

# MYD-YT113X SDK

## Release Note



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# 1. Overview

MYD-YT113X Linux SDK software is based on "Allwinner" T113 series chips and tina5.0 (Tina Linux Unified Platform, also known as Tina5.0. It aims to integrate the "longan&old" version of Tina to create a standard, open, efficient and reusable unified software platform. It integrates BSP, build system, independent IP and test, and can be used as BSP development and IP verification platform, as well as mass production embedded linux system.) System design and development, currently adapted to the MYD-YT113-I model, which includes the underlying BSP source code, pre-compiled image files, Linux software evaluation and development documents, as well as some tools used in the development and debugging process. The corresponding hardware information is also released in the form of a CD image together with the SDK, and the complete contents of the CD are as follows:

**Note: Currently, the tina5.0 SDK only adapts to the MYD-YT113-I model board, and the MYD-YT113-S3 model board will be added later.**

Table 1-1. MYD-YT113X version document Release list

Category	Name	Description	location
Hardware Data	Datasheet	Chip/Peripheral Datasheet	Hardware Data
	Mechanical	Mechanical Structure	
	SCH&PCB	PCB Schematic	
	Silkscreen	PCB Silkscreen Diagram	
	"MYC-T113i Pin List V1.0"	Pin Description Table	
	"MYC-YT113i Hardware Design Guide V1.0"	Hardware Design Guide	
	"MYC-YT113i Product Manual V1.0"	Hardware User Manual	
Software Data	"MYD-YT113i Hardware User Manual V1.0"	Hardware Product Manual	01-Docs(EN)
	"MYD-YT113X SDK Release Note"	Release Note	
	"MYD-YT113X Linux Software Development Guide"	Software Development Guide	
	"MYD-YT113X Linux Software Evaluation Guide"	Software Evaluation Guide	
	"MYD-YT113X Mass Production Guidance Document"	Mass Production Guidance Document	
	"MYD-YT113X QT Application Note"	Application Note	
"MYD-YT113X RISC-V Processor Application	Application Note (Only for MYD-		

	Development Note"	YT113-I model development boards.)	
	Original factory data		
	myir-image-yt113i-full.img	Full-featured system built on myir's HMI2.x (Applicable to EMMC storage of MYD-YT113-I model)	02-Image
	myir-image-yt113i-core.img	Base system based on buildroot build (for EMMC storage model MYD-YT113-I)	
	Complie Toolchain	Cross Compile Tool	03-Tools
	other	Special Development Tools	
	MYD-YT113X-Distribution-L5.4.61-V2.0.0.tar.gz	Buildroot Source Code	04-Sources

The current release information applies to development board models:

MYD-YT113-I

If you need to know the specific introduction of the board, you can visit the link on the official website of MYiR Electronics to learn:

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

## 2. Software Information

The Linux system of MYD-YT113X was built by "buildroot" project. We built models suitable for MYD-YT113-I according to different types of usage scenarios, and made two different types of image files, "core" and "full". The following table describes the two types of image files, "core" and "full":

Table 2-1. Description of the MYD-YT113X image file

Image File Name	Description	Notes
myir-image-yt113i-core.img	An image built with biludroot 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.	Abbreviated as CORE below
myir-image-yt113i-full.img	An image built with buildroo 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-YT113XSoftware Function List

Category	Function	Description	Image File	
			FULL	CORE
Bootloader	U-boot	Support scanning, reading, and writing for EMMC/TF cards	Supported	Supported
		Support for FAT file system access on EMMC/TF cards	Supported	Supported
		Support for ext2/3/4 file system access on EMMC/TF cards	Supported	Supported

		Full image upgrade via TF card	Supported	Supported
		Ethernet supports network connections, PING, and TFTP protocols	Supported	Supported
		Ethernet supports DHCP client protocol	Supported	Supported
		Ethernet supports NFS booting	Supported	Supported
		USB Mass storage	Supported	Supported
		USB fastboot	Not Supported	Not Supported
		Memory read/write testing, 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
		Net Bridge, IP Route, Netfilter	Supported	Supported
		PPP protocol and USB Serial	Supported	Supported
		CAN bus subsystem	Supported	Supported
		Wireless Protocol Stack	Supported	Supported
		IPV6	Supported	Supported
	File System Support	DEVTMPFS	Supported	Supported
		Ext2/3/4 File System	Supported	Supported
		UBIFS File System	Supported	Supported
		VFAT File System	Supported	Supported
		MSDOS File System	Supported	Supported
	Multimedia Module	Multimedia-related modules	Supported	Not Supported
	Sound Module	Audio-related modules, including ALSA, platform-supported audio input/output devices	Supported	Supported
	Graphics Module	Display related modules, platform supported backlighting, displays, etc	Supported	Not Supported
	Input Subsystem	Key input, HID, touch subsystem. Platform-supported input devices	Supported	Not Supported
	USB gadget	Mass storage	Supported	Supported
<b>Root file system</b>	Initial Subsystem	Systemd/systemV/busybox (选择 systemV)	Supported	Supported
		udev(including udev rules)	Supported	Supported
		login	Supported	Supported



System Tools	Bash shell environment	Supported	Supported
	coreutils(chgrp,chmod,chown,kill,cp,dd... )	Supported	Supported
	util-linux( fdisk, fsck...)	Supported	Supported
	tar with long options	Supported	Supported
	top	Supported	Supported
	e2fsck	Supported	Supported
	resize2fs	Supported	Supported
	genext2fs	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
	can-utils	Supported	Supported
	microcom	Supported	Supported
	minicom	Supported	Supported
	hwclock	Supported	Supported
	spidev_test	Supported	Supported
	gdbserver	Supported	Supported
	evtest	Supported	Supported
	tslib,ts_test, ts_calibrate	Supported	Not Supported
	hexdump	Supported	Supported
development language	Python 2.7 and above (including pip)	Supported	Supported
	c/c++	Supported	Supported
	perl	Supported	Supported
Database	sqlite3	Supported	Supported
Network Application	scp	Supported	Supported
	ethtool	Supported	Supported



	s	netstat	Supported	Supported
		iptables	Supported	Supported
		iperf3	Supported	Supported
		iproute2 (iproute)	Supported	Supported
		dns	Supported	Supported
		udhcpc	Supported	Supported
		tftp	Supported	Supported
		pppd	Supported	Supported
		ifconfig	Supported	Supported
		openssh server(sshd)	Supported	Supported
		openssh client(ssh)	Supported	Supported
		wpa-supPLICant	Supported	Supported
		wpa-supPLICant-cli (wpa_cli)	Supported	Supported
		wpa-supPLICant-passphrase(wpa_passphrase)	Supported	Supported
		tcpdump	Supported	Supported
		bridge-utils	Supported	Supported
		telnet	Supported	Supported
	route	Supported	Supported	
	security	openssl-devel	Supported	Supported
	Word Processing	grep	Supported	Supported
		Sed	Supported	Supported
		awk	Supported	Supported
		vim(vi)	Supported	Supported
Graphics System	Qt5.12.5(qtbase, qtwidget, qtquick2.0, qtmultimedia, qtvirtualkeyboard) Chinese and English Font Library	Supported	Not Supported	
	fbinit	Supported	Not Supported	
multimedia	alsa-utils	Supported	Supported	
Others	bc	Supported	Supported	
	dbus	Supported	Supported	
<b>SDK</b>	Toolchain: gcc-linaro-5.3.1-2016.05-x86_64_arm-linux-gnueabi	Supported	Supported	
	C Standard Library: glibc	Supported	Supported	
	C++ Standard Library: libstdc++	Supported	Supported	
	qmake:	Supported	Not Supported	
	libasound	Supported	Supported	



	libssl-dev	Supported	Supported
	libxml2	Supported	Supported
	libcedarx	Supported	Supported

## 2.2. Software Inventory

MYD-YT113X's "*bootloader*", "*kernel*" and "*filesystem*", as well as the source code of each part of the application are completely open, users can not only get them from the CD-ROM image, but also through the code hosting platform to get the real-time updated version, the information of each part of the code is as follows:

### - U-boot:

Version: V2018.02

Directory: /T113/brandy/brandy-2.0/u-boot-2018

### - Linux Kernel:

Version: V5.4.61

Directory: /T113/kernel/linux-5.4

### - Buildroot:

Version: V2019.02

Directory: /T113/buildroot/buildroot-201902

### - MEasy HMI:

Version: V2.0

URL: <https://github.com/MYiR-Dev/mxapp.git>

Branch: hmi-yt113x

### - Examples:

Version: V1.0

URL: <https://github.com/MYiR-Dev/MEasy-utils.git>

Branch: develop-yt113x

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

Table 2-3. MYD-YT113X Kernel Driver List

Module	Description	Source Path
SD/MMC	SD/emmc Driver	drivers/mmc/host/sunxi-*
SPI	SPI Driver	drivers/spi/spi-sunxi.c
TWI	TWI Driver	drivers/i2c/busses/i2c-sunxi.c
USB Host	USB Driver	drivers/usb/storage/
4G、5G	USB to virtual serial port conversion	drivers/usb/serial/
Ethernet	Gigabit Network Driver	drivers/net/ethernet/allwinner/
GPADC	ADC Driver	drivers/input/sensor/sunxi_gpadc.c
RS232/RS485/Uart	串口 Driver	drivers/tty/serial/sunxi-uart.c
GPIO LED	LED Driver	drivers/leds/leds-gpio.c
RTC	RTC Driver	drivers/rtc/rtc-rx8025.c
PWM	PWM Driver	drivers/pwm/pwm-sun4i.c
LVDS	Lcd Driver	drivers/video/fbdev/sunxi/disp2/disp/lcd/
Touch	touchscreens Driver	drivers/input/touchscreen/edt-ft5x06.c
Watchdog	watchdog Driver	drivers/watchdog/gpio_wdt.c

## 2.3. Documentation Information

Depending on the different stages of the user's use of the development board, the SDK contains different types of documents and manuals in addition to this release instructions, such as getting started guides, evaluation guides, development guides, application notes, common questions and answers. The introduction guide is a booklet that tells users how to quickly connect the hardware and start the development board after getting the development board, and how to quickly obtain information for subsequent evaluation and development; The evaluation guide focuses on the use and experience of the development board, informs users of the specific software and hardware features of the development board, and provides corresponding demonstrations to facilitate users to evaluate the project. The development guide focuses on the whole process of operating system and application transplantation, and tells users

how to quickly transplant operating system and application based on our SDK to the hardware platform designed based on our core board; In the development stage, we also provide detailed application notes for a specific function or module to guide users to develop; In addition, we also collate and summarize some common questions at each stage to form a list of common questions and answers, and provide users with the complete document information as shown in the following table:

Table 2-4. MYD-YT113X SDK Documentation List

Usage Stage	Document Name	Remarks
Getting Started	MYD-YT113X Quick Start Guide	A quick start booklet included in the product package
Evaluation Stage	MYD-YT113X Linux Software Evaluation Guide	Introduces the use of core resources and peripheral resources
Development Stage	MYD-YT113X Linux Software Development Guide	Introduces the porting of operating systems and applications
	MYD-YT113X QT Application Note	Introduces QT application development
	MYD-YT113X RISC-V Processor Application Development Note	Introducing the use of RISC-V cores (only for MYD-YT113-I model development boards)
	MYD-YT113X Mass Production Guidance Note	Guidance for mass production programming
Technical Support	MYD-YT113X Common Q&A	Not yet release
Release Note	MYD-YT113X SDK Release Note	Introduction to SDK

## 3. Version History

Table 3-1. MYD-YT113X SDK Version History

Version	Status	Description	Download Link
V1.0.0	RC	U-boot version:2018.05 Linux Kernel version:5.4.61 Buildroot version:2019.02 QT version:5.12.5	<a href="https://d.myirtech.com/MYD-YT113/">https://d.myirtech.com/MYD-YT113/</a>
V2.0.0	RC	SDK changed from longan to tina5.0 version, in which uboot, kernel, buildroot, QT version are the same as longan, and the main new RISC-V processor end application (applicable to MYD-YT113-I models)	<a href="https://d.myirtech.com/MYD-YT113/">https://d.myirtech.com/MYD-YT113/</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	HMI application	Audio and video in HMI2.0 program can not be played temporarily	Waiting for subsequent version update to fix
2	Network port driver	Ethtool does not work	Waiting for subsequent version update to fix

# 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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