

# MYD-Y6ULX Product Manual

Version 1.1

25-Apr-2018

## Version History

Version	Description	DATE
V1.0	Initial version	08-Nov-2017
V1.1	Change RTC the power consumption	25-Apr-2018

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# 1.Product Abstract

The MYD-Y6ULX Development Board is a complete evaluation platform for NXP's i.MX 6UL/6ULL processor which features the most efficient ARM Cortex-A7 core. Each processor in this family provides various memory interfaces, including 16-bit LPDDR2, DDR3, DDR3L, raw and managed NAND flash, NOR flash, eMMC, Quad SPI and a wide range of other interfaces for connecting peripherals. The MYD-Y6ULX development boards are consisted of a CPU module MYC-Y6ULX and a base board MYB-Y6ULX. It is designed to be a complete design reference for embedded developing on the i.MX 6UL/6ULL processor and designs based on MYC-Y6ULX CPU Module.



Figure 1.1 MYD-Y6ULX Development Board

MYD-Y6ULX development board integrated LTE module, WIFI module, LCD interface, camera interface, dual Ethernet and many other peripherals. It provides rich development resources for Industry / Internet of things gateway (IOT Gateway), DTU, HMI and so on.

MYD-Y6ULX development board provides peripheral driver support for Linux 4.1.15 operating system. MYiR provides rich software resources and detailed documents with

the board including user manuals, schematic of the base board, peripheral drivers, BSP source packages, development tools and other related information.

MYIR is using the 528 MHz MCIMX6G2CVM05AB and MCIMX6Y2DVM05AA chip with 14 x 14mm, 0.8 mm ball pitch, 289 MAPBGA package on the MYC-Y6ULX. The i.MX6ULL\6UL application processor on the MYC-Y6ULX board provides multiple compatible options of Y0, Y1, Y2, G0, G1, G2 and G3 sub families. MYIR provides the following three part number by default.

Part No.	MYD-Y6ULG2-256N256D-50-I	MYD-Y6ULY2-256N256D-50-C	MYD-Y6ULY2-4E512D-50-C
Processor	MCIMX6G2CVM05AB	MCIMX6Y2DVM05AA	MCIMX6Y2DVM05AA
RAM	256MB DDR3	256MB DDR3	512MB DDR3
Flash	256MB Nand Flash	256MB Nand Flash	4GB eMMC
WiFi	Support	Support	Reused SDIO with eMMC
Working Temp.	-40 to +85 Celsius (WIFI -20 to +65 Celsius)	0 to +70 Celsius	0 to +70 Celsius

Table 1.1 Part Number of MYD-6ULX (default configurations)

MYIR offers customization on optional CPU and memory size configuration in bulk orders.

The differences between these chips are as follows,

Feature	MCIMX6G0	MCIMX6G1	MCIMX6G2	MCIMX6G3
<b>Speed</b>	528 MHz	528 MHz, 700 MHz	528 MHz, 700 MHz	528 MHz
<b>Cache</b>	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2
<b>OCRAM</b>	128 KB	128 KB	128 KB	128 KB
<b>DRAM</b>	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR4L	16-bit LP-DDR2, DDR3/DDR5L	16-bit LP-DDR2, DDR3/DDR6L
<b>eFuse</b>	512-bit	1024-bit	1536-bit	2048-bit
<b>NAND (BCH40)</b>	Yes	Yes	Yes	Yes
<b>EBI</b>	Yes	Yes	Yes	Yes
<b>Ethernet</b>	10/100-Mbit/s x 1	10/100-Mbit/s x 1	10/100-Mbit/s x 2	10/100-Mbit/s x 2

<b>USB</b>	OTG, HS/FS x 1	OTG, HS/FS x 2	OTG, HS/FS x 2	OTG, HS/FS x 2
<b>CAN</b>	0	1	2	2
<b>Security</b>	Basic	TRNG, Crypto Engine (AES/TDES/SHA), Secure Boot	TRNG, Crypto Engine (AES/TDES/SHA), Secure Boot	TRNG, Crypto Engine (AES with DPA/TDES/SHA/RSA), Secure Boot, tamper monitor, PCI4.0 pre-certification, OTF DRAM encryption
<b>Graphic</b>	None	None	PxP	PxP
<b>CSI</b>	None	None	24-bit Parallel CSI	24-bit Parallel CSI
<b>LCD</b>	None	None	24-bit Parallel LCD	24-bit Parallel LCD
<b>Quad SPI</b>	1	1	1	1
<b>SDIO</b>	2	2	2	2
<b>UART</b>	4	8	8	8
<b>I2C</b>	2	4	4	4
<b>SPI</b>	2	4	4	4
<b>I2S/SAI</b>	1	3	3	3
<b>S/PDIF</b>	1	1	1	1
<b>Timer/PWM</b>	Timer x 2, PWM x 4	Timer x 4, PWM x 8	Timer x 4, PWM x 8	Timer x 4, PWM x 8
<b>12-bit ADC</b>	1 x 10-ch.	1 x 10-ch.	2 x 10-ch.	2 x 10-ch.

Table 1.2 i.MX 6UL Processor Resource Comparison

<b>Feature</b>	<b>MCIMX6Y0</b>	<b>MCIMX6Y1</b>	<b>MCIMX6Y2</b>
<b>Core</b>	ARM® Cortex-A7	ARM® Cortex-A7	ARM® Cortex-A7
<b>Speed</b>	500 MHz	500 MHz	500/800/900 MHz
<b>Cache</b>	32 KB-I, 32 KB-D	32 KB-I, 32 KB-D 128 KB L2	32 KB-I, 32 KB-D 128 KB L2
<b>OCRAM</b>	128 KB	128 KB	128 KB

DRAM	16-bit LP-DDR2, DDR3/DDR3L	16-bit LP-DDR2, DDR3/DDR4L	16-bit LP-DDR2, DDR3/DDR5L
eFuse	256-bit	256-bit	256-bit
NAND (BCH40)	Yes	Yes	Yes
EBI	Yes	Yes	Yes
Ethernet	10/100-Mbit/s x 1	10/100-Mbit/s x 1	10/100-Mbit/s x 2
USB	OTG, HS/FS x 1	OTG, HS/FS x 2	OTG, HS/FS x 2
CAN	0	1	2
Graphic	None	None	PxP
CSI	None	None	16-bit Parallel CSI
LCD	None	None	24-bit Parallel LCD
Quad SPI	1	1	1
SDIO	2	2	2
UART	4	8	8
I2C	2	4	4
SPI	2	4	4
I2S/SAI	1	3	3
ESAI	1	1	1
S/PDIF	1	1	1
Timer/PWM	Timer x 2, PWM x 4	Timer x 4, PWM x 8	Timer x 4, PWM x 8
12-bit ADC	1 x 10-ch.	1 x 10-ch.	2 x 10-ch.
Security	None	AES-128, HAB	AES-128, HAB
Temperature	-40°C to 105°C (Tj)	-40°C to 105°C (Tj)	0°C to 90°C (Tj)

Table 1.3 i.MX 6ULL Processor Resource Comparison

## 2. Hardware Characteristics

### 2.1 CPU Module Resource

MYC-Y6ULX CPU module is compatible with i.MX 6UL and i.MX 6ULL series processors.

The board with high-speed circuit board design, which is integrated processor, DDR, NAND Flash, eMMC, Ethernet PHY and power management circuit on the PCB size of 37 x 39 mm.

Please refer to the below Figure 2.1 for detail.

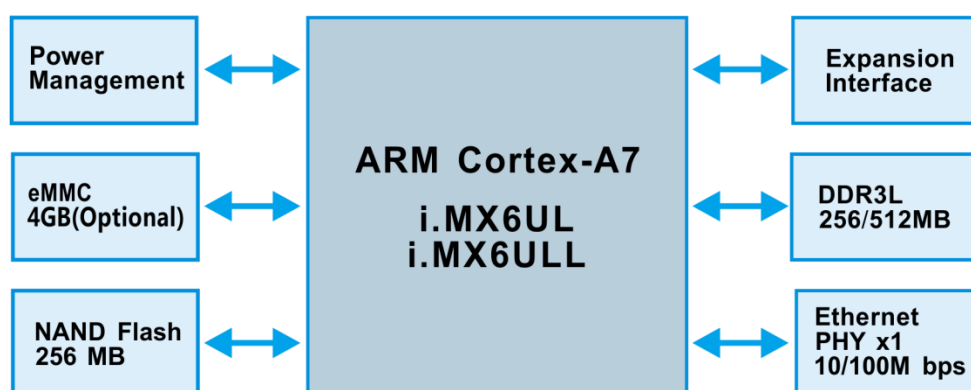


Figure 2.1 Function Block Diagram of MYC-Y6ULX

- **Processor**
  - MCIMX6G2CVM05AB\MCIMX6Y2DVM05AA
- **Memory**
  - 256MB/512MB DDR3L
  - 4GB eMMC Flash (Reuse with NAND Flash)
  - 256MB NAND Flash (Reuse with eMMC)
- **Peripherals**
  - 10/100 Ethernet PHY
  - Expansion connector (Up to 97 x GPIOs)



## 2.2 Base Board Resources

The MYB-Y6ULX base board offers rich peripherals to evaluate and make developments on MYC-Y6ULX.

Please refer to the below Figure 2.2 for detail.

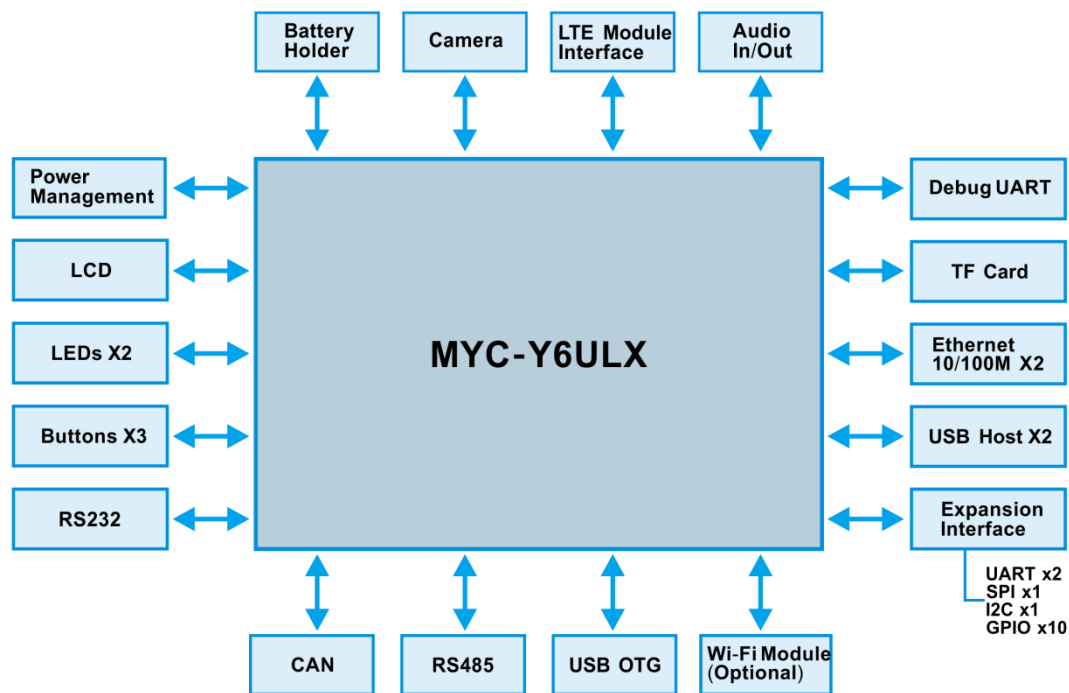


Figure 2.2 MYD-Y6ULX Base Board

- Serial ports
  - 1 x Debug serial port (TTL)
  - 1 x RS485 serial port (with isolation)
  - 1 x 3-wire RS232 serial port (with isolation)
- USB
  - 2 x USB2.0 Host ports
  - 1 x Micro USB2.0 OTG ports
- 1 x Mini PCI-E USB LTE module interface (external SMA antenna)
- 1 x SIM card socket
- 1 x WiFi module (external SMA antenna)
- 2 x 10/100 Mbps Ethernet interfaces
- 1 x Camera interface

- 1x CAN interface (with isolation)
- 1 x Micro SD card slot
- 1 x LCD interface (16-bit true color, supports optional 4.3-inch and 7-inch TFT LCD)
- 1 x RTC battery holder
- Audio input/output port (3.5mm jack)
- 3 x Buttons (1 x Reset button, 1 x User button, 1 x ON/OFF button)
- 2 x LEDs (1 x power indicator LED, 1 x user LED)
- 1 x 2.0mm 20-pin male expansion connector

## 3. Interfaces

### 3.1 Interface of CPU Module Board

The MYC-Y6ULX CPU module is connected to the base board by 1.0mm pitch 140-pin surface mount pads. Please refer to the pin assignment as below.

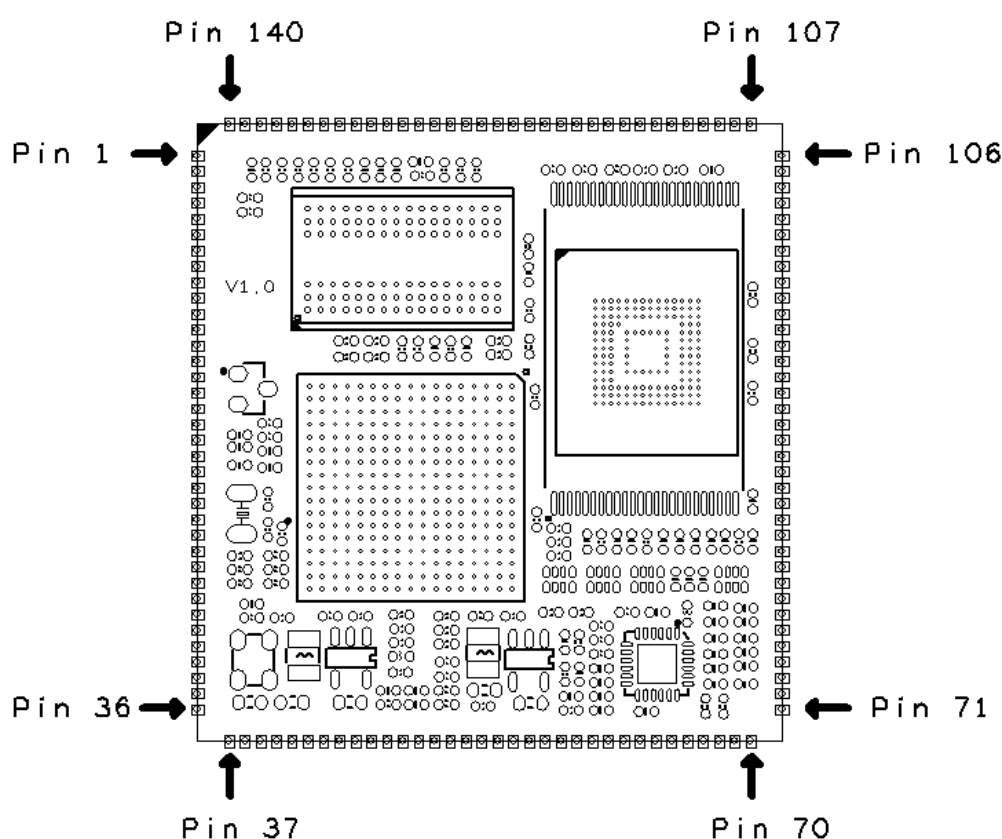


Figure 3.1 MYC-Y6ULX Pin Assignment

### 3.2 PIN List

Please refer to the PIN-Out description document *MYC-Y6ULX Pin-List*, which is provided in the CD-ROM of the development kit.

### 3.3 Peripheral Interfaces of Base Board

Rich peripheral interface resources are provided on the MYB-Y6ULX base board, which offer a comprehensive evaluating and developing platform for the MYC-Y6ULX CPU module and the i.MX6UL\6ULL series processor. Detailed resources provided as below.

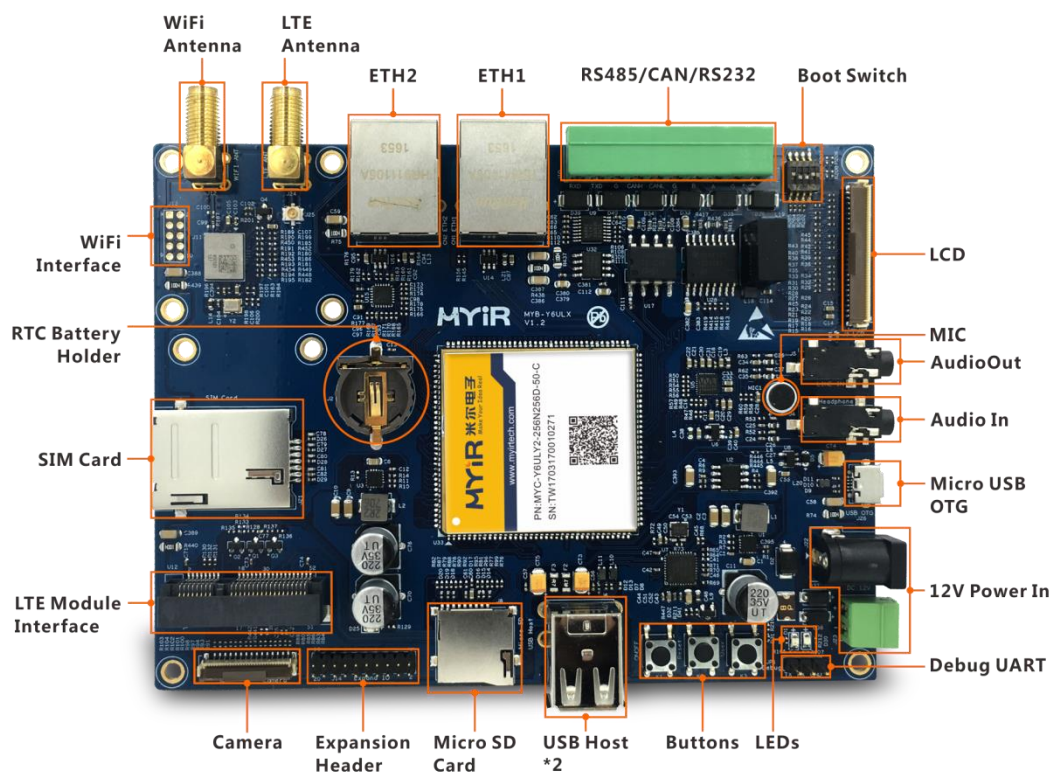


Figure 3.2 MYD-Y6ULX Resources

Please refer to the interface list as below.

Interface	Designator	Description
CPU Module	U33	MYC-Y6ULX CPU module
Power Input 1	J22	12V DC power input, 2.1 mm DC jack
Power Input 2	J23	12V DC power input, 3.81mm terminal block
Camera	J9	8 Bit Camera interface
Ethernet 1	CN1	10/100Mbps ethernet 1 interface
Ethernet 2	CN2	10/100Mbps ethernet 2 interface

Terminal Block	J10	10 pins 3.81mm terminal Block,include the following functions, <ul style="list-style-type: none"> <li>● 1 x RS485 serial port (with isolation)</li> <li>● 1 x 3-wire RS232 serial port (with isolation)</li> <li>● 1x CAN interface (with isolation)</li> </ul>
Debug UART	JP1	Debug serial port, compatible with 5V and 3.3V level
USB OTG	J26	Micro USB OTG interface
USB Host	J6	USB host interface
Micro SD Card	J8	4 bit micro SD Card interface
Battery	J2	RTC battery holder
LCD	J3	16-bit true color, supports optional 4.3-inch and 7-inch TFT LCD
Audio	J4	3.5mm stereo audio output port (Headphone)
	J5	3.5mm audio line in input
	MIC1	Microphone input
Buttons	K2	Reset button
	K3	User button
	K1	ONOFF button
LED	D1	Power LED
	D30	User LED
4G Module	U12	Mini PCI-E USB LTE module interface
SIM Card	J21	SIM Card interface
4G Antenna	J24	SMA LTE antenna interface
WiFi Antenna	J12	SMA WiFi antenna interface
Expansion Header	J14	Expansion IO header,2.0mm pitch

Figure 3.1 List of MYD-Y6ULX Resources

## 4. Hardware Design

### 4.1 Hardware Design of CPU Module board

Please refer to the document *MYC-Y6ULX Product Manual* for detail information.

### 4.2 Hardware Design of Baseboard

#### 4.2.1 Power supply

MYB-Y6ULX base board is designed to be powered by DC 12V, and the internal power management circuit on-board supplies 5V, 3.8V, 3.3V, 1.8V, 3V (RTC) voltage for the board.

Please refer to Figure 4.1 for detail.

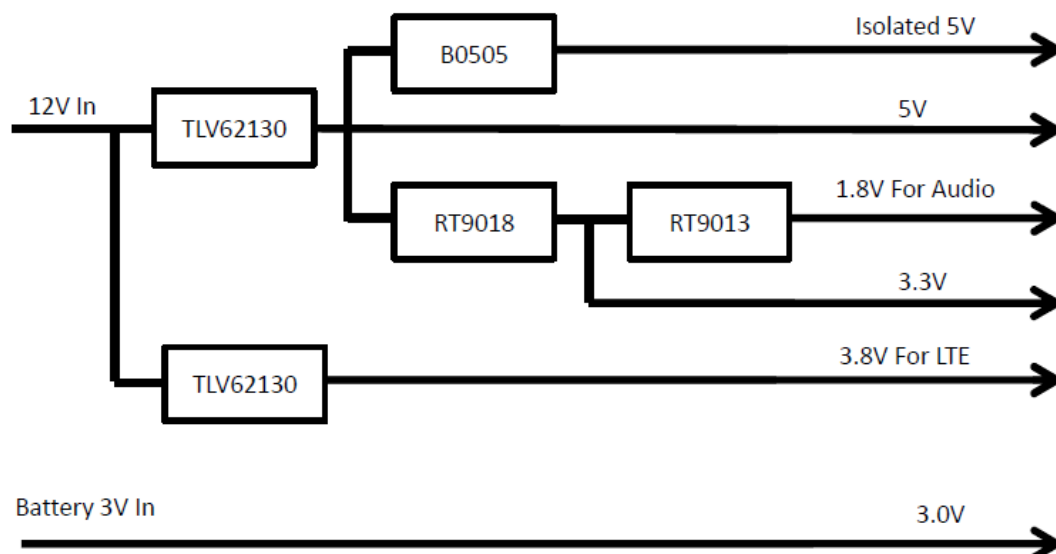


Figure 4.1 MYB-Y6ULX Power Tree

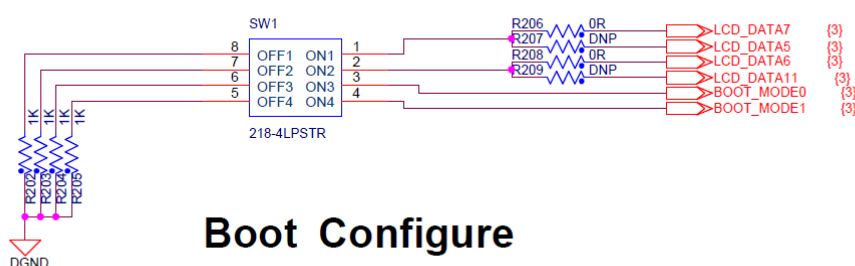
DCDC convertor with maximum output current of 3A is used for 12V to 5V and 12V to 3.8V. The part number of the DCDC convertor is TLV62130. DCDC can provide higher power conversion efficiency and reduce the power consumption of the board. LDO regulator with part number RT9018 is used for 5V to 3.3V and 3.3V to 1.8V. LDO can provide smaller power ripple than the DCDC convertor. The RTC battery input is an optional input. When

the system is powered down, if the RTC does not need to work, it is not require to provide this power rail.

## 4.2.2 Boot configure switch

The boot process begins at the Power-On Reset (POR) where the hardware reset logic forces the ARM core to begin the execution starting from the on-chip boot ROM. The boot ROM code uses the state of the internal register BOOT\_MODE[1:0] as well as the state of various eFUSEs and/or GPIO settings to determine the boot flow behavior of the device. MYD-Y6ULX is equipped with a 4 bit switch to change the boot device.

Please refer to the schematic for the boot state as below,



### Boot Configure

Figure 4.2 Boot Configure Switch

There are some differences between the NAND Flash version and the eMMC version in the boot Configure and the hardware. For NAND Flash version, remove R207 and R209, mount R206 and R208. For eMMC version, remove R206 and R208, mount R207 and R209.

Bit1 and Bit2 are used to select boot device. Please refer NAND Flash version setting as below.

Switch	BIT1	BIT2
SD Card	ON	OFF
NAND Flash	OFF	ON

Table 4.1 NAND Flash Version Boot Configure

Please refer eMMC version setting as below,

Switch	BIT1	BIT2
SD Card	ON	ON
eMMC	OFF	OFF

Table 4.2 eMMC Version Boot Configure

Bit3 and Bit4 are used to select boot type, please refer the setting as below,

Switch		Boot TYPE
BIT4	BIT3	
ON	ON	Boot From Fuses
ON	OFF	Serial Downloader
OFF	ON	Internal Boot
OFF	OFF	Reserved

Table 4.3 Boot Type Configure

### 4.2.3 Ethernet

MYB-Y6ULX is equipped with two ethernets operating at 10/100 Mbps, which offering standard RJ45 connector (With voltage transformer inside the socket). MYC-Y6ULX has Integrated a PHY chips (Microchips, LAN8720A). The ethernet 1 circuit on base board has been greatly simplified by using the PHY. Proper protection circuit can be added when customer developing your own base board.

Please refer to the SCH of the Ethernet1 of base board as below.



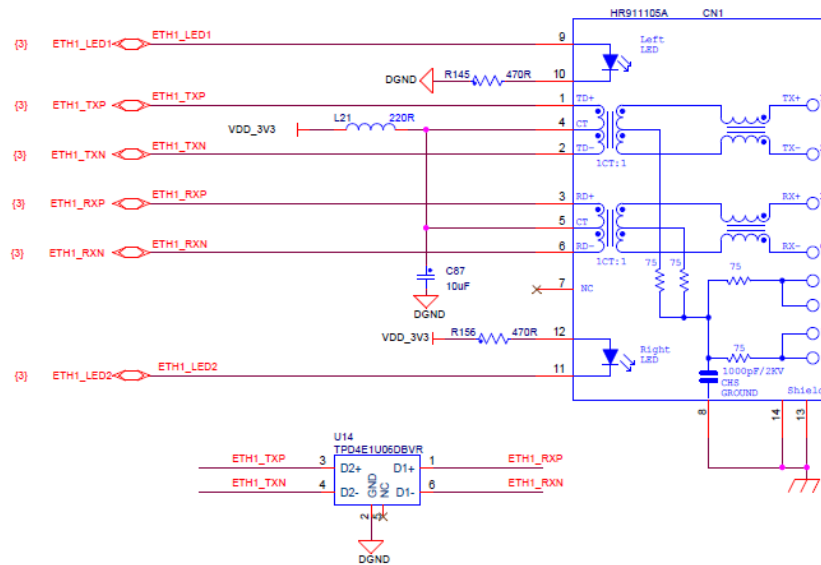


Figure 4.3 Ethernet 1 Circuit

For the Ethernet 2, an additional PHY chips has to add on the base board. Please refer to the SCH of the Ethernet 2 of base board as below.

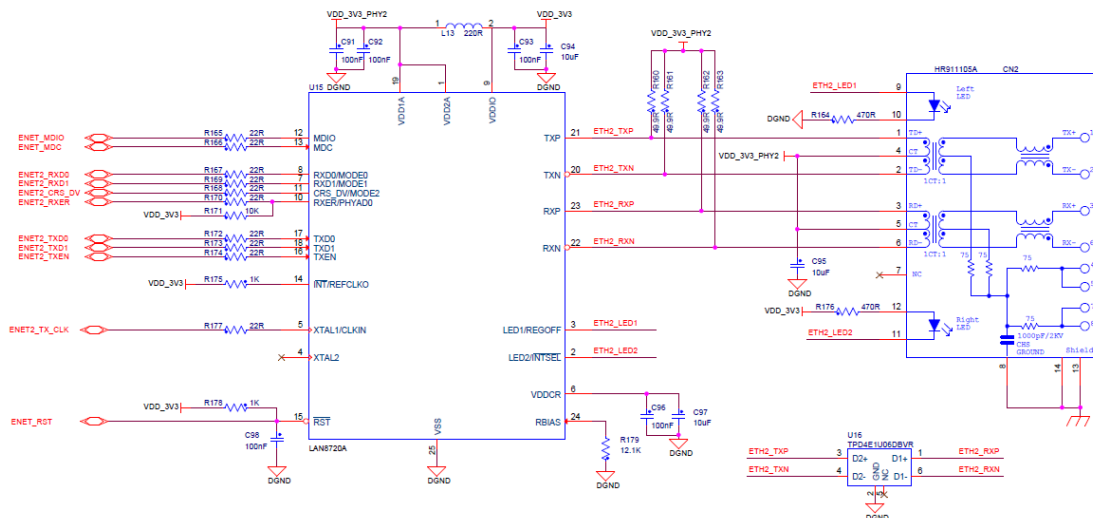


Figure 4.4 Ethernet 2 Circuit

## 4.2.4 USB

i.MX6UL6ULL processor provides two high speed (HS) USB 2.0 OTG (Up to 480 Mbps) , with integrated high speed USB PHY.OTG1 port is connected to a standard micro USB Device connector (Micro USB), which can be used as slave and host. OTG2 is connected to a USB Hub chip (USB2514/MJ from Microchip), which is used to expand four USB host

controller. Two of the expanded USB host controller is connected to a dual USB connector (Type A) and Port 3 of the expanded USB has been connected to the LTE module.the rest is reserved.

Please refer to the schematic of the USB OTG of the board as below. We implement a power switch circuit on the board, and the power can be automatically switched according to the access device.

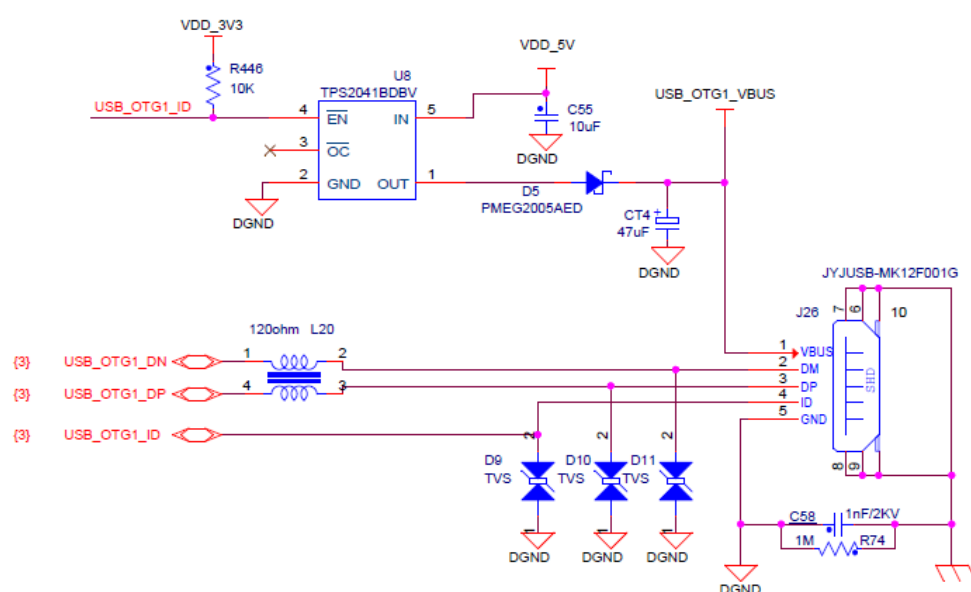


Figure 4.5 USB OTG

Refer to the schematic of USB Hub as below

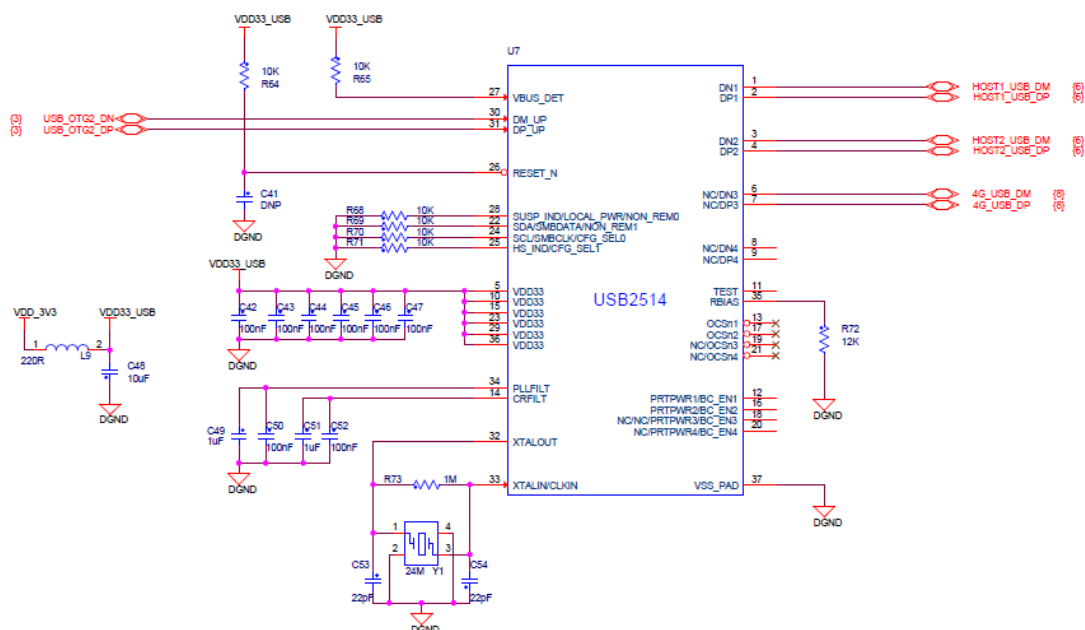


Figure 4.6 USB Hub

Refer to the schematic of USB Host as below.

## USB HOST

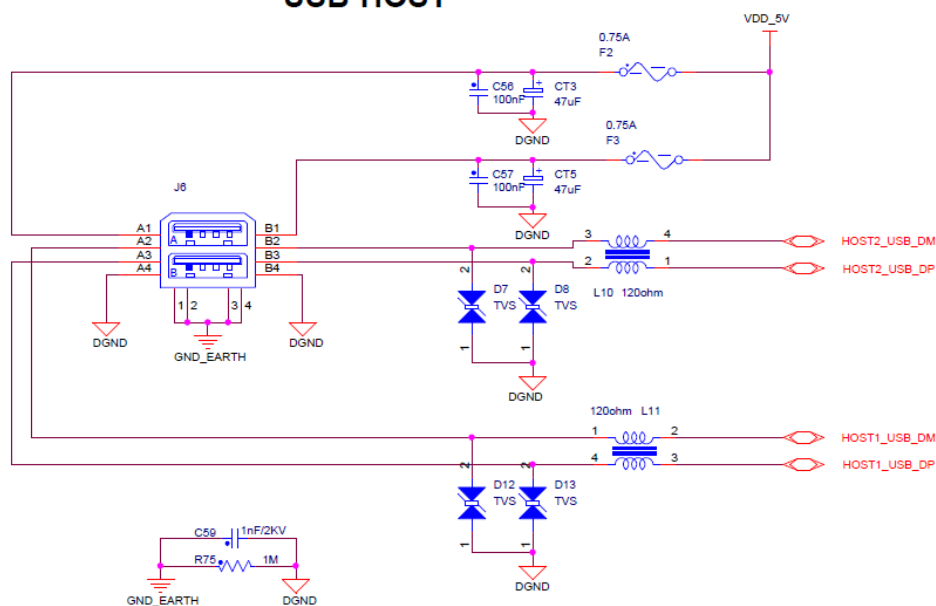


Figure 4.7 USB Host

### 4.2.5 LTE Module

MYB-Y6ULX is equipped with a LTE module interface, which can support many general mini PCI-E LTE module. MYD-Y6ULX development board provides Linux driver support and code examples based on EC20 LTE module from quectel. The part number of the

mini PCIE connector is AAA-PCI-047 from LOTES.

Refer to the schematic of LTE module interface as below.

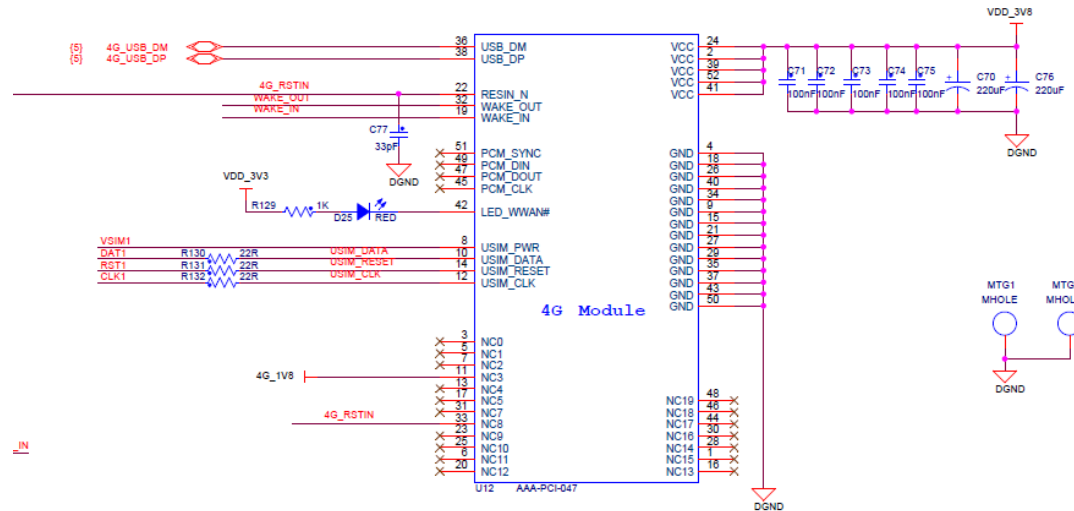


Figure 4.8 LTE Module

Using the LTE module, the user also needs a SIM card. MYB-Y6ULX is equipped with a side insert type SIM card connector. Refer to the schematic of as below.

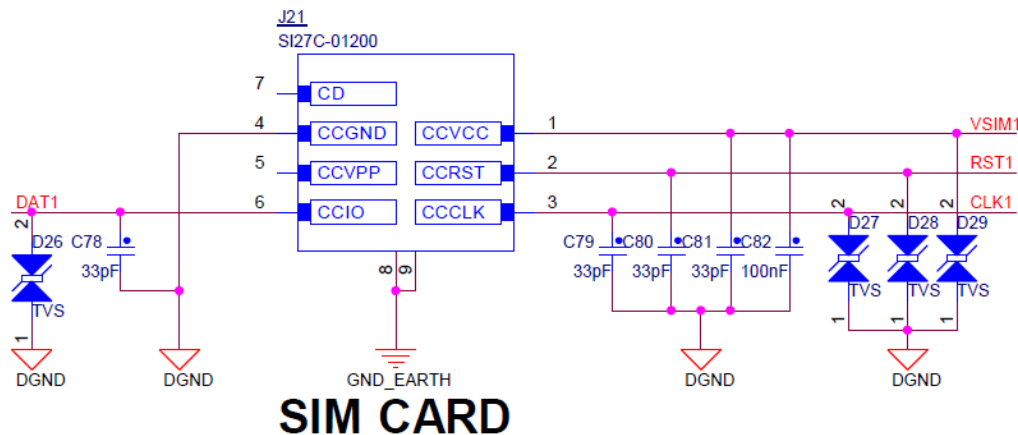


Figure 4.9 SIM Card

## 4.2.6 Audio CODEC

WM8904 Audio CODEC silicon from Wolfson is equipped on MYB-Y6ULX. It provides high quality audio performance. One (1) unit of 3.5mm headphone interface, 1 unit of audio in and one unit of MIC are expanded for the comprehensive audio application.

I2S signal of WM8904 is connected to the SAI2 controller of the CPU and I2C of WM8904

is connected to I2C2. Please refer to the schematic below for detail.

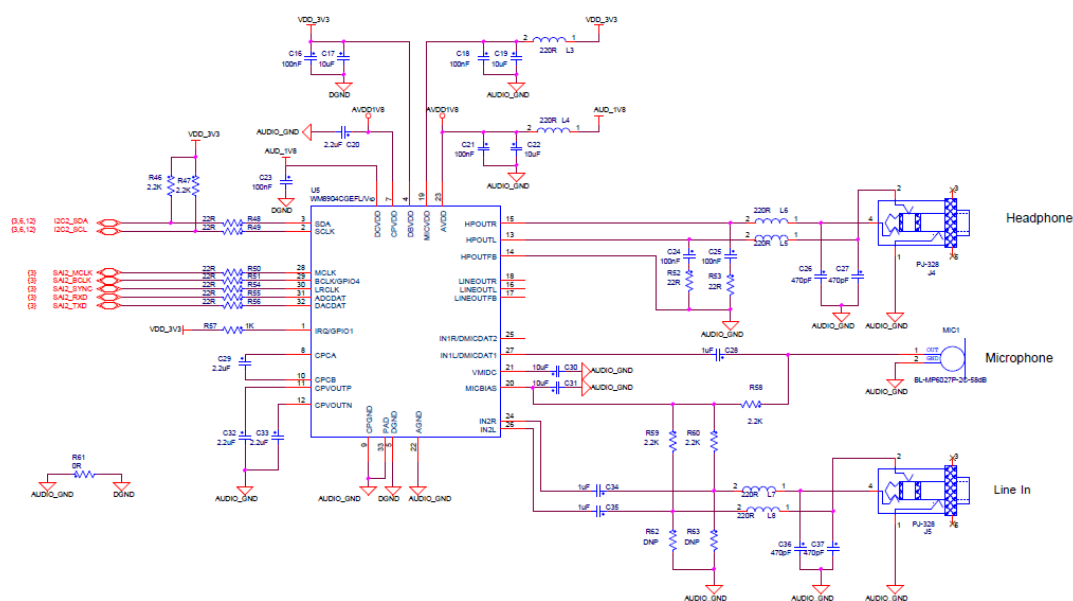


Figure 4.10 Audio CODEC and Interface

### 4.2.7 WiFi

MYB-Y6ULX is equipped with a SDIO WIFI module with offering SMA antenna connector. The part number of WIFI chip is WM-N-BM-02 from USI. The WiFi module support 802.11b/g/n. The SDIO port of the module has been connected to the SD2 controller of the processor. On board SMA type antenna interface, it can be used with WIFI antenna in the development kit box.

It is important to note that as the eMMC and WIFI modules use the same MMC controller, the eMMC version of the CPU module does not support this feature. In addition, The SDIO pins are pulled down 47K to ground on the CPU module and multiplexed with the boot configuration pins. User should pay attention to the initial state on those pins, to avoid causing the boot failure, on base board design.

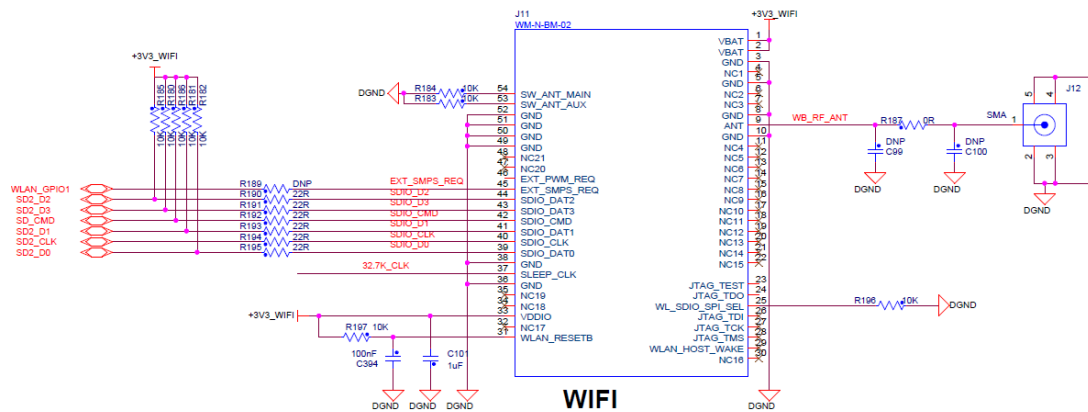


Figure 4.11 WiFi

## 4.2.8 Camera Interface

MYB-Y6ULX is equipped with a parallel camera interface. Although the processor supports up to 24bit parallel camera interface, because of the chip pin multiplexing. MYB-Y6ULX can only support 8bit parallel camera interface. The connector is a 0.5mm pitch FPC connector. Users can use MY-CAM011B camera module to evaluate this function. For a detailed description of the MY-CAM011B camera module, please refer to the user manual or visit the following website.

<http://www.myirtech.com/list.asp?id=534>

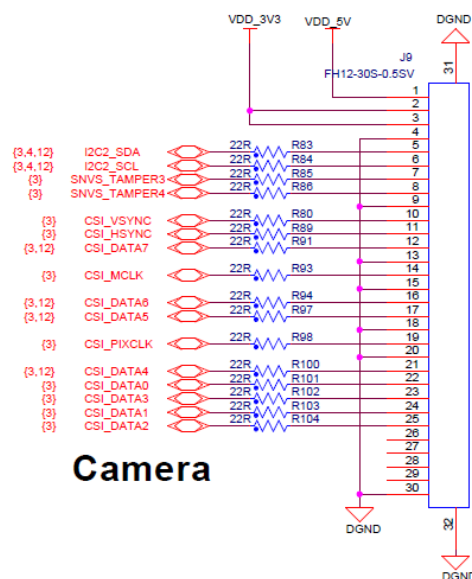


Figure 4.12 Camera Interface

Note: The camera signals CSI\_DATA4, CSI\_DATA5, CSI\_DATA6, CSI\_DATA7, I2C2\_SDA and I2C2\_SCL is reuse with the expansion interface.

## 4.2.9 LCD

The i.MX6ULL6UL processor provides one parallel display port, support max 85 MHz display clock and up to WXGA (1366 x 768) at 60 Hz. A 50 pins FPC connector has been used for the display port on the MYB-Y6ULX. Linux drivers are provided to work with MIYR LCD panels for 4.3 inch LCD(480\*272) and 7 inch LCD(800\*480). Resistance and capacitance touch panel are supported. Please refer to below for detail design of LCD interface.

If you need more information on the LCD panels, please visit [www.myirtech.com](http://www.myirtech.com).

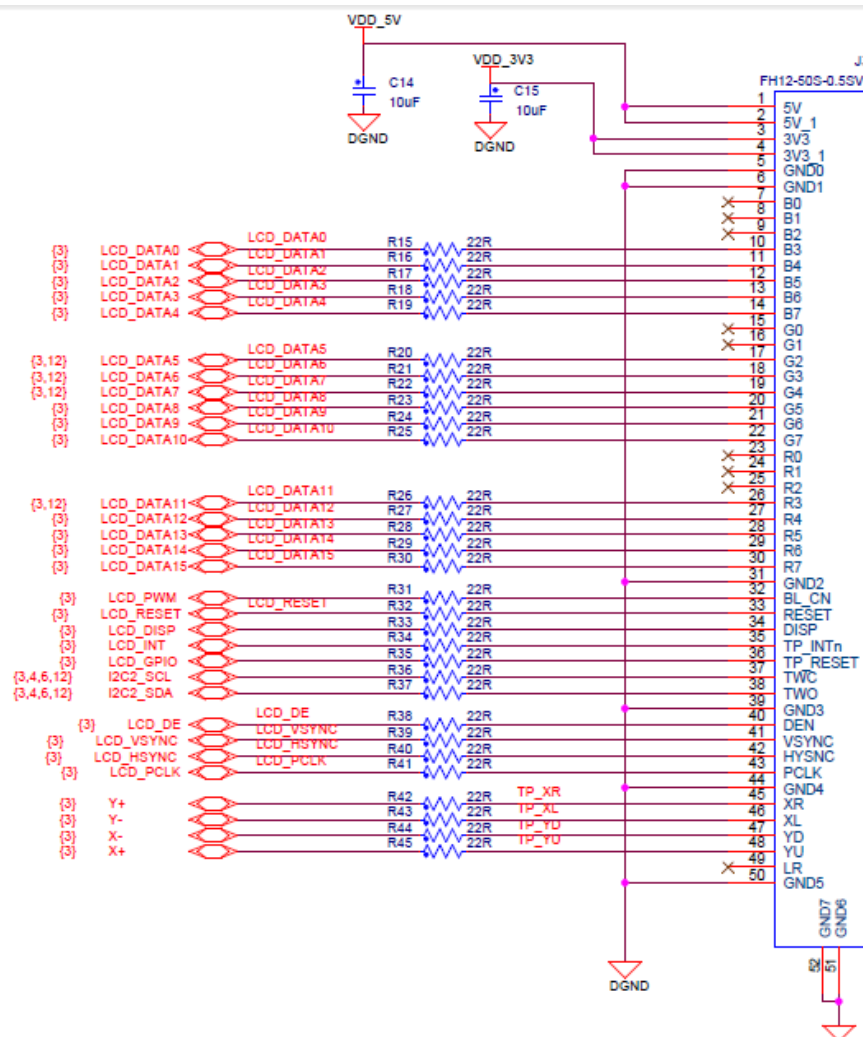


Figure 4.13 LCD and Touch Screen Interface

## 4.2.10 UART

The i.MX 6UL\6ULL series processor supports up to 8 serial ports but with reuse on PIN signals. Below serial ports are designed on base board MYB-Y6ULX:

- ◆ One(1) unit of RS232 communication port
- ◆ One(1) unit of RS232 debug port
- ◆ One(1) unit of RS485 communication port

MYB-Y6ULX provides one debug serial port, can be used as a Linux terminal, debugging system. The 3 pins header with 2.54mm pitch and 3.3V V LVTTL level standard is used on the MYB-Y6ULX. Users can use USB to UART cable to connect the board and computer. MYIR provides an optional module MY-UART012U, for more information, please visit the following Web site.

<http://www.myirtech.com/list.asp?id=537>

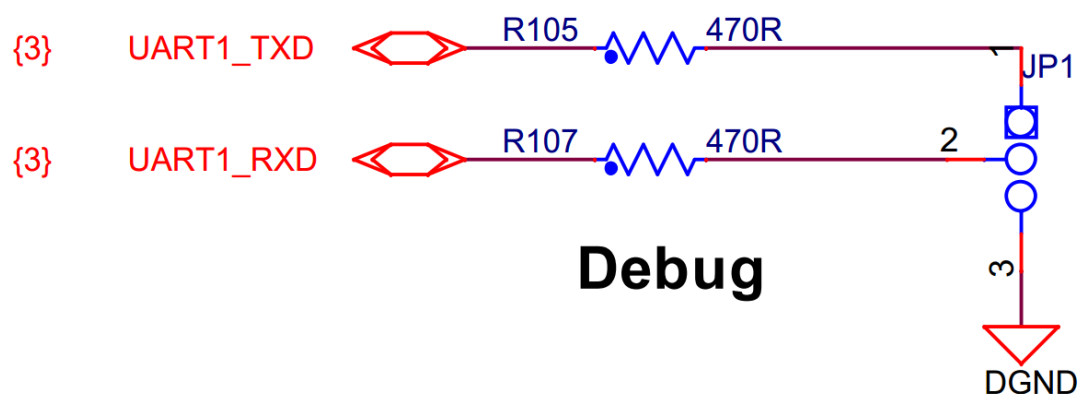


Figure 4.14 Debug Port

MYB-Y6ULX is equipped with an RS232 interface with electrical isolation. This function is connected to the UART2 controller on the processor. The chip of the transceiver is SP3232EEY-L from EXAR. Signal isolation chip is used ADI's ADUM1201. For more details about the SP3232EEY-L and ADUM1201, please see its datasheet.

Please refer to the schematic of the RS232 below for detail.



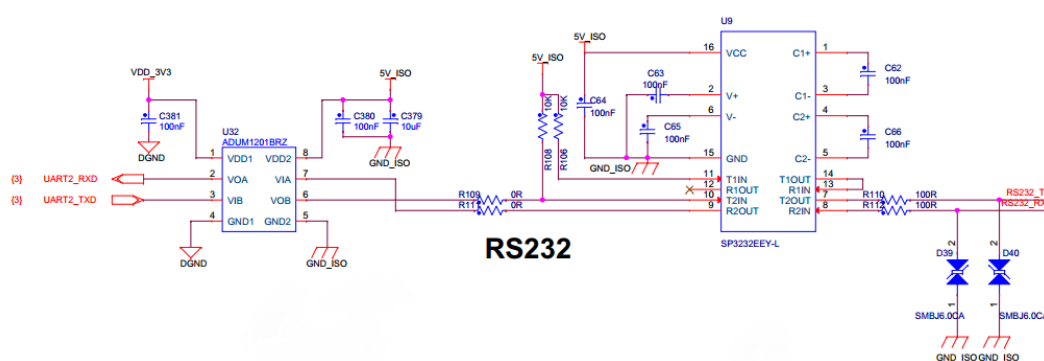


Figure 4.15 RS232 Port

MYB-Y6ULX is equipped with an RS485 interface with electrical isolation. This function is connected to the UART4 controller on the processor. Sending or receiving is controlled by a GPIO. The UART controller supports 7 bit or 8 bit data bits, 1 or 2 stop bits, and programmable parity. The chip of the transceiver is ISO3802 from TI, for more details about the ISO3802 chip, please see its datasheet.

Please refer to the schematic of the RS485 below for detail.

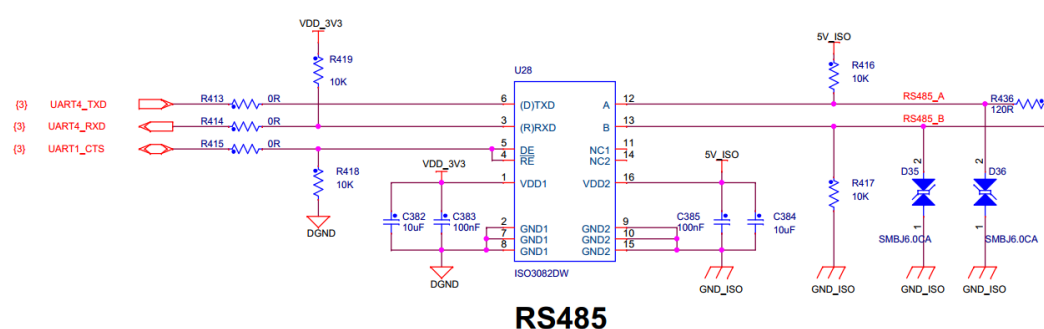


Figure 4.16 RS485 Port

#### 4.2.11 CAN

A Controller Area Network (CAN bus) is a robust vehicle bus standard designed to allow microcontrollers and devices to communicate with each other in applications without a host computer. It meets the specific requirements of the field, such as real-time processing, electromagnetic interference (EMI), the environment reliable work, cost-effective and the bandwidth requirements.

The processor has two CAN bus controllers, has a complete CAN protocol version 2.0B

specification, supports standard and extended message frames. One CAN port is offered on MYB-Y6ULX due to the PIN reuse. MYB-Y6ULX is equipped with a CAN transceiver with electrical isolation. The part number of the transceiver is ISO1050 from TI. For more details about the ISO1050 chip, please see its datasheet.

Please refer to the schematic of the CAN below for detail.

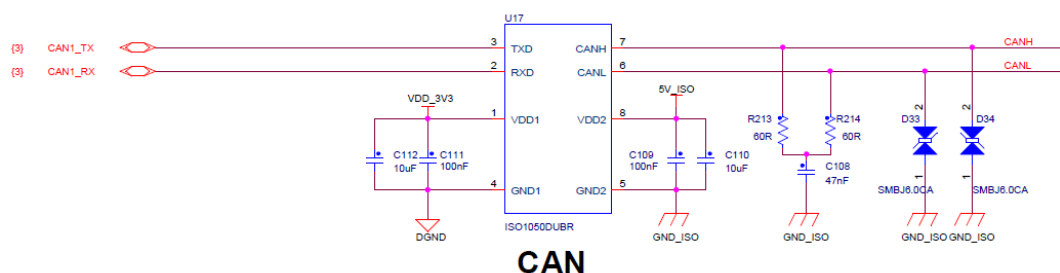


Figure 4.17 CAN Interface

#### 4.2.12 RTC Battery Holder

RTC function is designed into the MYB-Y6ULX expansion module, which enables the RTC function of the system by holding a 1220/1225 battery when the main power supply is down.

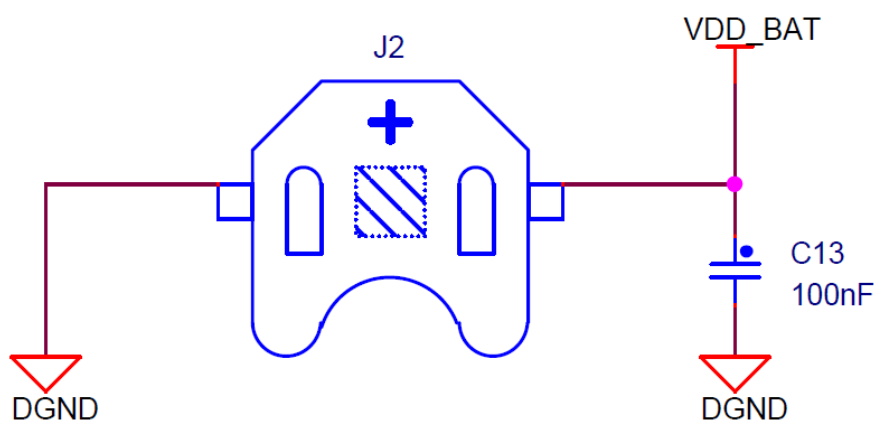


Figure 4.18 RTC Battery Holder Circuit

### 4.2.13 Micro SD Card

The i.MX6UL\6ULL processor provides two MMC/SD/SDIO card ports. Port SD2 has been connected to the eMMC and WiFi module, and port SD1 is connected to a micro SD card connector (4 bit mode) on the MYB-Y6ULX. It can be used to store the system booting code and other information using a micro SD card memory.

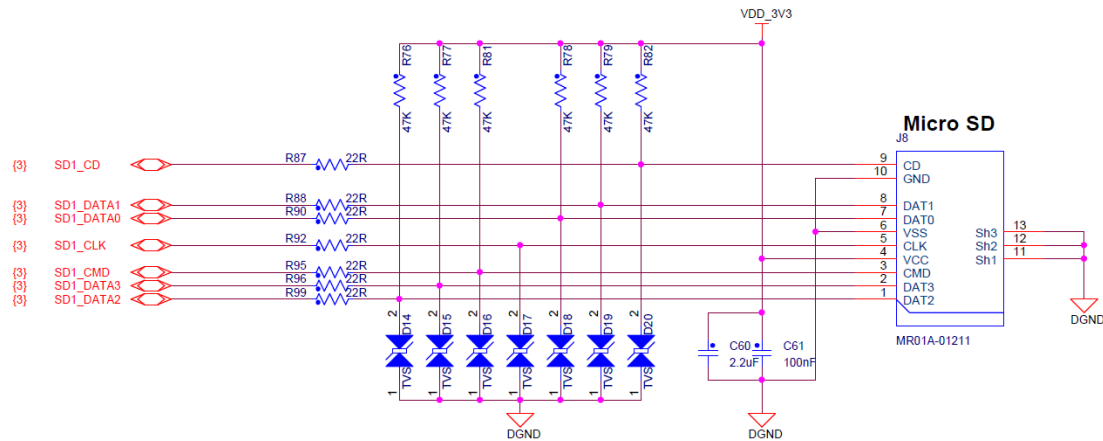


Figure 4.19 Micro SD Card

### 4.2.14 Buttons and LEDs

Three(3) Buttons are provided on base board MYB-Y6ULX

- ◆ One(1) unit of user button
- ◆ One(1) unit of reset button
- ◆ One(1) unit of button

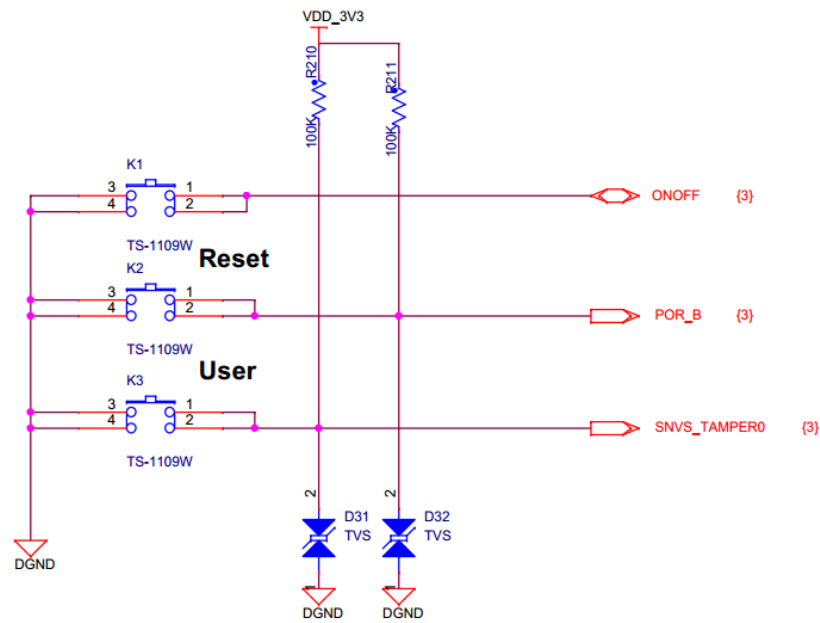


Figure 4.21 Buttons

One user LED is equipped on the MYB-Y6ULX. Please refer to the schematic of the LED as below.

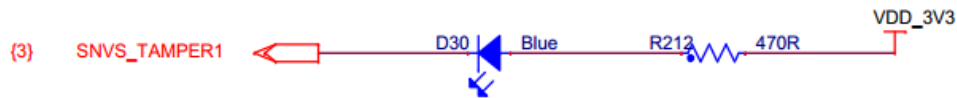


Figure 4.22 LED

### 4.2.15 Expansion Interfaces

One 20 pins Pin-Header is equipped on board. Signals such as SPI, Serial Ports, I2C are expanded through this connector. Please find the schematic of the expansion Interface as below. And please be noticed to refer to i.MX6UL\6ULL processor datasheet for PIN configuration.

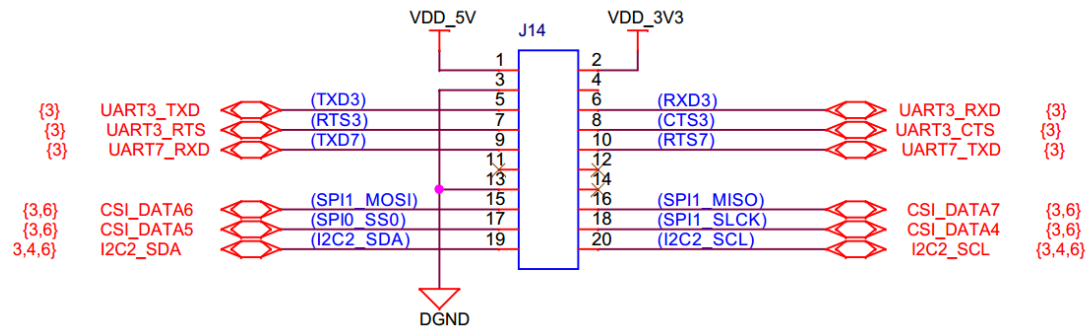


Figure 4.23 Expansion Interface

## 5. Electronic Characteristics

### 5.1 Operating temperature

Application Scenarios	Parameter				Des.
	MIN	Nor.	Max	Unit	
Commercial Level	0	—	+70	°C	—
Industrial Level	-40	—	+85	°C	WIFI chip operating temperature of -20 to 65 degrees.

Table 5-1 Operating Temperate

### 5.2 Power Supply

Item	Label	Parameter				Description
		MIN	Normal	MAX	Unit	
System Voltage	+12V	9	12	15	V	Power IN
System Current	I <sub>V12</sub>	---	0.25	---	A	Linux system, No LCD
RTC Voltage	VDD_BAT	2.4	--	3.6	V	RTC Power In
RTC Current	I <sub>VDD_BAT</sub>		220		uA	

Table 5-2 Power Supply Characteristics

## 5.3 GPIO DC Characteristics

Item	Label	Parameter				Description
		MIN	Normal	MAX	Unit	
Input High Voltage	V <sub>IH</sub>	2.3	--	3.3	V	--
Input Low Voltage	V <sub>IL</sub>	0	--	0.99	V	--
Output high Voltage	V <sub>OH</sub>	3.15	---	--	V	--
Output Low Voltage	V <sub>OL</sub>	--	--	0.15	V	--

Table 5-3 GPIO DC Characteristics

## 6. Mechanical Characteristics

### ◆ PCB Layers

#### ■ CPU Module

8 Layers PCB, Immersion Gold Process, Lead-Free

#### ■ Base Board

4 Layers PCB, Immersion Gold Process, Lead-Free

### ◆ Mechanical

#### ■ CPU Module: 37 x 39mm

#### ■ Base Board: 105\*140mm

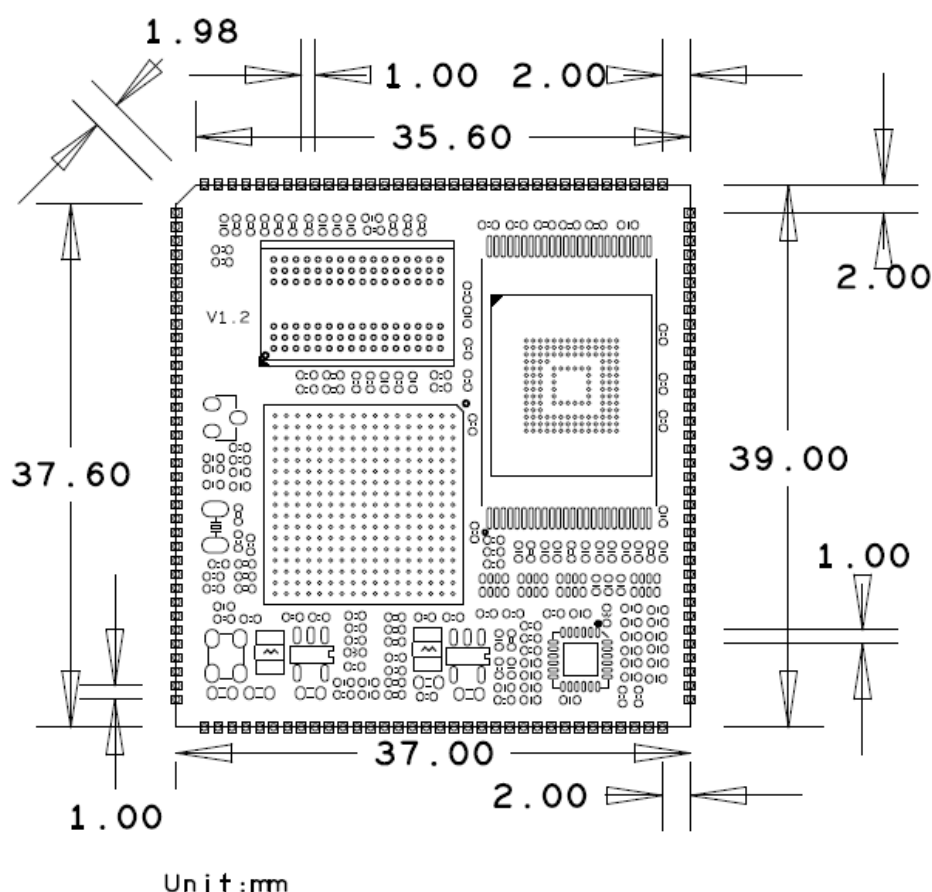


Figure 6.1 Mechanical Information of MYC-Y6ULX



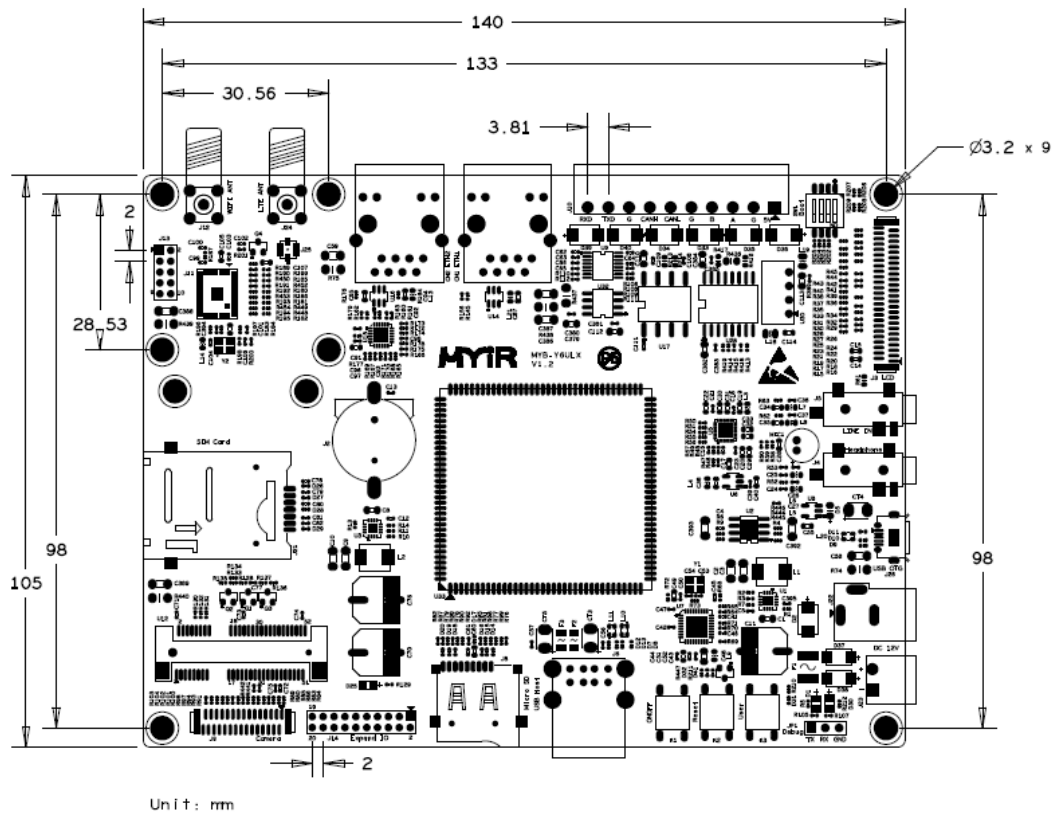


Figure 6.2 Mechanical Information of MYB-Y6ULX

## Appendix 1 Warranty & Technical Support Services

**MYIR Tech Limited** is a global provider of ARM hardware and software tools, design solutions for embedded applications. We support our customers in a wide range of services to accelerate your time to market.

MYIR is an ARM Connected Community Member and work closely with ARM and many semiconductor vendors. We sell products ranging from board level products such as development boards, single board computers and CPU modules to help with your evaluation, prototype, and system integration or creating your own applications. Our products are used widely in industrial control, medical devices, consumer electronic, telecommunication systems, Human Machine Interface (HMI) and more other embedded applications. MYIR has an experienced team and provides custom design services based on ARM processors to help customers make your idea a reality.

The contents below introduce to customers the warranty and technical support services provided by MYIR as well as the matters needing attention in using MYIR's products.

### **Service Guarantee**

MYIR regards the product quality as the life of an enterprise. We strictly check and control the core board design, the procurement of components, production control, product testing, packaging, shipping and other aspects and strive to provide products with best quality to customers. We believe that only quality products and excellent services can ensure the long-term cooperation and mutual benefit.

### **Price**

MYIR insists on providing customers with the most valuable products. We do not pursue excess profits which we think only for short-time cooperation. Instead, we hope to establish long-term cooperation and win-win business with customers. So we will offer reasonable prices in the hope of making the business greater with the customers together hand in hand.

### **Delivery Time**

MYIR will always keep a certain stock for its regular products. If your order quantity is less than the amount of inventory, the delivery time would be within three days; if your order quantity is greater than the number of inventory, the delivery time would be always four to six weeks. If for any urgent delivery, we can negotiate with customer and try to supply the goods in advance.

**Technical Support**

MYIR has a professional technical support team. Customer can contact us by email ([support@myirtech.com](mailto:support@myirtech.com)), we will try to reply you within 48 hours. For mass production and customized products, we will specify person to follow the case and ensure the smooth production.

**After-sale Service**

MYIR offers one year free technical support and after-sales maintenance service from the purchase date. The service covers:

1. Technical support service

- a) MYIR offers technical support for the hardware and software materials which have provided to customers;
- b) To help customers compile and run the source code we offer;
- c) To help customers solve problems occurred during operations if users follow the user manual documents;
- d) To judge whether the failure exists;
- e) To provide free software upgrading service.

However, the following situations are not included in the scope of our free technical support service:

- a) Hardware or software problems occurred during customers' own development;
- b) Problems occurred when customers compile or run the OS which is tailored by themselves;
- c) Problems occurred during customers' own applications development;
- d) Problems occurred during the modification of MYIR's software source code.

2. After-sales maintenance service

The products except LCD, which are not used properly, will take the twelve months free maintenance service since the purchase date. But following situations are not included in the scope of our free maintenance service:

- a) The warranty period is expired;
- b) The customer cannot provide proof-of-purchase or the product has no serial number;
- c) The customer has not followed the instruction of the manual which has caused the damage the product;
- d) Due to the natural disasters (unexpected matters), or natural attrition of the components, or unexpected matters leads the defects of appearance/function;

- e) Due to the power supply, bump, leaking of the roof, pets, moist, impurities into the boards, all those reasons which have caused the damage of the products or defects of appearance;
- f) Due to unauthorized weld or dismantle parts or repair the products which has caused the damage of the products or defects of appearance;
- g) Due to unauthorized installation of the software, system or incorrect configuration or computer virus which has caused the damage of products.

**Warm tips:**

- 1) MYIR does not supply maintenance service to LCD. We suggest the customer first check the LCD when receiving the goods. In case the LCD cannot run or no display, customer should contact MYIR within 7 business days from the moment get the goods.
- 2) Please do not use finger nails or hard sharp object to touch the surface of the LCD.
- 3) MYIR suggests user purchasing a piece of special wiper to wipe the LCD after long time use, please avoid clean the surface with fingers or hands to leave fingerprint.
- 4) Do not clean the surface of the screen with chemicals.
- 5) Please read through the product user manual before you using MYIR's products.
- 6) For any maintenance service, customers should communicate with MYIR to confirm the issue first. MYIR's support team will judge the failure to see if the goods need to be returned for repair service, we will issue you RMA number for return maintenance service after confirmation.

### 3. Maintenance period and charges

- a) MYIR will test the products within three days after receipt of the returned goods and inform customer the testing result. Then we will arrange shipment within one week for the repaired goods to the customer. For any special failure, we will negotiate with customers to confirm the maintenance period.
- b) For products within warranty period and caused by quality problem, MYIR offers free maintenance service; for products within warranty period but out of free maintenance service scope, MYIR provides maintenance service but shall charge some basic material cost; for products out of warranty period, MYIR provides maintenance service but shall charge some basic material cost and handling fee.

#### 4. Shipping cost

During the warranty period, the shipping cost which delivered to MYIR should be responsible by user; MYIR will pay for the return shipping cost to users when the product is repaired. If the warranty period is expired, all the shipping cost will be responsible by users.

#### 5. Products Life Cycle

MYIR will always select mainstream chips for our design, thus to ensure at least ten years continuous supply; if meeting some main chip stopping production, we will inform customers in time and assist customers with products updating and upgrading.

#### Value-added Services

1. MYIR provides services of driver development base on MYIR's products, like serial port, USB, Ethernet, LCD, etc.
2. MYIR provides the services of OS porting, BSP drivers' development, API software development, etc.
3. MYIR provides other products supporting services like power adapter, LCD panel, etc.
4. ODM/OEM services.



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