

# MYD-LD25X SDK

## Release Note



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# 1. Overview

The MYD-LD25X SDK software is designed and developed based on ST's STM32MP257D series chips. It includes low-level BSP source code, precompiled image files, Linux software evaluation and development documentation, as well as various tools used during development and debugging. Relevant hardware documentation is also released with the SDK. The complete release materials are as follows:

Table 1-1. Description of MYD-LD25X Release Documentation Contents

Category	Name	Description	location
Hardware Data	Datasheet	Chip/Peripheral Datasheet	Hardware Data
	Mechanical	Mechanical Structure	
	SCH&PCB	PCB Schematic	
	Silkscreen	PCB Silkscreen Diagram	
	Datasheet	Chip/Peripheral Datasheet	
	"MYC-LD25X Pin List-V1.0.xls"	Pin Description Table	
	"MYC-LD25X Hardware Design Guide-V1.0.pdf"	Hardware Design Guide	
	"MYD-LD25X Hardware User Manual-V1.0.pdf"	Hardware User Manual	
	"MYC-LD25X Product Manual-V1.0.pdf"	Hardware Product Manual	
Software Data	"MYD-LD25X SDK Release Note"	Release Note	01-Docs(EN)
	"MYD-LD25X Linux Software Development Guide"	Software Development Guide	
	"MYD-LD25X Linux Software Evaluation Guide"	Software Evaluation Guide	
	"MYD-LD25X Quick Start Guide"	Quick Start Guide	
	"MYD-LD25X Mass Production Guidance Document"	Mass Production Guidance Document	
	"MYD-LD25X QT Application Note"	Application Note	
	Manufacturer Data		
	myir-image-core	Custom minimal system adapted for the development board	02-Images
	myir-image-full	Custom full-feature system	

		adapted for the development board	03-Tools
	myir-image-burn	Custom firmware flashing system adapted for the development board	
	Complie Toolchain	Cross Compile Tool	
	other	Special Development Tools	04-Sources
	MYD-LD25X-Yocto-mickledore-V1.1.0	Yocto Source Code	
	MYD-LD25X-Linux-L6.1.82-V1.1.0	Linux Source Code	
	MYD-LD25X-Uboot-L2022.10-V1.1.0	Uboot Source Code	

Note: The images in 02-Images are all packaged files and need to be unpacked before use.

The current release materials are suitable for the following development board models:

- MYD-LD257-8E2D-150-I
- MYD-LD257-8E2D-150-C
- MYD-LD257-8E1D-150-I
- MYD-LD257-8E1D-150-C

For specific information about the board, you can visit the official website of MYIR Electronics for more details:

<https://www.myirtech.com/>

## 2. Software Information

The Linux system for MYD-LD25X is built using the Yocto Project. We have created two different types of image files tailored for various usage scenarios. The descriptions of these two types of image files are shown in the table below:

Table 2-1. MYD-LD25X Image File Descriptions

Image File Name	Description	Notes
myir-image-core	An image built with Yocto that has no GUI interface. It includes complete hardware drivers, common system tools, debugging tools, etc. It supports application development using Shell, C/C++, and Python, and adds features such as fast booting and real-time patches.	Abbreviated as CORE below
myir-image-full	An image built with Yocto that has a GUI interface. It includes all complete hardware drivers, common system tools, debugging tools from CORE, as well as QT runtime libraries and a QT-based HMI interface. It supports application development using Shell, C/C++, QML, and Python..	Abbreviated as FULL below

Note: Contents not included in the image files can be added by the user, or you can refer to the contact information in the appendix to reach out to us for support.

Below is a detailed comparison of the features of the Core and Full images to assist users in software evaluation and secondary development.

### 2.1. Functional Features

Table 2-2. MYD-LD25X Software Function List

Category	Function	Description	Image File	
			FULL	CORE
Bootloader	Atf	Switching and initializing secure and non-secure environments	Supported	Supported
	SPL	Initializing DDR, clocks, PMIC, and loading images into memory	Supported	Supported
	Uboot	EMMC/TF card support for scanning, read/write	Supported	Supported
		EMMC/TF card support for FAT file system	Supported	Supported

		access		
		EMMC/TF card support for ext2/4 file system access	Supported	Supported
		Ethernet support for networking, PING, and TFTP protocols	Supported	Supported
		Ethernet support for DHCP client protocol	Supported	Supported
		Memory read/write tests, MDIO read/write, I2C read/write, reset	Supported	Supported
<b>Kernel</b>	Network Support	TCP/IP network protocol stack	Supported	Supported
		Ethernet protocol	Supported	Supported
		IP Route	Supported	Supported
		PPP protocol and USB Serial	Supported	Supported
		CAN bus subsystem	Supported	Supported
		IPV6	Supported	Supported
	File System Support	DEVTMPFS	Supported	Supported
		Ext2/4 File System	Supported	Supported
		UBIFS File System	Supported	Supported
		Overlay File System	Supported	Supported
		Network File System	Supported	Supported
		VFAT File System	Supported	Supported
		JFFS2 File System	Supported	Supported
		NTFS File System	Supported	Supported
	Multimedia Module	Multimedia-related modules, including platform-supported video input modules, V4L2	Supported	Supported
	Sound Module	Audio-related modules, including ALSA, platform-supported audio input/output devices	Supported	Supported
	Input Subsystem	Key input, HID, touch subsystem. Platform-supported input devices	Supported	Supported
	USB Gadget	Convert g_ether to a network interface	Supported	Supported
	Initial Subsystem System Tools Module	Systemd/System V/BusyBox (select sys)	Supported	Supported
		udev (including udev rules)	Supported	Supported
		Login	Supported	Supported
	Sound Module	Bash shell environment	Supported	Supported
		Core utilities (chgrp, chmod, chown, kill, cp, dd, etc.)	Supported	Supported

		Util-linux (sfdisk, fdisk, fsck, etc.)	Supported	Supported
		tar with long options	Supported	Supported
		top	Supported	Supported
		u-boot-tools (fw_printenv, fw_setenv)	Supported	Supported
		e2fsck	Supported	Supported
		resize2fs	Supported	Supported
		gzip	Supported	Supported
	System Settings	Localization data (C en_US)	Supported	Supported
		Time zone information (Asia/Shanghai)	Supported	Supported
		User and password (account: root, password: empty)	Supported	Supported
	Testing Tools	memtester	Supported	Supported
		i2c-tools	Supported	Supported
		mmc-utils	Supported	Supported
		mtd-utils	Supported	Supported
		can-utils	Supported	Supported
		microcom	Supported	Supported
		hwclock	Supported	Supported
		gdb	Supported	Supported
		evtest	Supported	Supported
		hexdump	Supported	Supported
	Programming Language	python3.8	Supported	Supported
		c/c++	Supported	Supported
		perl	Supported	Supported
	Database	sqlite3	Supported	Supported
	Network Applications	scp	Supported	Supported
		ethtool	Supported	Supported
		netstat	Supported	Supported
		iptables	Supported	Supported
		iperf3	Supported	Supported
		iproute2	Supported	Supported
		dns	Supported	Supported
		udhcpd	Supported	Supported
		udhcpd	Supported	Supported
		tftpd	Supported	Supported
		tftp	Supported	Supported
		ntpd	Supported	Supported

		pppd	Supported	Supported
		ifconfig	Supported	Supported
		dropbear	Supported	Supported
		tcpdump	Supported	Supported
		bridge-utils	Supported	Supported
		telnet	Supported	Supported
		route	Supported	Supported
		avahi	Supported	Supported
	Word Processing	ncurses	Supported	Supported
		readline	Supported	Supported
		grep	Supported	Supported
		Sed	Supported	Supported
		Awk	Supported	Supported
		Vim(vi)	Supported	Supported
	Graphics System	Qt5.15.13(qtbase, qtwidget, qtquick2.0, qtmultimedia, qtvirtualkeyboard) Chinese and English Font Library	Supported	Not Supported
		fbset	Supported	Supported
		psplash	Supported	Supported
		Linux fb	Not Supported	Not Supported
		v4l-utils	Supported	Supported
		alsa-utils	Supported	Supported
	Others	bc	Supported	Supported
		pv	Supported	Supported
		dbus	Supported	Supported
<b>SDK</b>	Toolchain: aarch64-poky-linux-gcc		Supported	Supported
	C Standard Library: glibc		Supported	Supported
	C++ Standard Library: libstdc++		Supported	Supported
	qmake		Supported	Supported
	libasound		Supported	Supported
	libssl-dev		Supported	Supported
	libxml2		Supported	Supported

Note: The table lists the more commonly used functions and modules. For a complete list, please check the manifest file of the corresponding image in 02-Images in the released image.



## 2.2. Software Inventory

The source code of the bootloader, kernel, file system and application programs of MYD-LD25X is completely open. Users can obtain the compressed package from the release materials and then decompress it:

### - U-boot:

Version: V2022.10

URL: <https://github.com/MYiR-Dev/myir-st-u-boot.git>

Branch: develop-ld25x-v2022.10

### - Linux Kernel:

Version: v6.1.82

URL: <https://github.com/MYiR-Dev/myir-st-linux.git>

Branch: develop-ld25x-6.1.82

### - Yocto-manifest:

Version: mickledore

URL: <https://github.com/MYiR-Dev/myir-st-manifest.git>

Branch: myd-ld25x-v24.06.26-mickledore

### - Yocto-meta-myir:

Version: mickledore

URL: <https://github.com/MYiR-Dev/meta-myir-stm32mp.git>

Branch: develop-v24.06.26-mickledore

To facilitate users in porting the kernel, the source code paths of various kernel driver modules are organized as follows:

Table 2-3. MYD-LD25X Kernel Driver List

Module	Description	Source Path
MMC	emmc Driver	drivers/mmc/host/mmci_stm32_sdmmc.c
SPI	SPI Driver	drivers/spi/spidev.c
I2C	i2c Driver	drivers/i2c/busses/i2c-stm32f7.c
USB-TypeC	TypeC Driver	drivers/usb/typec/stusb160x.c
Ethernet	Gigabit Network Driver	drivers/net/phy/motorcomm.c

RS232/RS485/Uart	Serial Port Driver	drivers/tty/serial/stm32-usart.c
Can bus	CAN Bus Driver	drivers/net/can/m_can/m_can_platform.c
Audio	Audio Driver	sound/soc/codecs/es8328-i2c.c
GPIO key	Key Driver	drivers/input/keyboard/gpio_keys.c
RTC	RTC Driver	drivers/rtc/rtc-stm32.c
Gpio Led	LED Driver	drivers/leds/leds-gpio.c
Touch	Touchscreen Driver	drivers/input/touchscreen/edt-ft5x06.c
camera	ov5640 Driver	drivers/media/i2c/ov5640.c

## 2.3. Documentation Information

Based on the different stages of user interaction with the development board, the SDK includes a variety of documentation and manuals in addition to this release note, such as Getting Started Guides, Evaluation Guides, Development Guides, Application Note, and FAQs. The "MYD-LD25X Quick Start Guide" is presented in a booklet format to help users quickly connect hardware, power on the development board, and access materials for subsequent evaluation and development after receiving the board. The Evaluation Guide focuses on the usage and experience of the development board, informing users of its specific hardware and software features along with corresponding demonstrations to facilitate project evaluation. The Development Guide emphasizes the entire process of porting operating systems and applications, guiding users on how to quickly adapt operating systems and applications to the hardware platform based on our core board design using our SDK. During the development phase, we also provide detailed Application Note for specific functions or modules to assist users in their development endeavors. The complete documentation information is shown in the table below:

Table 2-4. MYD-LD25X SDK Documentation List

Usage Stage	Document Name	Remarks
Getting Started	MYD-LD25X Quick Start Guide	A quick start booklet included in the product package

Evaluation Stage	MYD-LD25X Linux Software Evaluation Guide	Introduces the use of core resources and peripheral resources
Development Stage	MYD-LD25X Linux Software Development Guide	Introduces the porting of operating systems and applications
	MYD-LD25X QT Development Guide	Introduces QT application development
	MYD-LD25X Mass Production Guidance Document	Guidance for mass production programming
Technical Support	MYD-LD25X Frequently Asked Questions	Not yet release
Release Note	MYD-LD25X SDK Release Note	Introduction to SDK

# 3. Version History

Table 3-1. MYD-LD25X SDK Version History

Version	Date	Status	Description	Download Link
V1.0.0	2024.09.15	RC	U-boot version:V2022.10 Linux Kernel version:6.1.82 Yocto version:mickledore QT version:5.15.13	<a href="https://d.myirtech.com/MYD-LD25X">https://d.myirtech.com/MYD-LD25X</a>
V1.1.0	2024.11-08	RC	U-boot version:V2022.10 Linux Kernel version:6.1.82 Yocto version:mickledore QT version:5.13.15 The adaptation for the MYD-LD257-8E1D model.	<a href="https://d.myirtech.com/MYD-LD25X">https://d.myirtech.com/MYD-LD25X</a>

## 4. Known Issues/Limitations

The table below lists some known issues in this version of the release package. Please read the list carefully before use to determine if any software or hardware changes are necessary. For assistance, please refer to the contact information in the appendix.

Table 4-1. Known Issues and Solutions

ID	Impact Area	Description	Solution
1	Audio recording	The playback of the audio recording file has noise.	This will be resolved by upgrading the hardware and software versions in the future.

# 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.

## MYIR Electronics Limited

Room 04, 6th Floor, Building No.2, Fada Road,  
Yunli Intelligent Park, Bantian, Longgang District.

Support Email: [support@myirtech.com](mailto:support@myirtech.com)

Sales Email: [sales@myirtech.com](mailto:sales@myirtech.com)

Phone: +86-755-22984836

Fax: +86-755-25532724

Website: [www.myirtech.com](http://www.myirtech.com)