



# MYD-LT527M

## EVK Hardware User`s Guide



**Version: V1.0**  
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**MYIR Electronics Limited**



# History

| Version | Author  | Participants | Date     | Description      |
|---------|---------|--------------|----------|------------------|
| V1.0    | MHW0097 |              | 20240125 | Official release |



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# 1. Overview

The core board MYD-LT527M is an evaluation board development kit based on the T527 processor design launched by Shenzhen MYIR Electronics Limited. It is composed of the core board MYC-LT527M and the base board MYB-LT527, which provides many interface resources. Including but not limited to Ethernet, USB3.0 OTG, LVDS output, MIPI DSI, HDMI, EDP, MIPI CSI, Headphone, MIC, external dedicated low power RTC, Micro SD, Bluetooth /WIFI modules, This manual is convenient for users to understand the interface definition and functional application of the evaluation board, and also has certain guiding significance for project development using our company's core board MYC-LT527M.

## 1.1. EVK Introduction

The core board adopts high-density high-speed circuit board design, single-sided device layout, and integrates the processor, EMMC, DDR, EEPROM, PMIC power supply and other circuits on the 45mm\*43mm board.

Double-sided device layout is adopted on the base plate. Support Gigabit Ethernet, USB2.0 HOST Type A, USB3.0 OTG, single channel 4 lane LVDS output, Headphone, Micro SD card slot, HDMI port, EDP, Raspberry PI dual pin port, MIC, LED indicator, MIPI DSI interface, MIPI CSI interface, WIFI module.

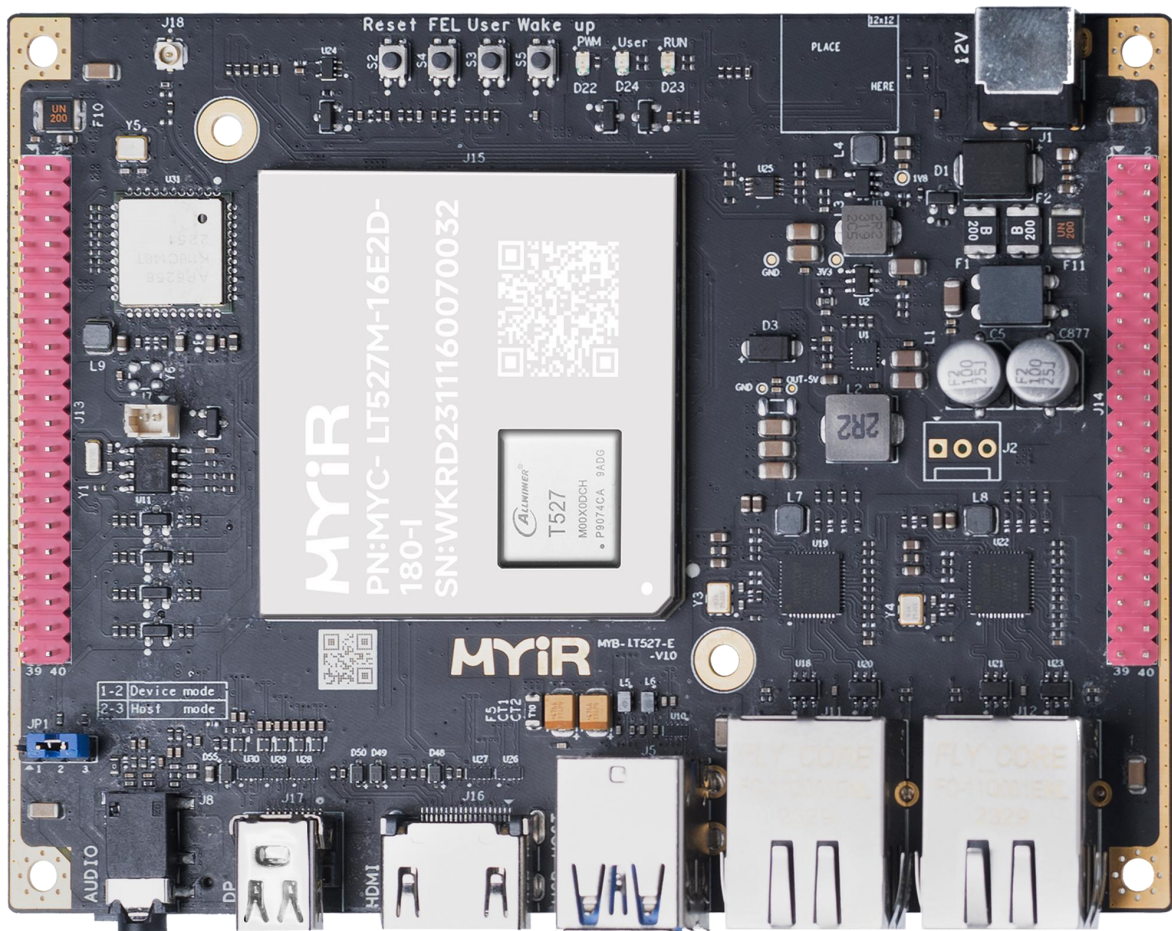


Figure 1- 1 MYD-LT527M Kit



## 1.2. Block Diagram



Figure 1- 2 Module Diagram

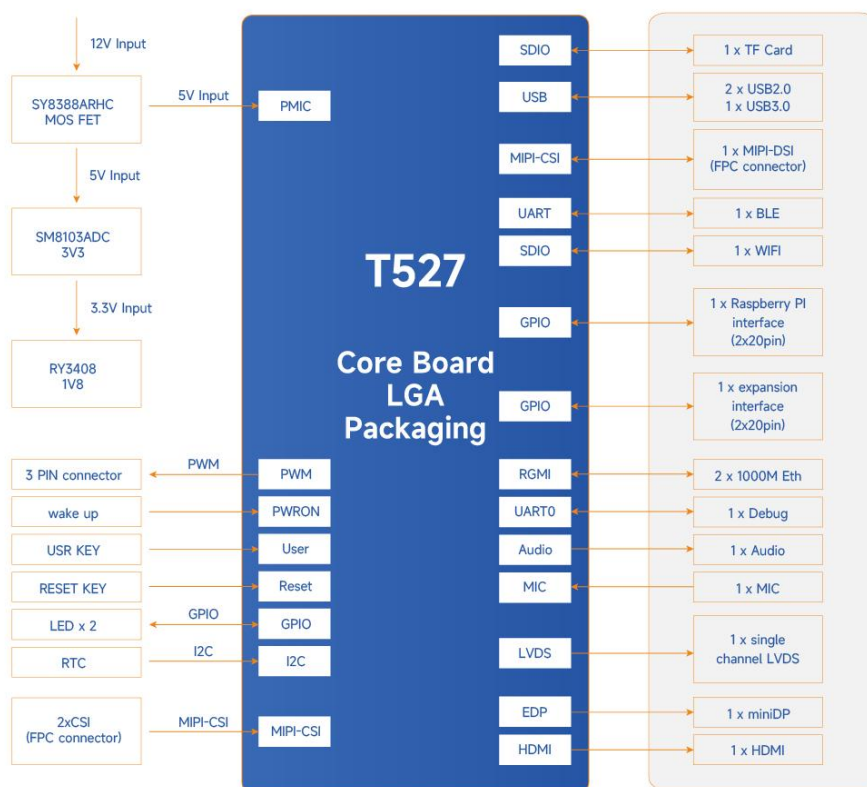


Figure 1- 3 Carrier Board Diagram





## 1.3. EVK Physical Image

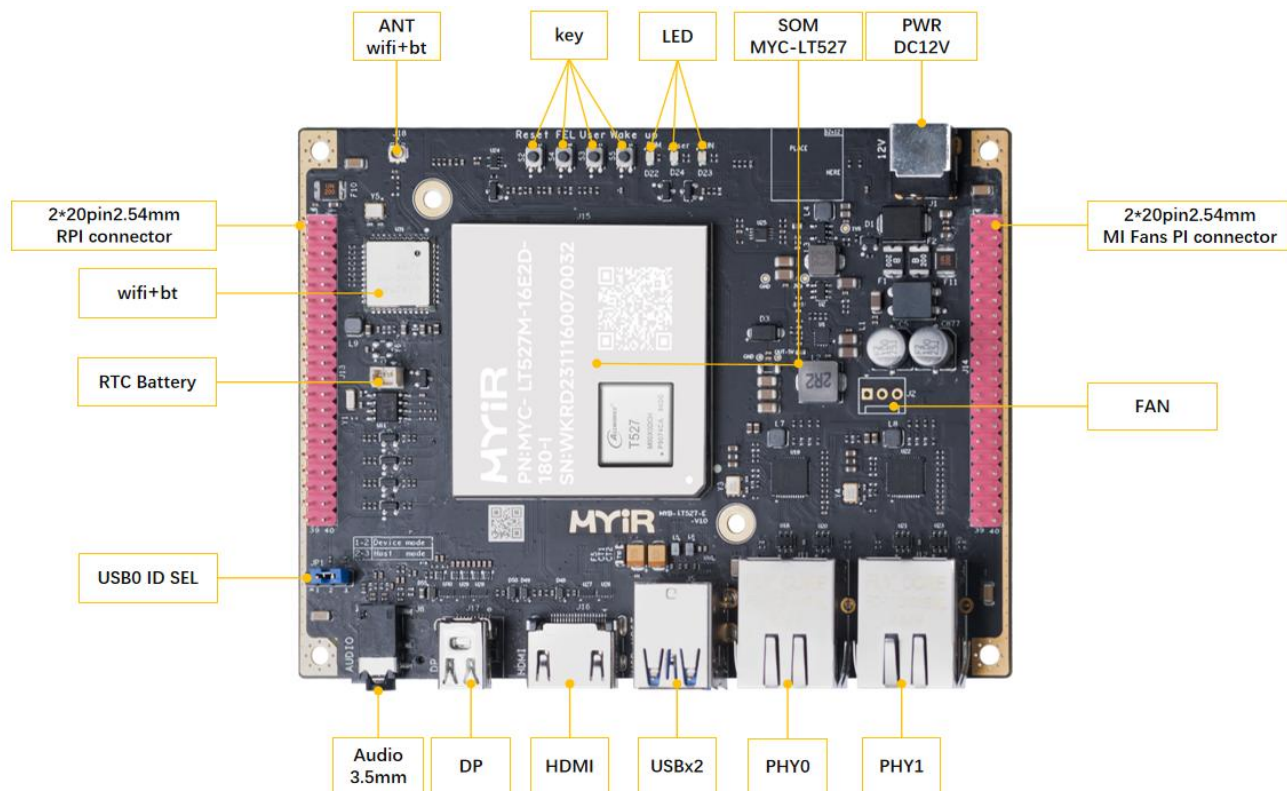


Figure 1- 4 MYD-LT527M Top View of EVK

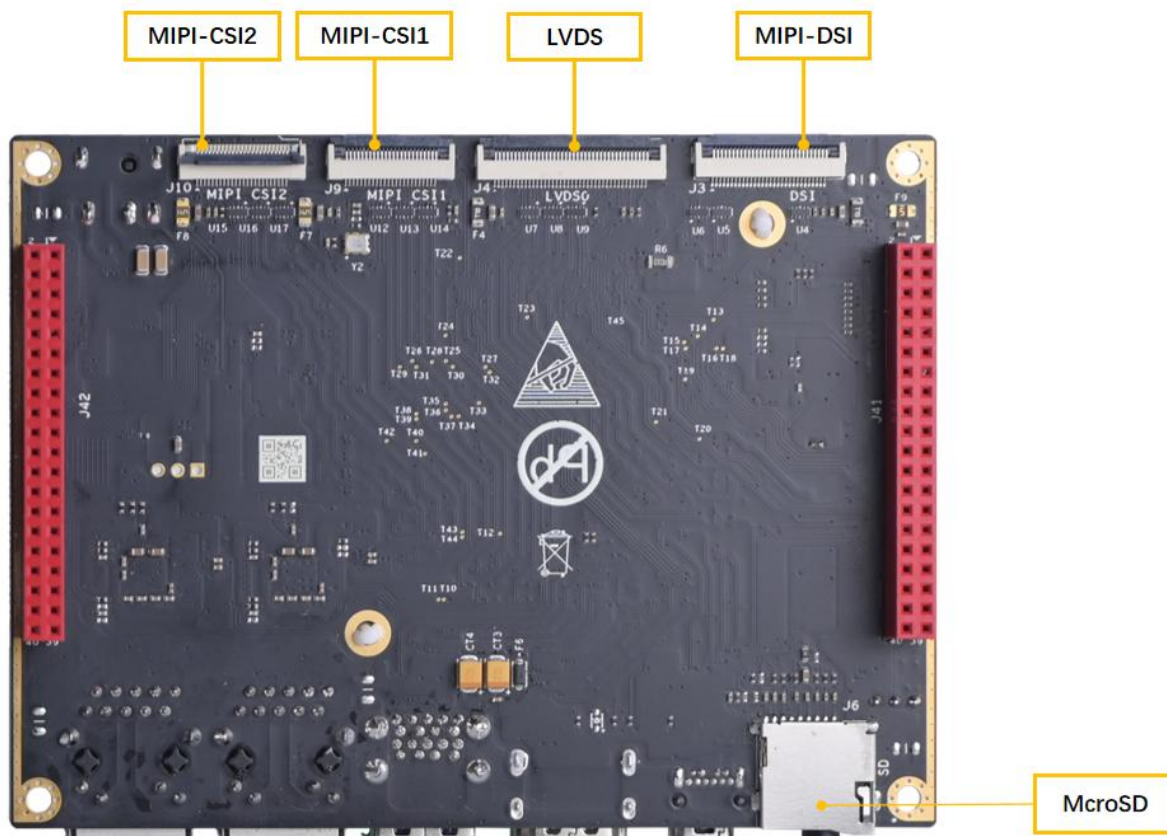


Figure 1- 5 MYD-LT527M Bottom View of EVK



## 1.4. Key interface parameter

| Interface          | Description  |
|--------------------|--|
| DC Power Supply    | DC 12V Power In  |
| Ethernet           | X2 RJ45 with 1000Mbps Ethernet,support 10M/100Mbps                                   |
| USB                | x1 USB 2.0 OTG Type C<br>X1 USB 2.0 HOST Type A<br>X1 USB 3.0 HOST Type A            |
| Debug interface    | x1 3.3V IO Level UART<br>x1 PL/M Bank debugging serial port                          |
| RTC                | x1 RTC   |
| Audio Out          | x1 Headphone port<br>x1 MIC port   |
| Display            | x1 single link LVDS output,<br>x1 FPC 30pin,0.5mm DSI<br>x1 eDP port<br>x1 HDMI port |
| Key                | x1 Wake key<br>x1 Reset key<br>x1 User key<br>x1 Force burn key                      |
| WIFI               | x1 UART BULE SDIO WIFI   |
| Micro SD           | x1 Micro SD,boot from Micro SD   |
| MIPI CSI           | X2 MIPI CSI  |
| Route Raspberry PI | x1 Route Raspberry PI port<br>X1 custom two-row pin port with a distance of 2.54mm   |

Table 1-1 MYD-LT527M Key Interface Parameter



## 1.5. Reference Resource

MYIR Electronics provides supporting software and hardware documents, including but not limited to product manuals, hardware design guides, device manuals, software development guides, system images, etc. Please go to <http://d.myirtech.com/MYD-LT527/> to download.



## 2. Power Parameters

### 2.1. Power Tree

The input voltage is 12V. The power supply path is 12V to 5V, 12V to 3.3V, and 3.3V to 1.8V.

The base plate and the core board 5V are powered separately, and the base plate 5V is powered by the core board control transistor and MOS tube. The base plate 5V provides LVDS, USB2.0, HDMI, DSI, EDP, CSI and other power supplies. 3.3V voltage is used to power Ethernet, RTC, GPIO port, WIFI, UART, TF card, etc.

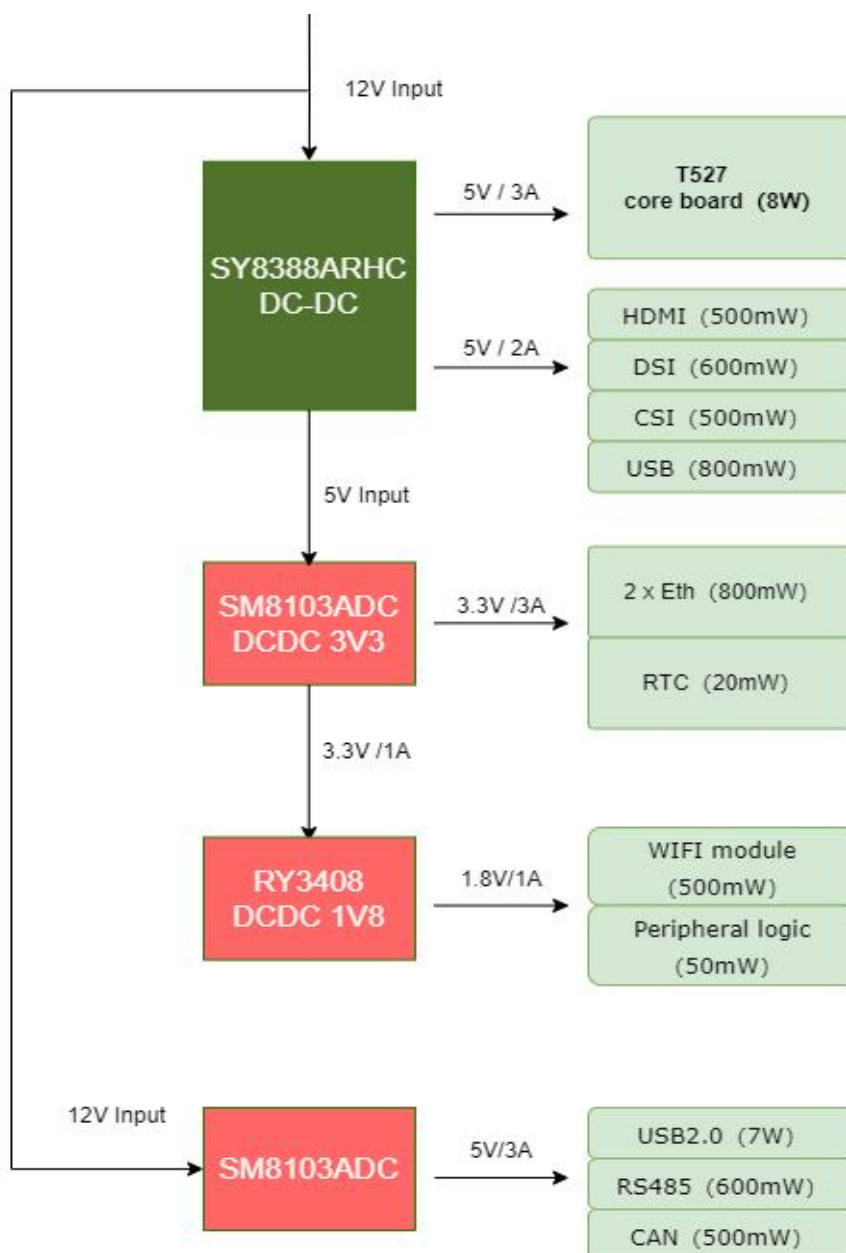


Figure 2 - 1 EVK Power Tree



## 2.2. Power Consumption

| Condition  | Voltage | Current | Power Consumption |
|--|---------|---------|-------------------|
| MEM<br>command: echo mem > /sys/power/state                | 12.0V   | 0.03A   | 0.36W             |
| FREEZE<br>command: echo freeze> /sys/power/state           | 12.0V   | 0.2A    | 2.4W              |
| No-load condition  | 12.0V   | 0.6A    | 7.2W              |
| USB Hostx2,LAN+OTG+SD Card+Aging program,<br>CPU Full load | 12.0V   | 0.03A   | 0.36W             |

Table 2 - 1 EVK Power Consumption

## 2.3. Requirement of Power Supply

The recommend supply voltage of MYD-LT527M carried board is 12V. The MYIR development board has a matching power adapter



## 3. BOOT configure

With the MYD-LT527M core board, there is no need to focus on the boot bit configuration in the design of the backboard. The SD card has a plug-in card and the image is burned on the card surface, and the development board will boot from the SD card. After removing the MicroSD card, the development board can be booted from eMMC.

## 4. Interface Layout

The overall interface layout of the evaluation board is shown as follows: The diagram of the local interface circuit later in this section corresponds exactly to this layout.

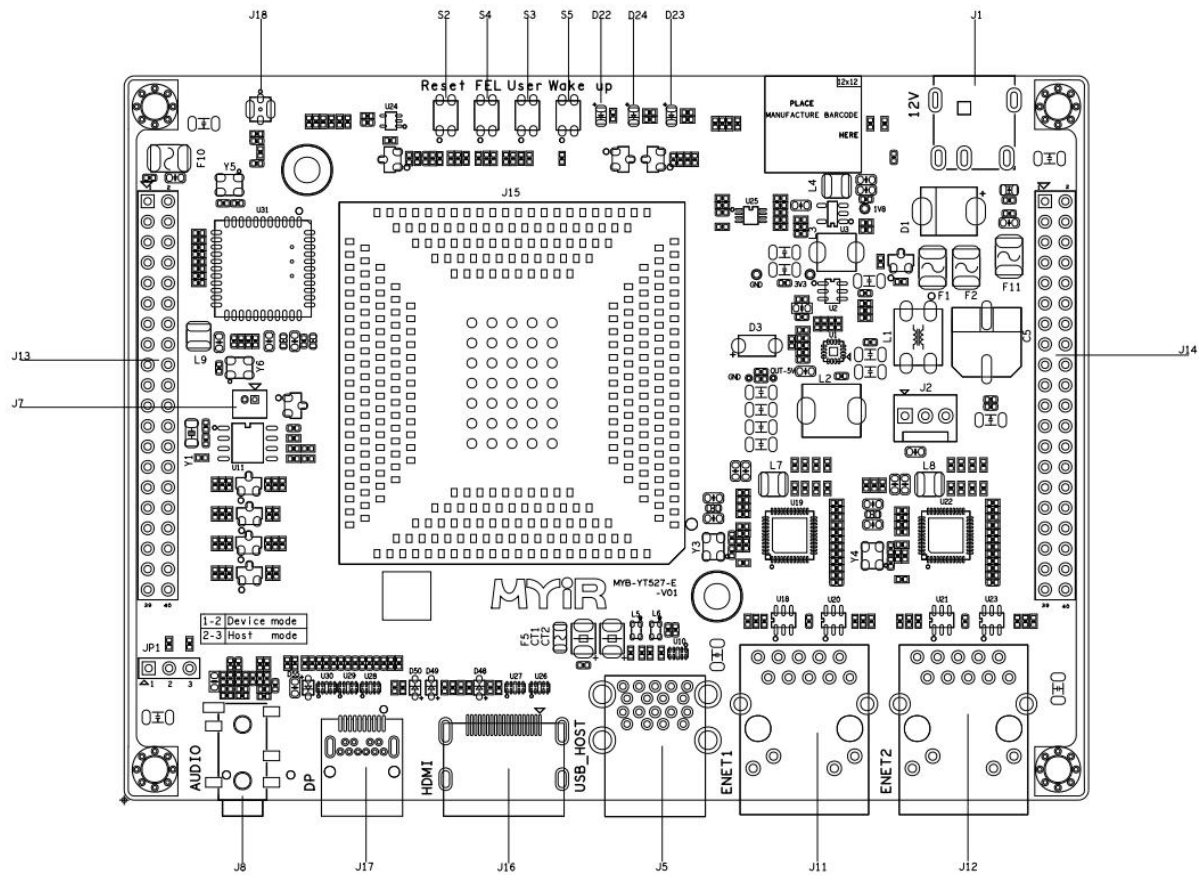


Figure 4 - 1 MYD-LT527M Interface Layout Top View

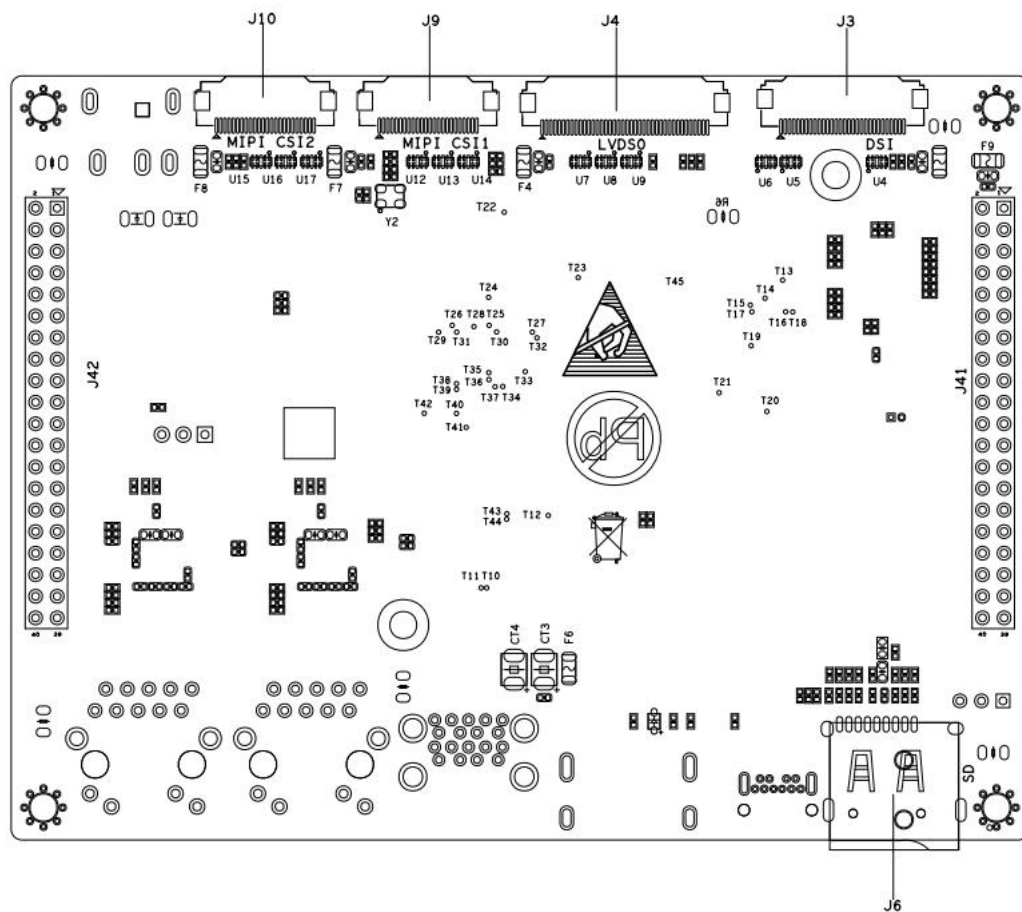


Figure 4 - 2 MYD-LT527M Interface Layout Bottom View





## 4.1. Power Interface

It is recommended to use the 12V DC power adapter as the power input, and purchase the adapter that comes with the MYiR development board.

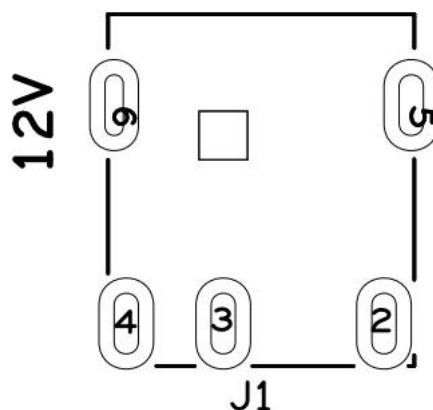


Figure 4 - 3 Connector of Power Input

### 4.1.1. Pin Description

| Ref | Pin | Function     | signal     | Comments |
|-----|-----|--------------|------------|----------|
| J1  | 2   | IN_GND       | IN_GND     |          |
|     | 3   | NC           | NC         |          |
|     | 4   | 12V Power IN | VCC_IN_12V |          |
|     | 5   | GND_EARTH    | GND_EARTH  |          |
|     | 6   | GND_EARTH    | GND_EARTH  |          |

Table 4 - 1 Power Interface Pin Description



## 4.2. Debug

The debugging serial port of the MYD-LT527M development board uses UART0, and the baseboard is designed to connect to the 8th (TX) and 10th (RX) pins of the Raspberry PI interface J13, and the 6th pin is GND. If you want to use the USB Type C interface, you need the USB0 interface to design, and you need to cooperate with the FEL pin for forced burning.



Figure 4 - 4 UART Debug Interface

### 4.2.1. Pin Description

| Ref | Pin | Function | signal      | Comments |
|-----|-----|----------|-------------|----------|
| J13 | 8   | Debug    | DE_UART0-TX |          |
|     | 10  | Debug    | DE_UART0-RX |          |
|     | 6   | GND      | GND         |          |

Table 4 - 2 UART Debug Pin Description



## 4.3. Key

The evaluation board is designed with two buttons, namely reset button and user-defined button.

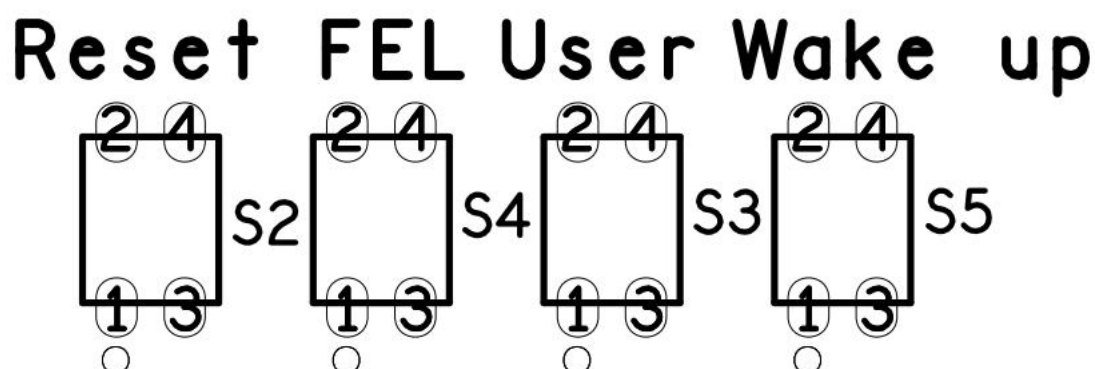


Figure 4 - 5 Key Interface

### 4.3.1. Pin Description

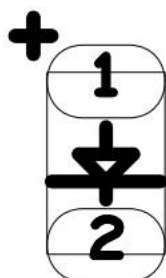
| Ref | Pin | Function        | signal    | Comments  |
|-----|-----|-----------------|-----------|---|
| S2  | /   | reset           | KEY_RESET | Used to reset the module. The low level is active.    |
| S3  | /   | User defined IO | PWM-12    | Key press generates the corresponding event/interrupt |
| S4  | /   | Forced burning  | FEL       | It can be burned in conjunction with USB0             |
| S5  | /   | Awaken          | PWRON     | Press the key to wake up                              |

Table 4 - 3 Key Pin Description

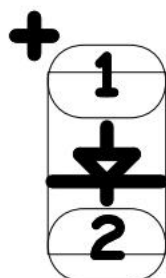


## 4.4. LED

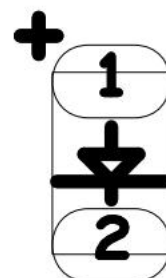
The evaluation board is designed with 1 power light, 1 program controllable indicator light and 1 running indicator light. The functions are 5V power indicator, user indicator and normal operation indicator.



**D22**



**D24**



**D23**

Table 4 - 6 LED Interface

### 4.4.1. Pin Description

| Ref | Pin | Function                           | signal  | Comments   |
|-----|-----|------------------------------------|---------|--|
| D22 | /   | 3.3V Indicator (Red LED)           | VDD_3V3 | On: The device is powered on<br>Off: The device is powered off |
| D23 | 1   | POWER                              | VDD_3V3 |  |
|     | 2   | running indicator light, Green LED | PB6     |  |
| D24 | 1   | POWER                              | VDD_3V3 |  |
|     | 2   | User indicator, red                | PB7     |  |

Table 4 - 4 LED Pin Description



## 4.5. Micro SD

One Micro SD card circuit is designed for the evaluation board. It supports both booting from Micro SD and storage operations.

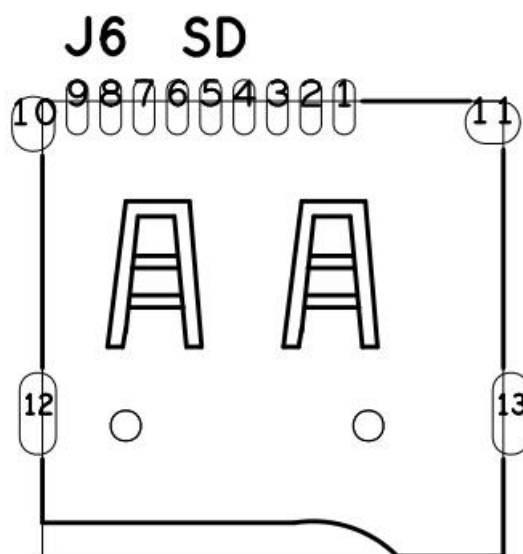


Figure 4 - 7 Micro SD

### 4.5.1. Pin Description

| Ref | Pin | Function                  | signal     | Comments |
|-----|-----|---------------------------|------------|----------|
| J6  | 1   | SD0 data 2                | SDC0_D2    |          |
|     | 2   | SD0 data 3                | SDC0_D3    |          |
|     | 3   | SD0 command signal        | SDC0_CMD   |          |
|     | 4   | Power supply for micro SD | VDD_SD_3V3 |          |
|     | 5   | SD0 clock                 | SDC0_CLK   |          |
|     | 6   | GND                       | GND        |          |
|     | 7   | SD0 data 0                | SDC0_D0    |          |
|     | 8   | SD0 data 1                | SDC0_D1    |          |
|     | 9   | SD0 card detect           | SDC0-DET   |          |
|     | 10  | GND                       | GND        |          |
|     | 11  | GND                       | GND        |          |
|     | 12  | GND                       | GND        |          |
|     | 13  | GND                       | GND        |          |

Table 4 - 5 Micro SD Pin Description



## 4.6. eDP

Evaluation board design 1 EDP interface, interface J17, resolution 2.5k@60Hz. 1, 2, and 4 lane transfers with a maximum transfer rate of 2.7 Gbit/s. Color depth: 8bit and 10bit per channel.

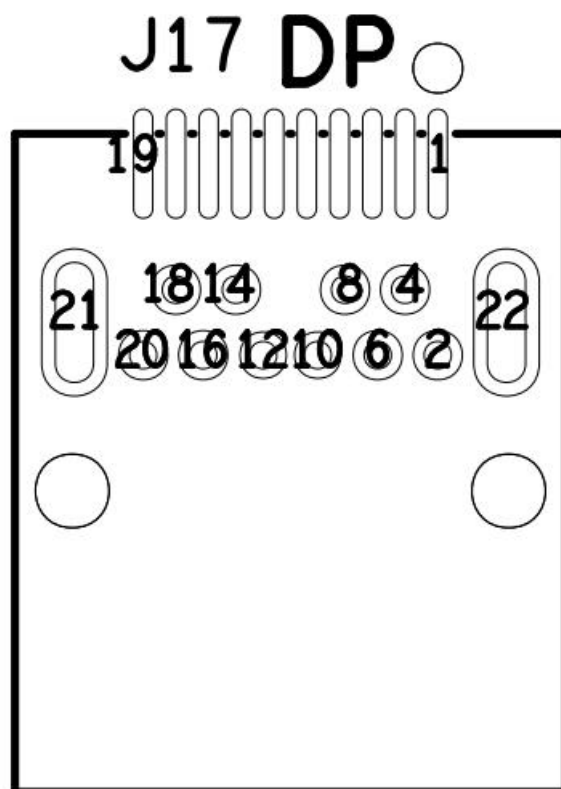


Figure 4 - 8 eDP Interface

### 4.6.1. Pin Description

| Ref | Pin | Function                 | signal     | Comments                     |
|-----|-----|--------------------------|------------|------------------------------|
| J17 | 1   | GND                      | GND0       |                              |
|     | 2   | EDP hot swap             | EDP-HPD    |                              |
|     | 3   | EDP differential signal+ | EDP-TX0P   |                              |
|     | 4   | DP_CONFIG1               | DP_CONFIG1 | Pull 100K down to the ground |
|     | 5   | EDP differential signal- | EDP-TX0N   |                              |
|     | 6   | DP_CONFIG2               | DP_CONFIG2 | Pull 100K down to the ground |
|     | 7   | GND                      | GND1       |                              |
|     | 8   | GND                      | GND2       |                              |
|     | 9   | EDP differential signal+ | EDP-TX1P   |                              |
|     | 10  | EDP differential signal+ | EDP-TX3P   |                              |
|     | 11  | EDP differential signal- | EDP-TX1N   |                              |
|     | 12  | EDP differential signal- | EDP-TX3N   |                              |



|  |    |                                |           |  |
|--|----|--------------------------------|-----------|--|
|  | 13 | POWER GND                      | GND       |  |
|  | 14 | POWER GND                      | GND       |  |
|  | 15 | EDP differential signal+       | EDP-TX2P  |  |
|  | 16 | EDP differential clock signal+ | EDP-AUXP  |  |
|  | 17 | EDP differential signal-       | EDP-TX2N  |  |
|  | 18 | EDP differential clock signal- | EDP-AUXN  |  |
|  | 19 | POWER GND                      | GND       |  |
|  | 20 | POWER                          | 3V3       |  |
|  | 21 | Frame GND                      | GND_EARTH |  |
|  | 22 | Frame GND                      | GND_EARTH |  |

Table 4- 6 eDP Pin Description

## 4.7. USB

The T527M integrates one USB2.0 DRP (USB0), one USB2.0 Host (USB1), and one USB3.0 DRP (USB2). The evaluation board uses USB0 and USB2 to design the USB3.0 Type A interface circuit. USB1 leads to J14 pins.

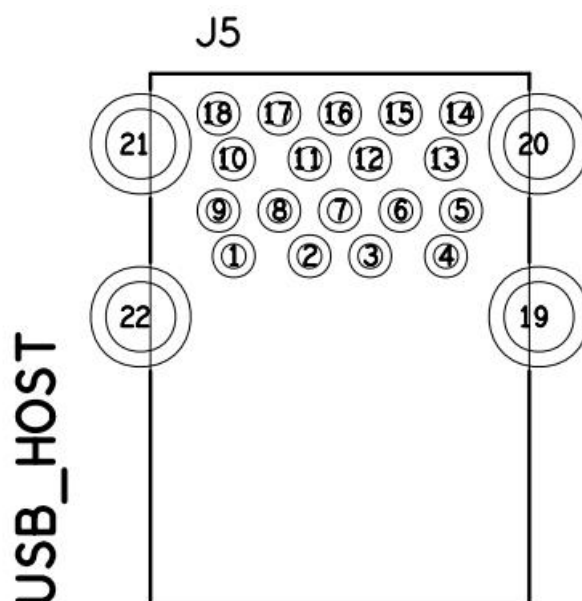


Figure 4 - 9 USB Interface



## 4.7.1. Pin Description

| Ref | Pin | Function                         | signal      | Comments |
|-----|-----|----------------------------------|-------------|----------|
| J10 | 1   | USB 5V Power                     | VDD_5V      |          |
|     | 2   | USB0 Data-                       | USB2_DM     |          |
|     | 3   | USB0 Data+                       | USB2_DP     |          |
|     | 4   | GND                              | GND         |          |
|     | 5   | USB differential negative signal | PCIE-RX0-DN |          |
|     | 6   | USB differential positive signal | PCIE-RX0-DP |          |
|     | 7   | GND                              | GND         |          |
|     | 8   | USB differential negative signal | PCIE-TX0-DN |          |
|     | 9   | USB differential positive signal | PCIE-TX0-DN |          |
|     | 10  | USB 5V Power                     | VDD_5V      |          |
|     | 11  | USB0 Data-                       | USB0_DM     |          |
|     | 12  | USB0 Data+                       | USB0_DP     |          |
|     | 13  | GND                              | GND         |          |
|     | 14  | NC                               | NC          |          |
|     | 15  | NC                               | NC          |          |
|     | 16  | GND                              | GND         |          |
|     | 17  | NC                               | NC          |          |
|     | 18  | NC                               | NC          |          |
|     | 19  | Frame GND                        | GND_EARTH   |          |
|     | 20  | Frame GND                        | GND_EARTH   |          |
|     | 21  | Frame GND                        | GND_EARTH   |          |
|     | 22  | Frame GND                        | GND_EARTH   |          |

Table 4 - 7 USB HOST Pin Description





## 4.8. Ethernet

The evaluation board is designed with 2 Ethernet communication interfaces, the RGMII communication interface is led to the integrated network transformer integrated RJ45 connector through the YT8531SH PHY chip. This chip only has RGMII mode.

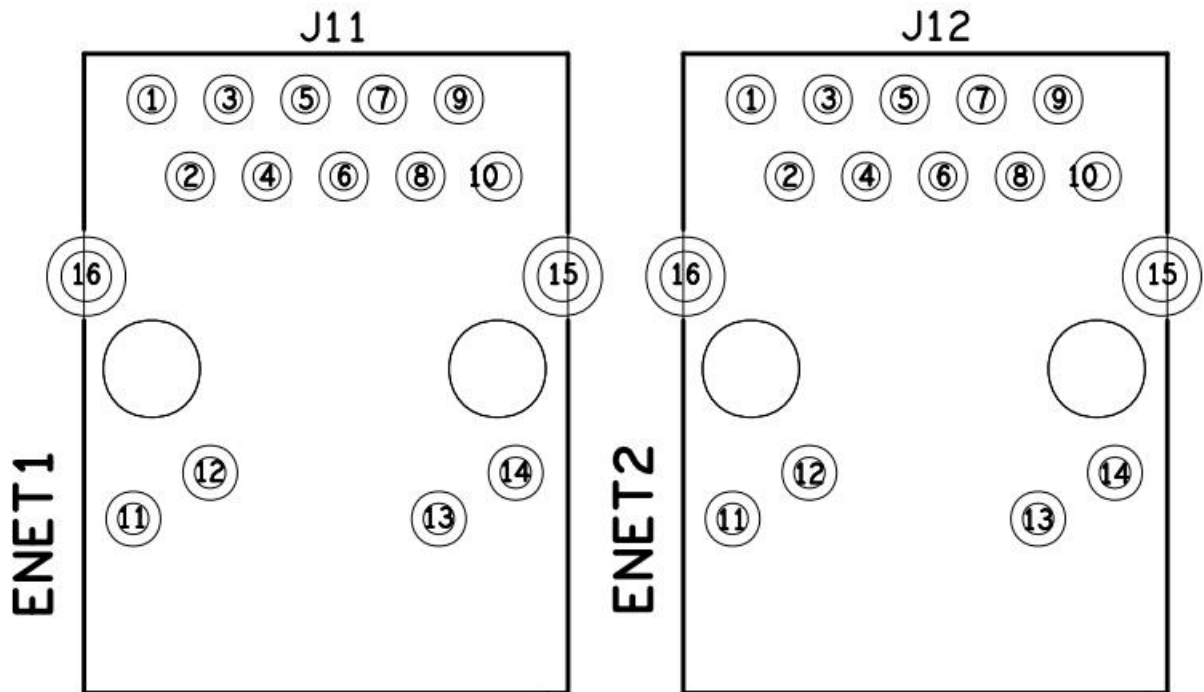


Figure 4 - 10 Ethernet Interface

### 4.8.1. Pin Description

| Ref | Pin | Function                    | signal    | Comments |
|-----|-----|-----------------------------|-----------|----------|
| J11 | 1   | ETH0 Differential signal 0+ | ETH0_TXP0 |          |
|     | 2   | ETH0 Differential signal 0- | ETH0_TPN0 |          |
|     | 3   | ETH0 Differential signal 1+ | ETH0_TXP1 |          |
|     | 4   | ETH0 Differential signal 1- | ETH0_TPN1 |          |
|     | 5   | CT1                         | CT1       |          |
|     | 6   | CT2                         | CT2       |          |
|     | 7   | ETH0 Differential signal 2+ | ETH0_TXP2 |          |
|     | 8   | ETH0 Differential signal 2- | ETH0_TPN2 |          |
|     | 9   | ETH0 Differential signal 3+ | ETH0_TXP3 |          |
|     | 10  | ETH0 Differential signal 3- | ETH0_TPN3 |          |
|     | 11  | GND                         | GND       |          |



|  |    |              |           |  |
|--|----|--------------|-----------|--|
|  | 12 | ETH0_LED2    | ETH0_LED2 |  |
|  | 13 | GND          | GND       |  |
|  | 14 | ETH0_LED1    | ETH0_LED1 |  |
|  | 15 | Metal ground | GND_EARTH |  |
|  | 16 | Metal ground | GND_EARTH |  |

Table 4 - 8 Ethernet Interface Pin Description

| Ref | Pin | Function                    | signal     | Comments |
|-----|-----|-----------------------------|------------|----------|
| J12 | 1   | ETH0 Differential signal 0+ | ETH1_TPXP0 |          |
|     | 2   | ETH0 Differential signal 0- | ETH1_TPXN0 |          |
|     | 3   | ETH0 Differential signal 1+ | ETH1_TPXP1 |          |
|     | 4   | ETH0 Differential signal 1- | ETH1_TPXN1 |          |
|     | 5   | CT1                         | CT1        |          |
|     | 6   | CT2                         | CT2        |          |
|     | 7   | ETH0 Differential signal 2+ | ETH1_TPXP2 |          |
|     | 8   | ETH0 Differential signal 2- | ETH1_TPXN2 |          |
|     | 9   | ETH0 Differential signal 3+ | ETH1_TPXP3 |          |
|     | 10  | ETH0 Differential signal 3- | ETH1_TPXN3 |          |
|     | 11  | GND                         | GND        |          |
|     | 12  | ETH1_LED2                   | ETH1_LED2  |          |
|     | 13  | GND                         | GND        |          |
|     | 14  | ETH1_LED1                   | ETH1_LED1  |          |
|     | 15  | Metal ground                | GND_EARTH  |          |
|     | 16  | Metal ground                | GND_EARTH  |          |

Table 4 - 9 Ethernet Interface Pin Description



### 4.9. Audio

The evaluation board is designed with an Aduio interface and uses a round diameter Φ3.50mm headset seat.

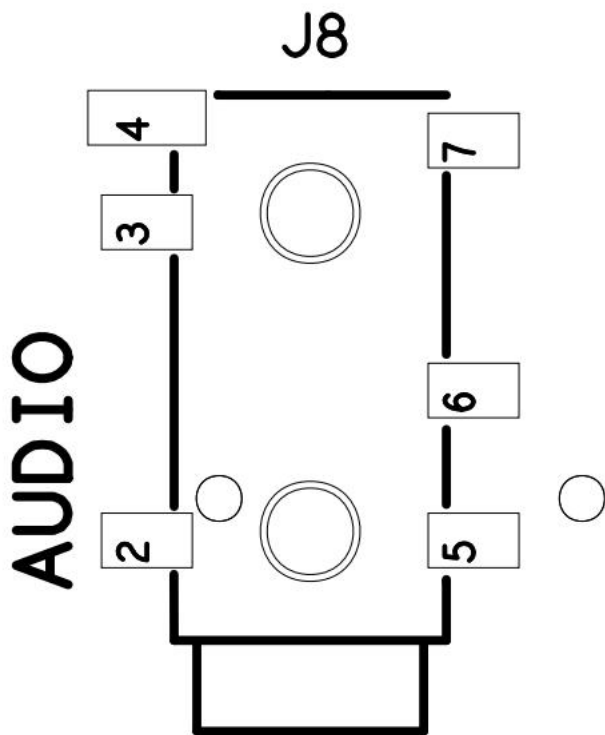


Figure 4 - 11 Audio Interface

#### 4.9.1. Pin Description

| Ref | Pin | Function                | signal  | Comments |
|-----|-----|-------------------------|---------|----------|
| J8  | 2   | Headphone reference GND | HPOUTFB |          |
|     | 3   | HPOUTL                  | HPOUTL  |          |
|     | 4   | NC                      | NC      |          |
|     | 5   | AUD-MIC                 | AUD-MIC |          |
|     | 6   | HPOUTR                  | HPOUTR  |          |
|     | 7   | NC                      | NC      |          |

Table 4 - 10 Audio Pin Description



## 4.10. HDMI

Evaluation board design all the way HDMI output, HDMI 5V power supply must be connected to the Schottky diode in series, to prevent leakage at the device end after shutdown, please choose the Schottky diode with reduced conduction voltage. Support 3840x2160, 1920x1080, 1280x720 resolution.

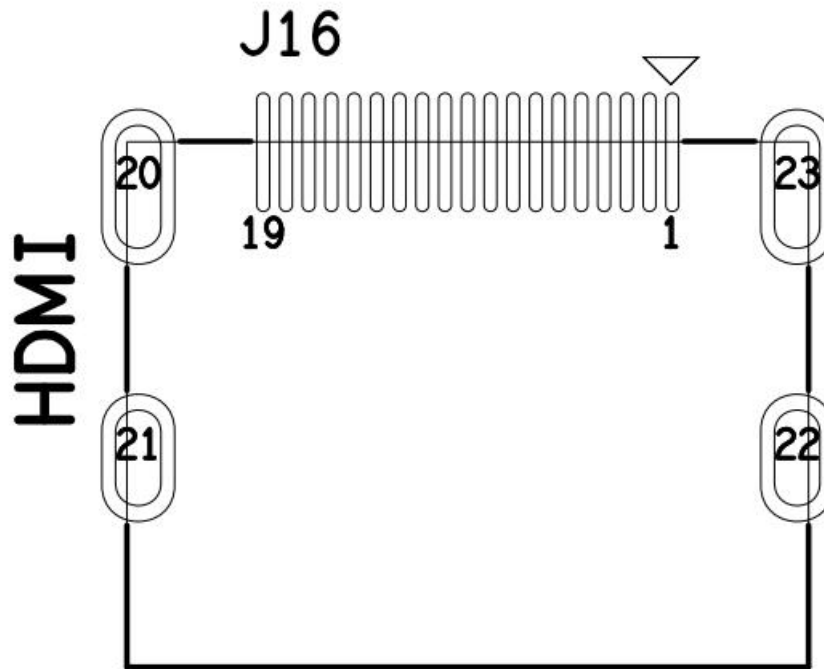


Figure 4 - 12 HDMI Interface

### 4.10.1. Pin Description

| Ref | Pin | Function                    | signal | Comments |
|-----|-----|-----------------------------|--------|----------|
| J16 | 1   | HDMI Differential signal 2+ | HTX2P  |          |
|     | 2   | GND                         | GND    |          |
|     | 3   | HDMI Differential signal 2- | HTX2N  |          |
|     | 4   | HDMI Differential signal 1+ | HTX1P  |          |
|     | 5   | GND                         | GND    |          |
|     | 6   | HDMI Differential signal 1- | HTX1N  |          |
|     | 7   | HDMI Differential signal 0+ | HTX0P  |          |
|     | 8   | GND                         | GND    |          |
|     | 9   | HDMI Differential signal 0- | HTX0N  |          |
|     | 10  | HDMI CLK signal +           | HTXCP  |          |



|  |    |                   |           |  |
|--|----|-------------------|-----------|--|
|  | 11 | GND               | GND       |  |
|  | 12 | HDMI CLK signal - | HTXCN     |  |
|  | 13 | HCEC              | HCEC      |  |
|  | 14 | NC                | NC        |  |
|  | 15 | I2C clock signal  | HSCL      |  |
|  | 16 | I2C data signal   | HSDA      |  |
|  | 17 | GND               | GND       |  |
|  | 18 | VDD_5V            | VDD_5V    |  |
|  | 19 | Hot swap signal   | HHPD      |  |
|  | 20 | Metal ground      | GND_EARTH |  |
|  | 21 | Metal ground      | GND_EARTH |  |
|  | 22 | Metal ground      | GND_EARTH |  |
|  | 23 | Metal ground      | GND_EARTH |  |

Table 4 - 11 HDMI Pin Description



## 4.11. LVDS

The evaluation board is designed with a 2x15 dual-row pin supporting dual-channel HD LVDS display interface. Can support the market 19 inch or larger size of high-definition LVDS display. The T527 offers single-channel LVDS resolutions up to 1366x768@60fps and supports dual-channel LVDS resolutions up to 1920x1080@60fps. When used as a normal IO port, the level is 3.3V.

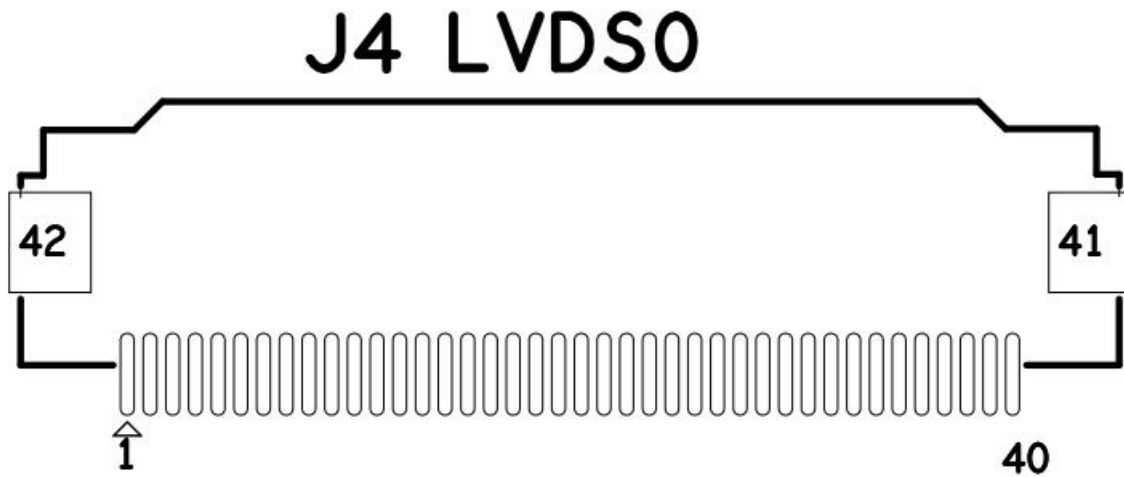


Figure 4 - 13 Signal Link LVDS Interface

### 4.11.1. Pin Description

| Ref | Pin | Function                    | signal    | Comments |
|-----|-----|-----------------------------|-----------|----------|
| J4  | 1   | NC                          | NC        |          |
|     | 2   | POWER IN                    | VDD_5V    |          |
|     | 3   | POWER IN                    | VDD_5V    |          |
|     | 4   | NC                          | NC        |          |
|     | 5   | NC                          | NC        |          |
|     | 6   | NC                          | NC        |          |
|     | 7   | GND                         | GND       |          |
|     | 8   | LVDS Differential signal 0- | LVDS0-D0N |          |
|     | 9   | LVDS Differential signal 0+ | LVDS0-D0P |          |
|     | 10  | GND                         | GND       |          |
|     | 11  | LVDS Differential signal 1- | LVDS0-D1N |          |
|     | 12  | LVDS Differential signal 1+ | LVDS0-D1P |          |



|    |                                |           |  |
|----|--------------------------------|-----------|--|
| 13 | GND                            | GND       |  |
| 14 | LVDS Differential signal 2-    | LVDS0-D2N |  |
| 15 | LVDS Differential signal 2+    | LVDS0-D2P |  |
| 16 | GND                            | GND       |  |
| 17 | LVDS Differential CLK signal - | LVDS0-CKN |  |
| 18 | LVDS Differential CLK signal + | LVDS0-CKP |  |
| 19 | GND                            | GND       |  |
| 20 | LVDS Differential signal 3-    | LVDS0-D3N |  |
| 21 | LVDS Differential signal 3+    | LVDS0-D3P |  |
| 22 | GND                            | GND       |  |
| 23 | NC                             | NC        |  |
| 24 | NC                             | NC        |  |
| 25 | GND                            | GND       |  |
| 26 | NC                             | NC        |  |
| 27 | Backlight control              | PWM-10    |  |
| 28 | EN control                     | PJ18      |  |
| 29 | NC                             | NC        |  |
| 30 | GND                            | GND       |  |
| 31 | NC                             | NC        |  |
| 32 | NC                             | NC        |  |
| 33 | I2C data signal                | TWI4-SDA  |  |
| 34 | I2C clock signal               | TWI4-SCK  |  |
| 35 | NC                             | NC        |  |
| 36 | interrupt signal control       | PJ19      |  |
| 37 | NC                             | NC        |  |
| 38 | NC                             | NC        |  |
| 39 | NC                             | NC        |  |
| 40 | NC                             | NC        |  |
| 41 | GND                            | GND       |  |
| 42 | GND                            | GND       |  |

Table 4 - 12 Signal Link LVDS Pin Description



## 4.12. RTC

The RTC standby interface circuit is designed in the evaluation board, and the real-time clock module LK8563T with I2C bus is used to work with 3.0V external voltage to the J7 seat. It can be used to maintain the operation of the RTC circuit when the system is powered down.

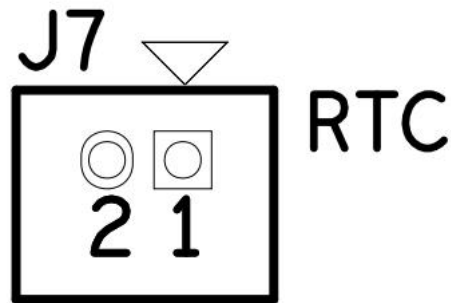


Figure 4 - 14 RTC battery Interface

### 4.12.1. Pin Description

| Ref | Pin | Function | signal  | Comments |
|-----|-----|----------|---------|----------|
| J20 | 1   | Power    | VDD_BAT | 3V       |
|     | 2   | GND      | GND     |          |

Table 4- 13 RTC Pin Description





## 4.13. DSI

The interrupt signal evaluation board is designed with a DSI interface and a 30pin clamshell FPC seat with a spacing of 0.5mm. This interface uses IO LVDS1, the level is 1V8, and the resolution is 1920x1080@60Hz. When used as a normal IO port, the level is 3.3V.



Figure 4 - 15 DSI Interface

### 4.13.1. Pin Description

| Ref | Pin | Function                        | signal    | Comments |
|-----|-----|---------------------------------|-----------|----------|
| J3  | 1   | GND                             | GND       |          |
|     | 2   | DSI differential signal 3-      | LVDS1-D3N |          |
|     | 3   | DSI differential signal 3+      | LVDS1-D3P |          |
|     | 4   | GND                             | GND       |          |
|     | 5   | DSI differential clock signal - | LVDS1-CKN |          |
|     | 6   | DSI differential clock signal + | LVDS1-CKP |          |
|     | 7   | GND                             | GND       |          |
|     | 8   | DSI differential signal 2-      | LVDS1-D2N |          |
|     | 9   | DSI differential signal 2+      | LVDS1-D2P |          |
|     | 10  | GND                             | GND       |          |
|     | 11  | DSI differential signal 1-      | LVDS1-D1N |          |
|     | 12  | DSI differential signal 1+      | LVDS1-D1P |          |
|     | 13  | GND                             | GND       |          |
|     | 14  | DSI differential signal 0-      | LVDS1-D0N |          |
|     | 15  | DSI differential signal 0+      | LVDS1-D0P |          |
|     | 16  | GND                             | GND       |          |



|    |                                   |                |                          |
|----|-----------------------------------|----------------|--------------------------|
| 17 | The reset signal of the screen    | PL11           | The level is 3.3V signal |
| 18 | Reset Signal                      | I2S1-BCLK      | The level is 1.8V signal |
| 19 | Touch screen backlight signals    | PWM-11         | The level is 3.3V signal |
| 20 | The control signals of the screen | PL7            | The level is 3.3V signal |
| 21 | general purpose input/output      | PL6            | The level is 3.3V signal |
| 22 | DSI Enables signals               | I2S1-LRCK      | The level is 1.8V signal |
| 23 | 12C clock signal                  | S-TWI1-SCK_1V8 | The level is 1.8V signal |
| 24 | 12C data signal                   | S-TWI1-SDA_1V8 | The level is 1.8V signal |
| 25 | Level at common end               | VDD_3V3        |                          |
| 26 | NC                                | NC             |                          |
| 27 | GND                               | GND            |                          |
| 28 | POWER IN                          | VDD_5V         |                          |
| 29 | POWER IN                          | VDD_5V         |                          |
| 30 | POWER IN                          | VDD_5V         |                          |

Table 4- 14 DSI Pin Description

## 4.14. CSI

The evaluation board is designed with two MIPI CSI interfaces, and its level is 1V8 level. The maximum input for CSI is 8M@30fps, the maximum pixel clock for parallel CSI interface is 148.5MHz, and the maximum input for BT656 interface is 4\*720P@30fps in clock dual-edge sampling mode. When used as a normal IO port, the level is 3.3V。

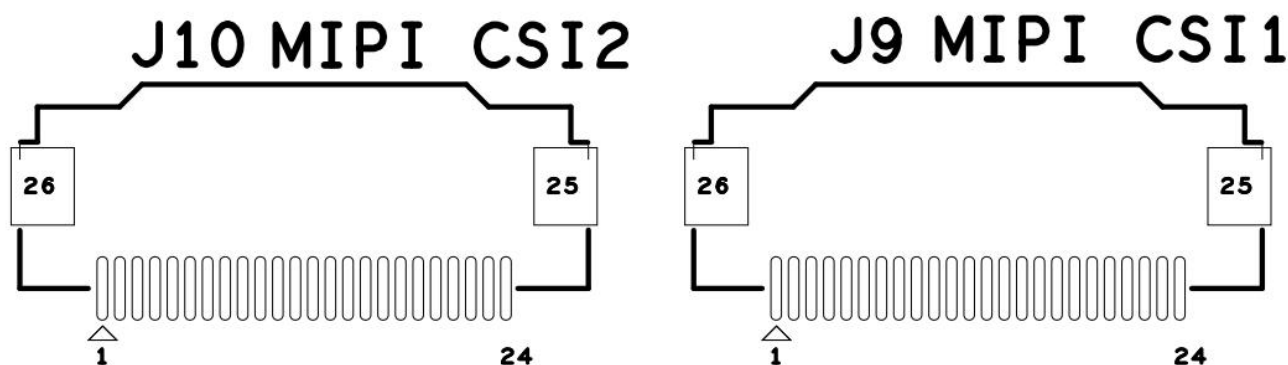


Figure 4 - 16 CSI Interface



### 4.14.1. Pin Description

| Ref | Pin | Function                     | signal     | Comments |
|-----|-----|------------------------------|------------|----------|
| J9  | 1   | POWER IN                     | VDD_5V     |          |
|     | 2   | POWER EN                     | PH11       |          |
|     | 3   | NC                           | NC         |          |
|     | 4   | 12C data signal              | S-TWI1-SDA |          |
|     | 5   | 12C clock signal             | S-TWI1-SCK |          |
|     | 6   | Reset signal                 | PM0        |          |
|     | 7   | Signal EN                    | PM1        |          |
|     | 8   | GND                          | GND        |          |
|     | 9   | CLK Signal of CSI            | CK24M-OUT  |          |
|     | 10  | GND                          | GND        |          |
|     | 11  | CSI differential signal +    | MCSIB-D1P  |          |
|     | 12  | CSI differential signal -    | MCSIB-D1N  |          |
|     | 13  | GND                          | GND        |          |
|     | 14  | CSI differential signal +    | MCSIB-D0P  |          |
|     | 15  | CSI differential signal -    | MCSIB-D0N  |          |
|     | 16  | GND                          | GND        |          |
|     | 17  | CSI CLK differential signal+ | MCSIA-CKP  |          |
|     | 18  | CSI CLK differential signal- | MCSIA-CKN  |          |
|     | 19  | GND                          | GND        |          |
|     | 20  | CSI differential signal +    | MCSIA-D1P  |          |
|     | 21  | CSI differential signal -    | MCSIA-D1N  |          |
|     | 22  | GND                          | GND        |          |
|     | 23  | CSI differential signal +    | MCSIA-D0P  |          |
|     | 24  | CSI differential signal -    | MCSIA-D0N  |          |
|     | 25  | GND                          | GND        |          |
|     | 26  | GND                          | GND        |          |
|     |     |                              |            |          |
| J10 | 1   | POWER IN                     | VDD_5V     |          |



|  |    |                               |           |  |
|--|----|-------------------------------|-----------|--|
|  | 2  | POWER EN                      | PH8       |  |
|  | 3  | NC                            | NC        |  |
|  | 4  | CSI 12C data signal           | PM5       |  |
|  | 5  | CSI 12C clock signal          | PM4       |  |
|  | 6  | Reset signal                  | PM2       |  |
|  | 7  | Signal EN                     | PM3       |  |
|  | 8  | GND                           | GND       |  |
|  | 9  | CLK Signal of CSI             | CK24M-OUT |  |
|  | 10 | GND                           | GND       |  |
|  | 11 | CSI differential signal +     | MCSID-D1P |  |
|  | 12 | CSI differential signal -     | MCSID-D1N |  |
|  | 13 | GND                           | GND       |  |
|  | 14 | CSI differential signal +     | MCSID-D0P |  |
|  | 15 | CSI differential signal -     | MCSID-D0N |  |
|  | 16 | GND                           | GND       |  |
|  | 17 | CSI CLK differential signal + | MCSIC-CKP |  |
|  | 18 | CSI CLK differential signal - | MCSIC-CKN |  |
|  | 19 | GND                           | GND       |  |
|  | 20 | CSI differential signal +     | MCSIC-D1P |  |
|  | 21 | CSI differential signal -     | MCSIC-D1N |  |
|  | 22 | GND                           | GND       |  |
|  | 23 | CSI differential signal +     | MCSIC-D0P |  |
|  | 24 | CSI differential signal -     | MCSIC-D0N |  |
|  | 25 | GND                           | GND       |  |
|  | 26 | GND                           | GND       |  |

Table 4- 15 CSI Pin Description



## 4.15. Raspberry PI interface

Evaluation board design all the way pitch 2.54mm, 2x20Pin Raspberry PI interface, J13. In addition, J14 is a custom interface, and it is also a 2.54mm pitch, 2x20Pin: 2xI2C, 2xSPI, 4xUART, 1xUSB. This interface can expand an expansion board, mill also designed the expansion board, details can consult sales.

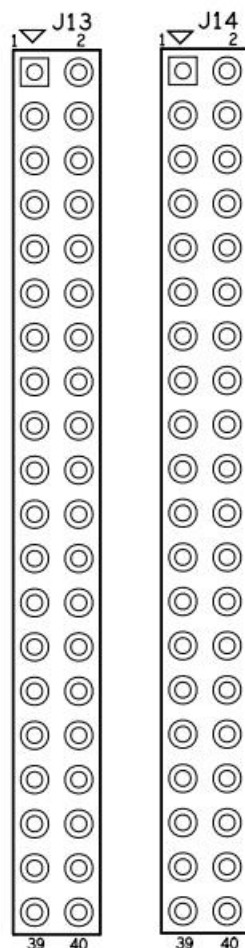


Figure 4 - 17 Raspberry PI interface Interface

### 4.15.1. Pin Description

| Ref | Pin | Function           | signal     | Comments |
|-----|-----|--------------------|------------|----------|
| J13 | 1   | POWER IN           | VDD_3V3    |          |
|     | 2   | POWER IN           | VDD_PH1_5V |          |
|     | 3   | Serial data signal | S-TWI1-SDA |          |
|     | 4   | POWER IN           | VDD_PH1_5V |          |
|     | 5   | Serial CLK signal  | S-TWI1-SCK |          |



|  |    |                                     |              |  |
|--|----|-------------------------------------|--------------|--|
|  | 6  | GND                                 | GND          |  |
|  | 7  | I2Smaster clock signal              | I2S2-MCLK    |  |
|  | 8  | DE UART0 sends a signal             | DE_UART0-TX  |  |
|  | 9  | GND                                 | GND          |  |
|  | 10 | DE UART0 accepts the signal         | DE_UART0-RX  |  |
|  | 11 | sending signal of the serial port   | UART7-TX     |  |
|  | 12 | I2S Frame clock signal              | I2S2-LRCK    |  |
|  | 13 | Receiving signal of the serial port | UART7-RX     |  |
|  | 14 | GND                                 | GND          |  |
|  | 15 | Flow control signal of serial port  | UART7-RTS    |  |
|  | 16 | CAN accepts the signal              | CAN0-RX      |  |
|  | 17 | POWER IN                            | VDD_3V3      |  |
|  | 18 | CAN sends a signal                  | CAN0-TX      |  |
|  | 19 | Receiving signal of the serial port | UART3-RX     |  |
|  | 20 | GND                                 | GND          |  |
|  | 21 | sending signal of the serial port   | UART3-TX     |  |
|  | 22 | general purpose input/output        | PE0          |  |
|  | 23 | Flow control signal of serial port  | UART3-CTS    |  |
|  | 24 | Flow control signal of serial port  | UART3-RTS    |  |
|  | 25 | GND                                 | GND          |  |
|  | 26 | general purpose input/output        | PJ24         |  |
|  | 27 | 12C data signal                     | TWI5-SDA     |  |
|  | 28 | 12C clock signal                    | TWI5-SCK     |  |
|  | 29 | CAN accepts the signal              | CAN0-CPUS-RX |  |
|  | 30 | GND                                 | GND          |  |
|  | 31 | CAN sends a signal                  | CAN0-CPUS-TX |  |
|  | 32 | general purpose input/output        | PWM-15       |  |



|     |    |  |              |  |
|-----|----|--|--------------|--|
|     | 33 | general purpose input/output             | PWM-14       |  |
|     | 34 | GND                                      | GND          |  |
|     | 35 | I2SByte clock signal                     | I2S2-BCLK    |  |
|     | 36 | I2S data signal output                   | I2S2-DOUT0   |  |
|     | 37 | sending signal of the serial port        | SS-UART0-TX  |  |
|     | 38 | I2S serial data input                    | I2S2-DIN0    |  |
|     | 39 | GND                                      | GND          |  |
|     | 40 | Receiving signal of the serial port      | SS-UART0-RX  |  |
|     |    |  |              |  |
| J10 | 1  | POWER IN                                 | VDD_PH2_5V   |  |
|     | 2  | POWER IN                                 | VDD_IN_12V   |  |
|     | 3  | POWER IN                                 | VDD_PH2_5V   |  |
|     | 4  | POWER IN                                 | VDD_IN_12V   |  |
|     | 5  | GND                                      | GND          |  |
|     | 6  | GND                                      | GND          |  |
|     | 7  | 25Mclock of the CPU output               | EPHY-CLK-25M |  |
|     | 8  | general purpose input/output             | PH12         |  |
|     | 9  | The main output of SPI is from the input | SPI1-MOSI    |  |
|     | 10 | SPI main input from output               | SPI1-MISO    |  |
|     | 11 | SPI CLK signal                           | SPI1-CLK     |  |
|     | 12 | SPI slice selection signal               | SPI1-CS0     |  |
|     | 13 | sending signal of the serial port        | UART4-TX     |  |
|     | 14 | sending signal of the serial port        | UART2-TX     |  |
|     | 15 | Receiving signal of the serial port      | UART4-RX     |  |
|     | 16 | Receiving signal of the serial port      | UART2-RX     |  |
|     | 17 | Flow control signal of serial port       | UART4-RTS    |  |
|     | 18 | Flow control signal of serial port       | UART2-RTS    |  |



|  |    |  |            |  |
|--|----|--|------------|--|
|  | 19 | sending signal of the serial port        | UART6-TX   |  |
|  | 20 | sending signal of the serial port        | S-UART1-TX |  |
|  | 21 | Receiving signal of the serial port      | UART6-RX   |  |
|  | 22 | Receiving signal of the serial port      | S-UART1-RX |  |
|  | 23 | sending signal of the serial port        | UART5-TX   |  |
|  | 24 | Receiving signal of the serial port      | UART5-RX   |  |
|  | 25 | 12C data signal                          | TWI4-SDA   |  |
|  | 26 | 12C clock signal                         | TWI4-SCK   |  |
|  | 27 | The main output of SPI is from the input | SPI2-MOSI  |  |
|  | 28 | SPI main input from output               | SPI2-MISO  |  |
|  | 29 | SPI CLK signal                           | SPI2-CLK   |  |
|  | 30 | SPI slice selection signal               | SPI2-CS0   |  |
|  | 31 | general purpose input/output             | PB6        |  |
|  | 32 | general purpose input/output             | PB7        |  |
|  | 33 | Key reset signal                         | KEY_RESET  |  |
|  | 34 | PWM signal                               | PWM-12     |  |
|  | 35 | ADC signal                               | GPADC3     |  |
|  | 36 | ADC signal                               | GPADC4     |  |
|  | 37 | GND                                      | GND        |  |
|  | 38 | GND                                      | GND        |  |
|  | 39 | USB1 data signal +                       | USB1-DP    |  |
|  | 40 | USB1 data signal -                       | USB1-DM    |  |

Table 4- 16 Raspberry PI interface Pin Description





## 4.16. WIFI

The evaluation board uses a fully Wi-Fi and Bluetooth capable module to design a WIFI/Bule interface. Single-stream connectivity up to 433.3Mbps can be achieved in 802.11ac for wireless Lans. SDIO interface for Wi-Fi and UART/ PCM interface for Bluetooth are also included.

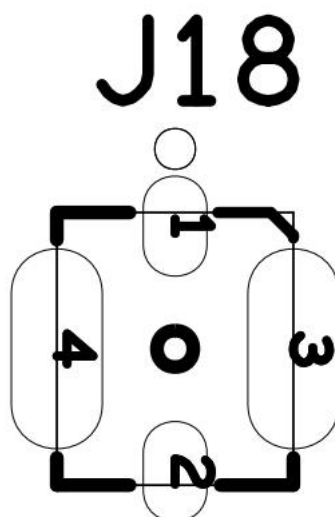


Figure 4 - 18 WIFI Interface

### 4.16.1. Pin Description

| Ref | Pin | Function               | signal    | Comments |
|-----|-----|------------------------|-----------|----------|
| J18 | 1   | NC                     | NC        |          |
|     | 2   | RF signal transmission | WL_BT_ANT |          |
|     | 3   | GND                    | GND       |          |
|     | 4   | GND                    | GND       |          |

Table 4- 17 WIFI Pin Description



## 5. Mechanical Size

module: size 45mm\*43mm, using 12 layers of high density PCB design, gold plating process, no lead.

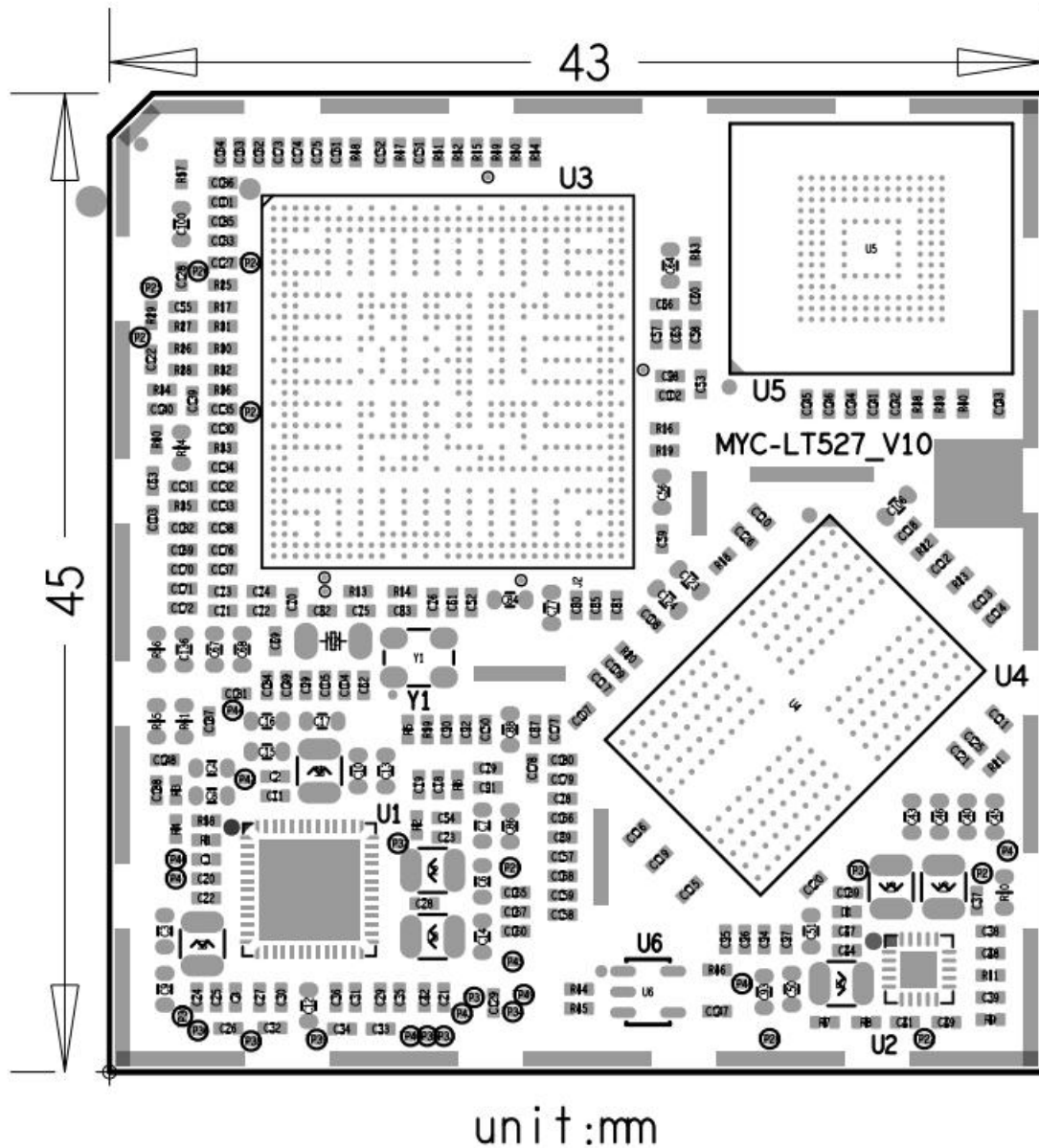


Figure 5 -1 Module Size



Evaluation board base board: Size 90 mm x 120 mm, 6 layer, gold sinking process, lead free.

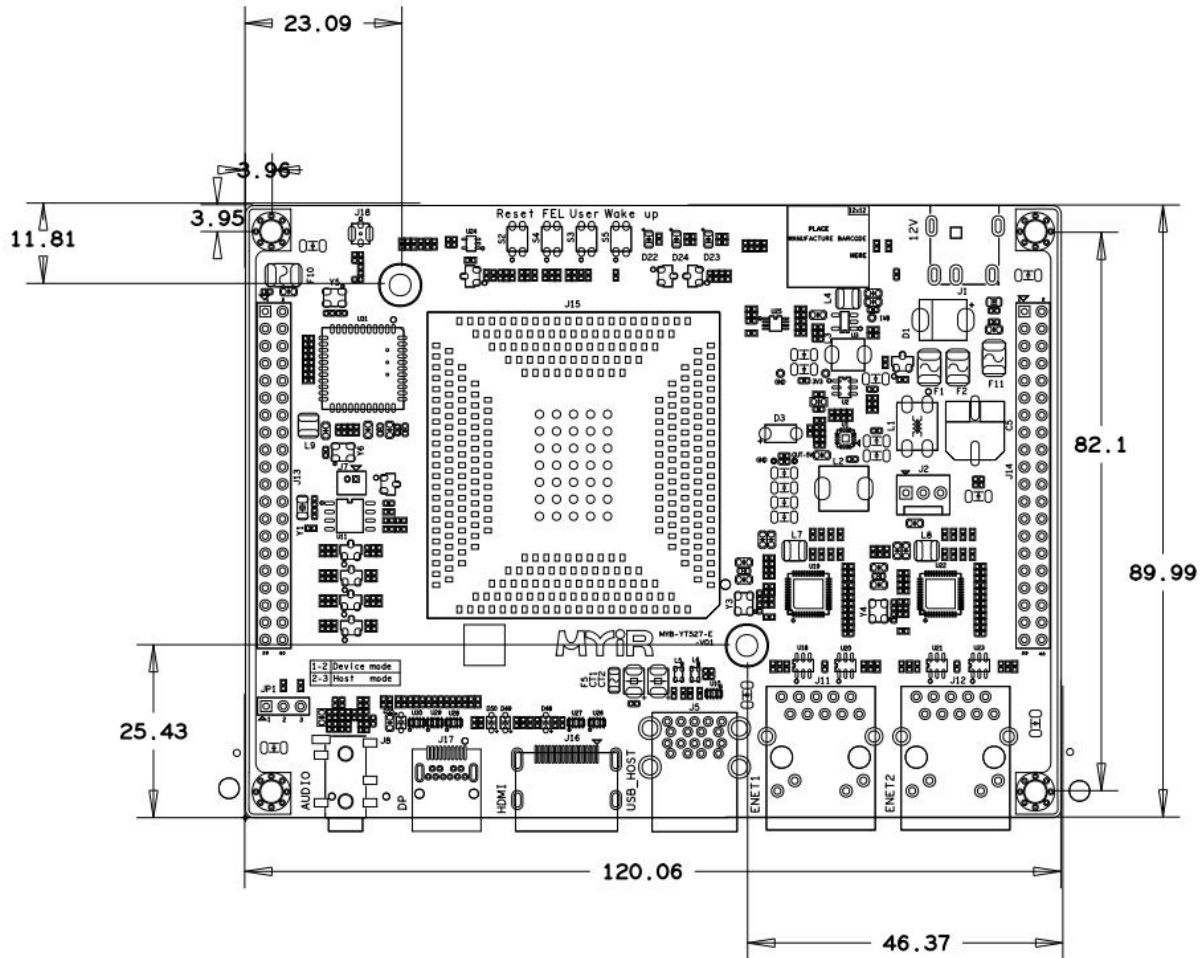


Figure 5 -2 Evaluation Board Size (mm)



## 6. EVK Ordering Information

### 6.1. EVK Part Number

| Item                | MYD- LT527M-8E1D-180-I-G |
|---------------------|--------------------------|
| CPU                 | T527M                    |
| Operate Temperature | -40°C ~ +85°C            |
| DDR                 | 1GB LPDDR4               |
| EMMC                | 8GB EMMC                 |

Table 6 - 1 Ordering Information 1

| Item                | MYD- LT527M-16E2D-180-I-G |
|---------------------|---------------------------|
| CPU                 | T527M                     |
| Operate Temperature | -40°C ~ +85°C             |
| DDR                 | 2GB LPDDR4                |
| EMMC                | 16GB EMMC                 |

Table 6 - 2 Ordering Information 2

| Item                | MYD- LT527MN-16E2D-180-I-G |
|---------------------|----------------------------|
| CPU                 | T527MN                     |
| Operate Temperature | -40°C ~ +85°C              |
| DDR                 | 2GB LPDDR4                 |
| EMMC                | 16GB EMMC                  |

Table 6 - 3 Ordering Information 3

| Item                | MYD- LT527MN-32E4D-180-I-G |
|---------------------|----------------------------|
| CPU                 | T527MN                     |
| Operate Temperature | -40°C ~ +85°C              |
| DDR                 | 4GB LPDDR4                 |
| EMMC                | 32GB EMMC                  |

Table 6 - 4 Ordering Information 4



## 6.2. Package List

| Item                 | Description  |
|----------------------|--|
| Board                | x1 EVK board                                       |
| QSG                  | x1 quick start guide                               |
| Cables & Accessories | x1 Debug (USB To TTL UART)<br>x1 12V power adapter |

Table 6 - 5 Packing List

## 6.3. Modules supported by EVK

| Item        | Description   | Link  |
|-------------|---|---|
| MY-LVDS070C | 7 "LVDS LCD screen  | <a href="https://www.myirtech.com/list.asp?id=634">https://www.myirtech.com/list.asp?id=634</a> |
| MY-WIREDCOM | Raspberry PI interface integrate<br>RS232/RS485/CAN Transceiver | <a href="https://www.myirtech.com/list.asp?id=665">https://www.myirtech.com/list.asp?id=665</a> |

Table 6 - 6 Supported Modules



## 7. Part Number of Connectors on EVK

| Part Number         | Manufacturer | Part Number | Description            |
|---------------------|--------------|-------------|------------------------|
| 738-03225009        | SongCheng    | J1          | DC Jack                |
| 1013A0030-1P1       | GDZ          | J3          | DSI Connector          |
| 1013A0040-1P1       | GDZ          | J4          | LVDS Connector         |
| JYJUSB-SF013K       | JYJ          | J5          | USB Connector          |
| MR01A-01224         | Atom         | J6          | Micro SD               |
| A1251-2A            | GDZ          | J7          | RTC Connector          |
| 704-06700003-A      | SongCheng    | J8          | headphone socket       |
| 1013A0024-1P1       | GDZ          | J9, J10     | CSI Connector          |
| FC-11Q001ENL        | FLY_Core     | J11, J12    | PHY Connector          |
| 12252220CNG2S025001 | GDZ          | HDMI        | Raspberry PI interface |
| HD119F-3A04204      | Atom         | J16         | PHY Connector          |
| A512001-D-01-R      | Shendahong   | J17         | eDP Connector          |
| ANB02001-125        | FLY_Core     | J18         | WIFI Connector         |

Table 7 - 1 Part Number of Connectors on EVK



# Appendix A

## Warranty & Technical Support Services

**MYIR Electronics 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 module 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), 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:

### Technical support service

MYIR offers technical support for the hardware and software materials which have provided to customers;

- To help customers compile and run the source code we offer;
- To help customers solve problems occurred during operations if users follow the user manual documents;
- To judge whether the failure exists;
- To provide free software upgrading service.
- However, the following situations are not included in the scope of our free technical support service:
- Hardware or software problems occurred during customers' own development;
- Problems occurred when customers compile or run the OS which is tailored by themselves;
- Problems occurred during customers' own applications development;
- Problems occurred during the modification of MYIR's software source code.

### 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:

- The warranty period is expired;





- The customer cannot provide proof-of-purchase or the product has no serial number;
- The customer has not followed the instruction of the manual which has caused the damage the product;
- Due to the natural disasters (unexpected matters), or natural attrition of the components, or unexpected matters leads the defects of appearance/function;
- 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;
- Due to unauthorized weld or dismantle parts or repair the products which has caused the damage of the products or defects of appearance;
- Due to unauthorized installation of the software, system or incorrect configuration or computer virus which has caused the damage of products.

### Warm tips:

- 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.
- Please do not use finger nails or hard sharp object to touch the surface of the LCD.
- 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.
- Do not clean the surface of the screen with chemicals.
- Please read through the product user manual before you using MYIR's products.
- 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.

### Maintenance period and charges

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.



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.

## 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.

## 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

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

ODM/OEM services.



**MYIR Tech Limited**

Headquarter Address: Room 04, 6th Floor, Building No.2, Fada Road, Yunli Smart Park, Bantian, Longgang District, Shenzhen, Guangdong, China 518129

Factory Address: Room 201, Block C, Shengjianli Industrial Park, Dafu Industrial Zone, Guanlan, Longhua District, Shenzhen, 518110, China

Website: [www.myir.cn](http://www.myir.cn)

Email: [sales.en@myir.cn](mailto:sales.en@myir.cn)

Tel: +86-755-22984836