

MYD-LD25X Mass Production Guidance Note



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Version History

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V1.0[Doc]	MSW0192	MSW0041	2024-09-11	Official version release
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CONTENT

Version History	- 2 -
CONTENT	- 3 -
1. Overview	- 4 -
1.1. Software resources	- 5 -
2. STM32CubeProgrammerTool Programming	- 7 -
2.1. STM32CubeProgrammerTool Introduction	- 7 -
2.2. STM32CubeProgrammer tool acquisition	- 7 -
2.3. STM32CubeProgrammer ToolConnect Development Board	- 7 -
2.4. STM32CubeProgrammer tool for programming images	- 9 -
3. Win32DiskImager tool burning	- 11 -
3.1. Introduction to Win32 DiskImager Tool	- 11 -
3.2. Win32 DiskImager Tool Acquisition	- 12 -
3.3. Win32 DiskImager Tool Usage	- 12 -
Appendix A	- 15 -

1. Overview

For mass production in engineering, a fast programming method can save a significant amount of labor and time costs. This article will focus on how to create a TF card programmer for the MYD-LD25X series from MYiR, as well as how to quickly program the eMMC in the system.

The programming tool can use STM32CubeProgrammer and Win32DiskImager, which will be explained in the following chapters.

In this article, the section on burning images with Burn, specifically the production of TF card burners, is in Chapter 3.3.2. If you need to quickly mass-produce burners, you can read this chapter for a quick overview.

Note: If you use the STM32CubeProgrammer tool to burn the image to the TF card, you need to insert the TF card into the development board. However, when using the Win32DiskImager tool, you need to connect the TF card to the PC using a card reader.

- TF card (at least 8GB)
- All images in 02-Images
- Windows host (win7/10/11).
- Burning image tool Win32DiskImager-1.0.0-binary.zip (Path: 03-Tools/Win32DiskImager).
- Burning image tool STM32CubeProgrammer.zip (Path: 03-Tools/STM32CubeProgrammer).

Additionally, since the startup method needs to be adjusted during programming, users can select the configuration dip switch according to the table below. They can also refer to the silk screen configuration dip switch on the development board. The following content can also be found in the small manual that comes with the development board, titled "MYD-LD25X Quick Start Guide."

Table 1-1. Boot Mode Switch Start Method

	Startup mode	SW1[3:0]
MYD-LD25X	Type USB download mode	0000
	eMMC boot	0010
	TF card boot	0001



1.1. Software resources

This article mainly provides guidance on the burning of all images under 02-Images in the release materials, so it is necessary to first download the corresponding image materials for your model from the release documents before proceeding with the following operations.

The MYD-LD25X-8E2D user needs to download all the image files in the 02-Images/8E2D directory. Similarly, the MYD-LD25X-8E1D user needs to download all the image files in the 02-Images/8E1D directory. The corresponding list of image files is as follows:

Table 1-2. Mirror data for each model

Model Type	Mirror Data Name	Description
MYD-LD25X-8E2D	myir-image-full/	The myir-image-full image directory package, which includes the HMI interface of Qt and MYiR, is suitable for programming using the STM32CubeProgrammer tool and can be burned to eMMC or TF cards
	myir-image-core/	Contains basic functions and toolkit, myir-image-core image directory package, suitable for use with the STM32CubeProgrammer tool for programming, can be programmed to eMMC or TF card
	FlashLayout_sdcard_myb-ld25x-8e2d-myir-image-full.raw	myir-image-full mirror TF card burning image file, suitable for using win32DiskImager tool to burn to the TF card, used for development startup verification debugging
	FlashLayout_sdcard_myb-ld25x-8e2d-myir-image-core.raw	The TF card burning image file for the myir-image-core image, suitable for burning to the TF card using the win32DiskImager tool, for development startup verification and debugging
	FlashLayout_sdcard_myb-ld25x-8e2d-myir-image-burn.raw	myir-image-burn image, used for creating a TF card burner, suitable for burning to the TF card with win32DiskImager. After booting from the TF card, it will automatically burn the internally contained myir-image-full image to the eMMC, facilitating mass production
MYD-LD25X-8E1D	myir-image-full/	The myir-image-full image directory package, which includes the HMI interface of Qt and MYiR, is suitable for programming using the STM32CubeProgrammer tool and can be burned to eMMC or TF cards
	myir-image-core/	Contains basic functions and toolkit, myir-image-core image directory package, suitable for use with the STM32CubeProgrammer tool for programming, can be programmed to eMMC or TF card
	FlashLayout_sdcard_myb-ld25x-8e1d-myir-image-full.raw.xz	myir-image-full mirror TF card burning image file, suitable for using win32DiskImager tool to burn to the TF card, used for development startup verification debugging
	FlashLayout_sdcard_myb-ld25x-8e1d-myir-image-core.raw.xz	The TF card burning image file for the myir-image-core image, suitable for burning to the TF card using the win32DiskImager tool, for development startup verification and debugging

Model Type	Mirror Data Name	Description
	FlashLayout_sdcard_myb-ld25x-8e1d-myr-image-burn.raw.xz	myir-image-burn image, used for creating a TF card burner, suitable for burning to the TF card with win32DiskImager. After booting from the TF card, it will automatically burn the internally contained myir-image-full image to the eMMC, facilitating mass production



2. STM32CubeProgrammerTool Programming

2.1. STM32CubeProgrammerTool Introduction

STM32CubeProgrammer is a general software tool provided by STMicroelectronics for managing STM32 microcontrollers. It offers various functions, including chip programming, erasing (erasing flash), reading, and setting protection, and it is the successor to ST-LINK Utility.

Supports reading Flash and RAM contents from STM32 microcontrollers for program and data verification and backup. Allows the configuration of security features for STM32 chips, including read protection, write protection, and encryption functions, to ensure the security and integrity of programs and data.

2.2. STM32CubeProgrammer tool acquisition

STM32CubeProgrammer tool can be directly obtained from the 02-Tools section in the published materials, the file path is 02-

Tools/STM32CubeProgrammer/STM32CubeProgrammer.zip. After obtaining it, simply unzip to get the installation package for the tool.

Double-click the installation package to install the tool on the PC and select an appropriate installation directory to complete the installation.

2.3. STM32CubeProgrammer ToolConnect Development

Board

- Development board connected to PC

First, connect the Type-C USB cable to the J3 USBOTG interface of the development board and the PC host, and adjust the switch to the Type-C USB download mode as shown in Table 1-1, then power on to start.

- **Configure STM32CubeProgrammer download mode and connect**

Open the STM32CubeProgrammer software, click on the position shown in the image below, and adjust to USB connection:

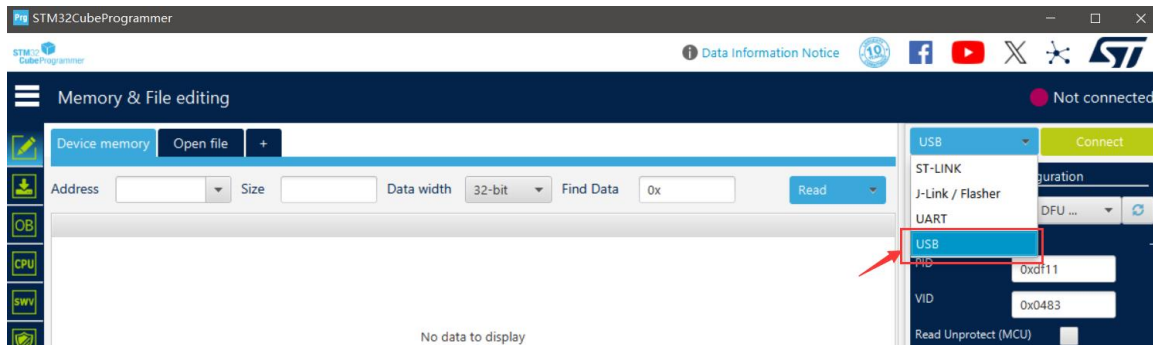


Figure 2-1. Select USB Download

Click the refresh button in the image below. If the above operations are correct, the USB1 port will be successfully recognized on the left. If the port is not successfully recognized, please check if there were any errors in the preparation steps above, or you can try replacing the Type-C cable and repeat the operation.

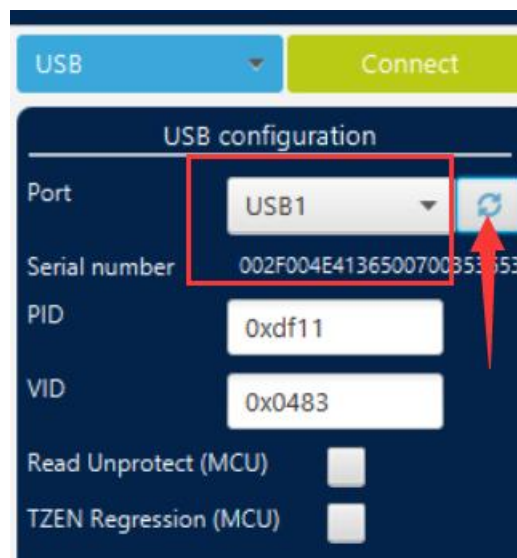


Figure 2-2. Identifying the USB Port

Finally, click Connect to connect:

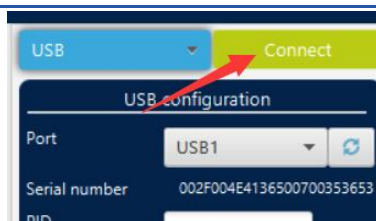


Figure 2-3. Connecting the Development Board

2.4. STM32CubeProgrammer tool for programming images

After completing the content of Chapter 2.3, continue with the following steps to flash the image. The example below demonstrates flashing the myir-image-full image to the eMMC of the MYD-LD257-8E2D development board, for reference. Users flashing other images or using different models, such as the MYD-LD257-8E1D, should adjust the file selection configuration based on their actual situation:

Click "Open file" and select the following file:

02-Images/8E2D/myir-image-full/flashlayout_myir-image-full/optee/FlashLayout_emmc_myb-stm32mp257x-2GB-optee.tsv.

If you need to flash the full image to a TF card, first insert the TF card into the development board. Then, select the file FlashLayout_sdcard_myb-stm32mp257x-2GB-optee.tsv here.

This example demonstrates flashing to eMMC; the process for flashing myir-image-core is similar, so select the FlashLayout_emmc_myb-stm32mp257x-2GB-optee.tsv file in that case.

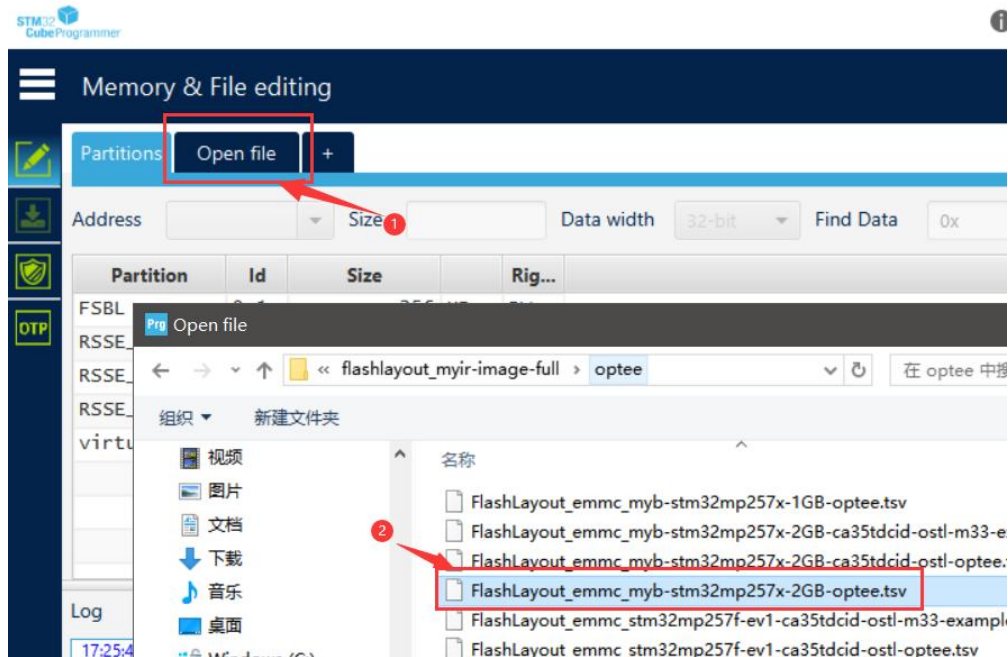


Figure 2-4. Select tsv file

After selection is complete, the files to be burned and the corresponding offsets will be automatically loaded based on the tsv. Then modify the Binaries path below; the path should be the absolute path of *02-Images/8E2D/myir-image-full/*. Click Browse on the right to select the myir-image-full directory

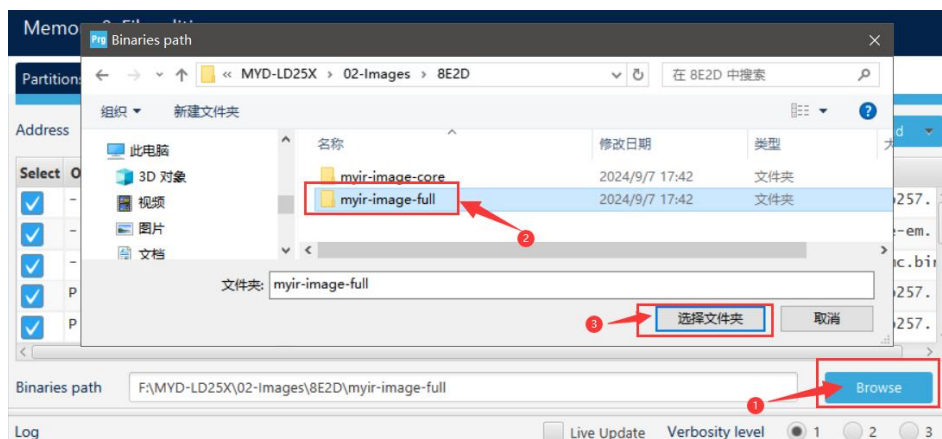


Figure 2-5. Select the myir-image-full directory

After selecting, click the Download button above to start the download. Once the burning is complete, a pop-up will notify you of the completion. After that, click Disconnect to finish the image burning.

3. Win32DiskImager tool burning

3.1. Introduction to Win32 DiskImager Tool

The Win32 DiskImager tool is used to quickly write images with the .sdcard suffix to a TF card, and it requires the TF card to be connected to a card reader and connected to a PC running Windows. Subsequent chapters will introduce how to obtain and use the tool.

Please ensure that the file extensions in Windows File Explorer are checked, as this will help users accurately determine the type of image when burning the image.

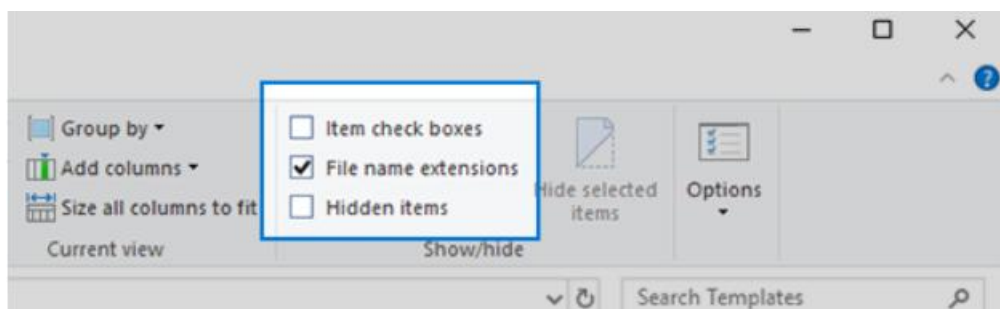


Figure 3-1. Open File Extension

The images that can be used with the Win32 DiskImager tool are as follows. These images are located in the "02-Images" folder for easy transfer. The files in the "raw" directory are in xz compressed format and must first be extracted using a decompression tool to obtain the following files before they can be written:

- FlashLayout_sdcard_myb-ld25x-8e2d-myr-image-full.raw
- FlashLayout_sdcard_myb-ld25x-8e2d-myr-image-core.raw
- FlashLayout_sdcard_myb-ld25x-8e2d-myr-image-burn.raw
- FlashLayout_sdcard_myb-ld25x-8e1d-myr-image-full.raw
- FlashLayout_sdcard_myb-ld25x-8e1d-myr-image-core.raw
- FlashLayout_sdcard_myb-ld25x-8e1d-myr-image-burn.raw

The myr-image-full and myr-image-core images are used for burning onto the TF card for the development board's booting, testing, and software debugging, and cannot be burned onto the eMMC; the myr-image-burn image is used for

burning onto the TF card, and then automatically burns the included full image onto the eMMC, serving as an automatic burning image for mass production.

3.2. Win32 DiskImager Tool Acquisition

The Win32 DiskImager tool is an open-source tool that can be obtained from the internet. If you want to use the same version of the software mentioned in this article, you can find it in the release materials for MYD-LD25X. The directory location of the tool's compressed package is 03-Tools/Win32 DiskImager, and it needs to be extracted before use.

3.3. Win32 DiskImager Tool Usage

Run the tool Win32DiskImager.exe, and the following interface will appear:

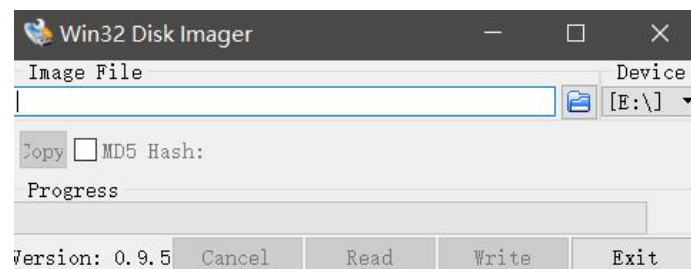


Figure 3-2. Win32 DiskImager Tool

3.3.1. Create a TF card launcher

This chapter introduces how to burn the full and core TF card images.

Click on position ① in the image below to select the device partition of the TF card. If the TF card has multiple partitions, just select the first partition. Then click on position ② in the image to enter the interface for selecting the image file:

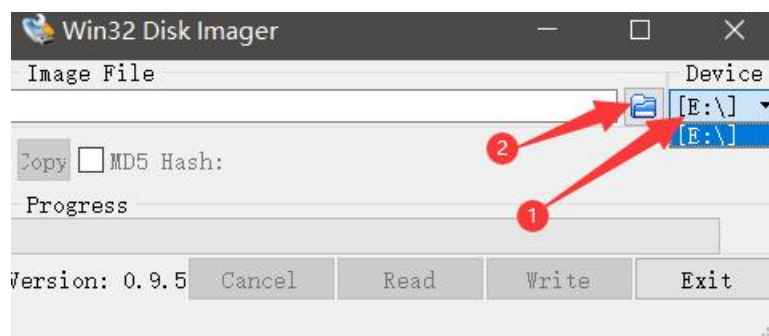


Figure 3-3. Select TF card and image file

After selecting the appropriate image, click Write, then click Yes to start the burning process

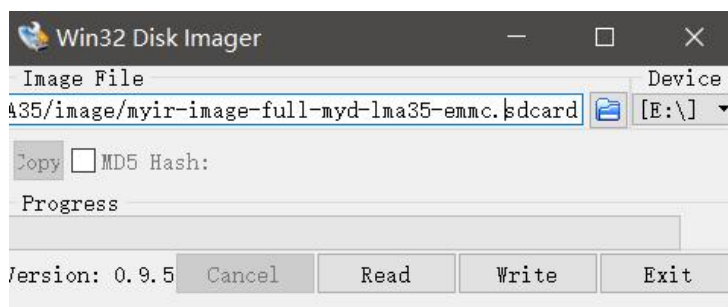


Figure 3-4. Select the image and start burning.

Burning completed, success window popped up:

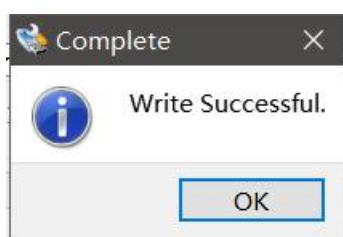


Figure 3-5. Programming Successful

Once the writing is complete, you can use this TF card to boot the system. Insert the TF card into the development board's TF card slot and set the dip switch to TF card boot to start the system.

3.3.2. Making a TF card burner

This chapter introduces the method for burning the myir-image-burn image.

To meet the needs of production programming, MYiR has developed a programming method suitable for mass production. Please follow the steps below to complete the specific production process.

1) Creating a Burn Image

The myir-image-burn image needs to be created using Yocto. For the detailed production process, please refer to section 5.3.3 of the "MYD-LD25X Linux Software Development Guide."

You can also directly obtain the myir-image-burn image suitable for the Win32DiskImager tool under 02-Images in the published materials.

2) Burn the image to the TF card

The specific operation is basically similar to the steps in section 3.3.1, with the only difference being that the file to be burned needs to be replaced with the corresponding myir-image-burn image file for eMMC.

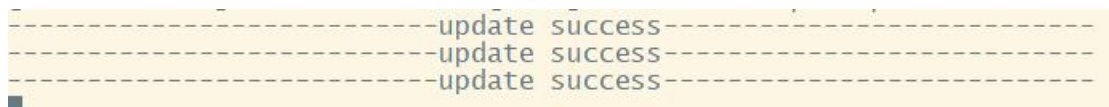
3) Burn the image to eMMC

After completing the above operations, set the dip switch to TF card mode, insert the TF card into the TF card slot of the development board, and connect the power supply. After the system starts, it will automatically write the image to the eMMC. You can connect to the J15 serial port (the TTL serial port close to the network port) to check the burning status.

It is necessary to indicate the status of the User light during the burning process of the burn image, so that the burning progress can be monitored even without a serial port.

When the development board is running normally, the User blue light is in a heartbeat state, which means it flashes twice and then goes off. When it enters the programming state, it lights up and goes off. After the programming is completed, the User light will remain on. If there is an abnormal failure during programming, the User light will remain off.

When the serial port printing is successful or the User indicator is always on, you need to remove the TF card and then adjust the switch to restart from eMMC:



```
-----update success-----  
-----update success-----  
-----update success-----
```

Figure 3-6. The TF card was successfully recorded



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 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), 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

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.

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

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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