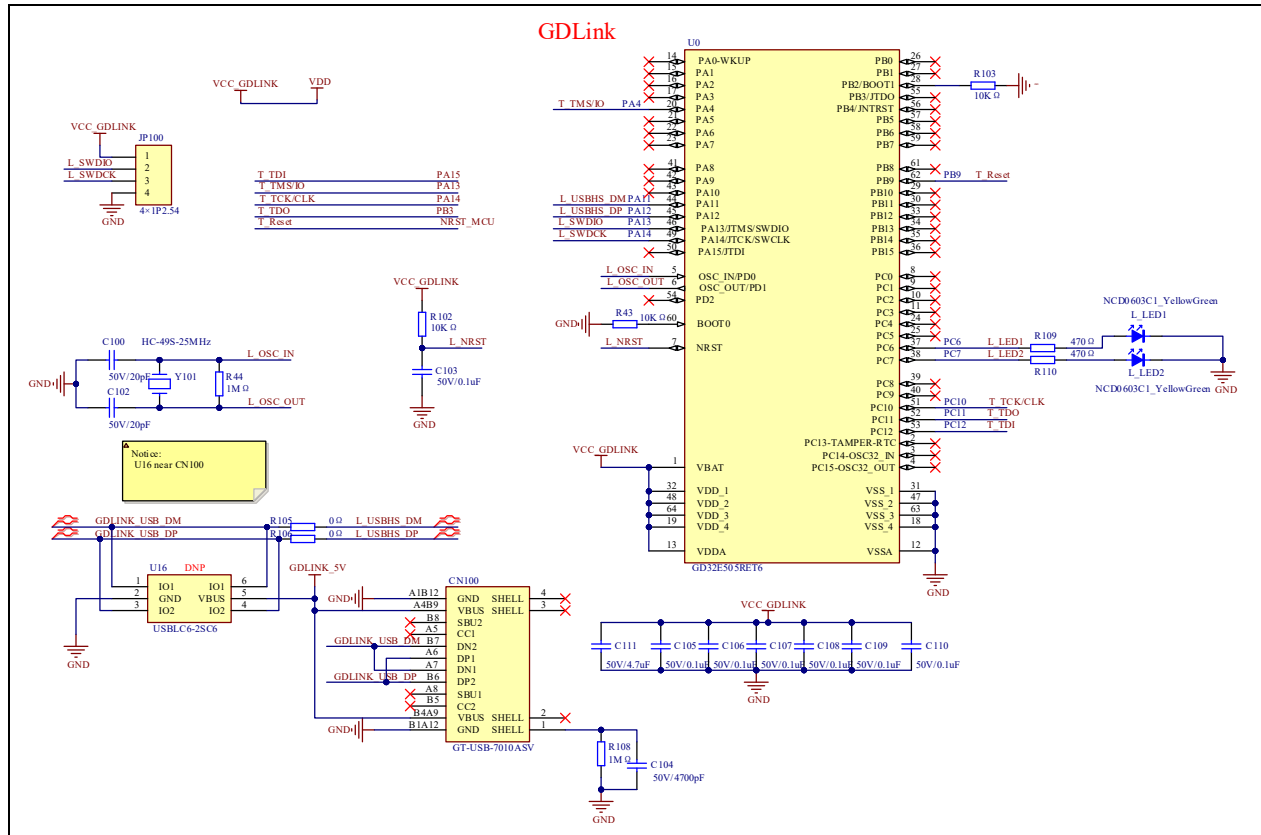
## 4.2.6. MCU

Figure 4-13 Schematic diagram of MCU



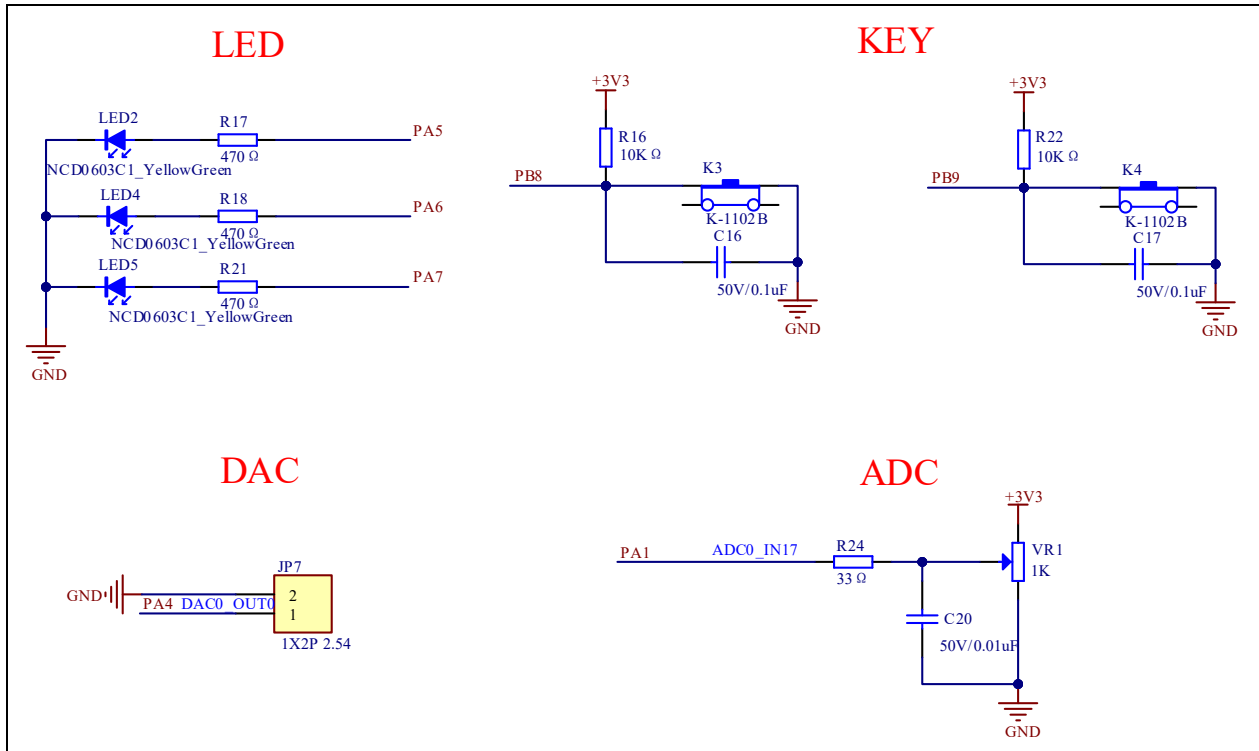
## 4.2.7. GD-Link

Figure 4-14 Schematic diagram of GD-Link



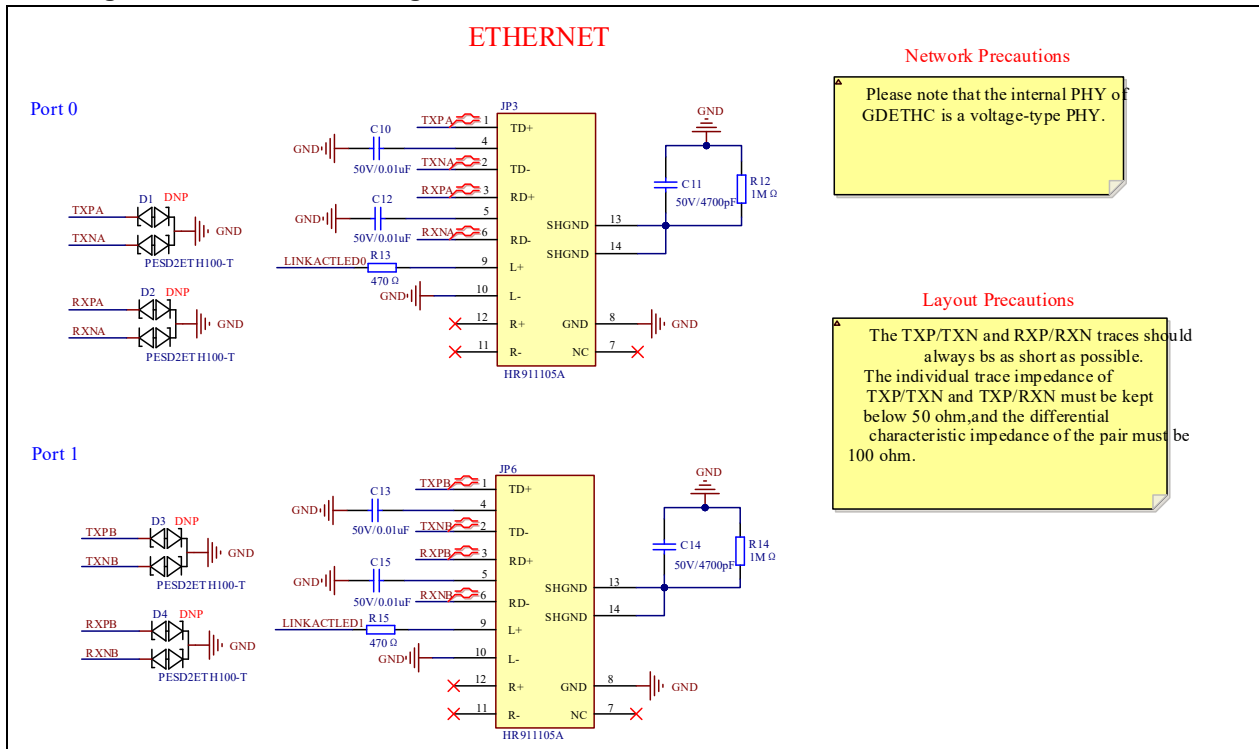
## 4.2.8. Extension

Figure 4-15 Schematic diagram of power supply



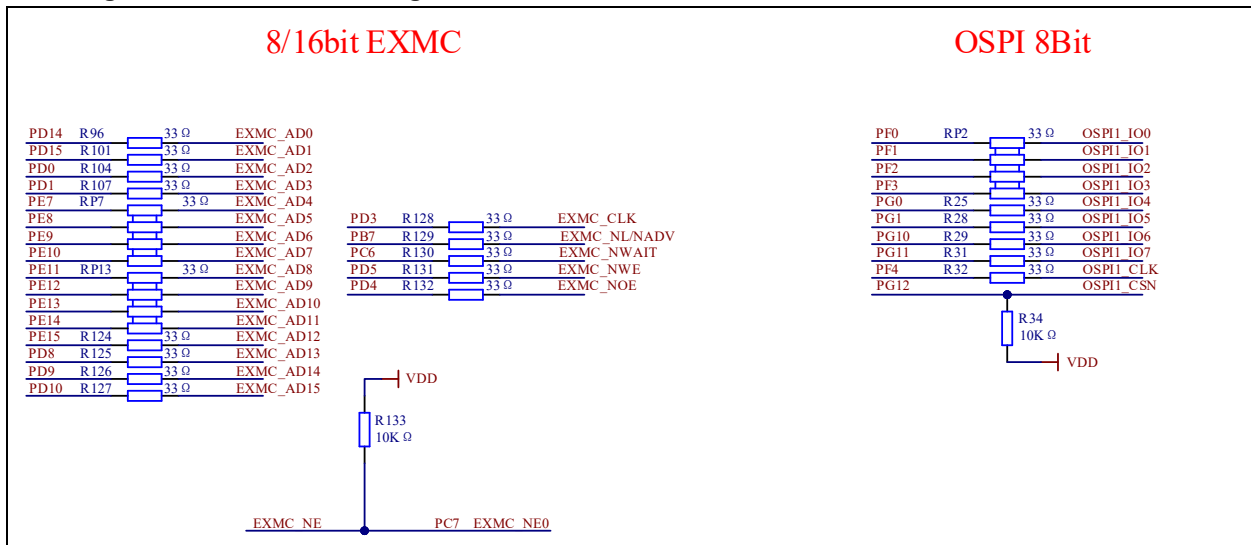
## 4.2.9. Ethernet

Figure 4-16 Schematic diagram of Ethernet



## 4.2.10. EXMC+OSPI

Figure 4-17 Schematic diagram of EXMC&OSPI



## 5. Routine use guide

### 5.1. EtherCAT\_IO\_SPI

#### 5.1.1. DEMO purpose

This demo includes the following functions of GDSCN832R:

- Learn to use the SPI interface in PDI for ESC communication.

#### 5.1.2. DEMO running result

Use jumper caps JP9 and JP10 to bridge SCS and GPIO3, and confirm that the jumper caps JP4 and JP5 on the EVAL board are bridged to the 1 side, and JP6, JP7, and JP8 are bridged to the L side. Download the program <01\_EtherCAT\_IO\_SPI> to the GD32H7xx series chip, connect an Ethernet cable to Port0 on the EVAL board, use the main station TwinCAT software to scan the subdevice station, and observe that LED1 on the EVAL board becomes solid, indicating that the EtherCAT state machine has switched to the OP state and is working normally.

### 5.2. EtherCAT\_IO\_OSPI

#### 5.2.1. DEMO purpose

This demo includes the following functions of GDSCN832R:

- Learn to use the OSPI interface in PDI for ESC communication.

#### 5.2.2. DEMO running result

This routine uses the GD32H759I-ESC\_V1.0 development board. Set jumpers JP9, JP10, JP11, JP12, JP13, JP14, JP15, and JP16 to the OSPI side. Ensure that jumpers JP2 and JP5 on the EVAL board are set to side 1, JP18 and JP19 are set to side L, and JP1 is shorted using a jumper cap. Download the program <02\_EtherCAT\_IO\_OSPI> to the GD32H759I chip on the EVAL board. Connect the Ethernet cable to Port0 on the EVAL board, use the TwinCAT main station software to scan the subdevice station, and observe that LED3 on the EVAL board turns solid on, indicating that the EtherCAT state machine has switched to OP state and is functioning normally.

## 5.3. EtherCAT\_IO\_EXMC

### 5.3.1. DEMO purpose

This demo includes the following functions of GDSCN832R:

- Learn to use the EXMC interface in PDI for ESC communication.

### 5.3.2. DEMO running result

This routine uses the GD32H759I-ESC\_V1.0 development board. Set jumpers JP9, JP10, JP11, JP12, JP13, JP14, JP15, and JP16 to the EXMC side. Ensure that jumpers JP2 and JP5 on the EVAL board are set to side 1, JP18 and JP19 are set to side L, and JP1 is shorted using a jumper cap. Download the program <03\_EtherCAT\_IO\_EXMC> to the GD32H759I chip on the EVAL board. Connect the Ethernet cable to Port0 on the EVAL board, use the TwinCAT main station software to scan the subdevice station, and observe that LED3 on the EVAL board turns solid on, indicating that the EtherCAT state machine has switched to OP state and is functioning normally.

## 6. Revision history

**Table 6-1 Revision history**

Revision No.	Description	Date
1.0	Initial Release	Nov.29, 2024
1.1	1. Modify the jumper connection description for SPI. 2. Add OSPI & EXMC DEMO description	Jul.31.2025

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