

How to Burn Newton Demo

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How to Burn Newton Demo

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Release history

Date	Revision	Change
Jul. 22, 2014	2.0	Modify method of flashing the device
Apr. 26, 2014	1.0	First release

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1 Newton Hardware Introduction

1.1 Front Side of Newton

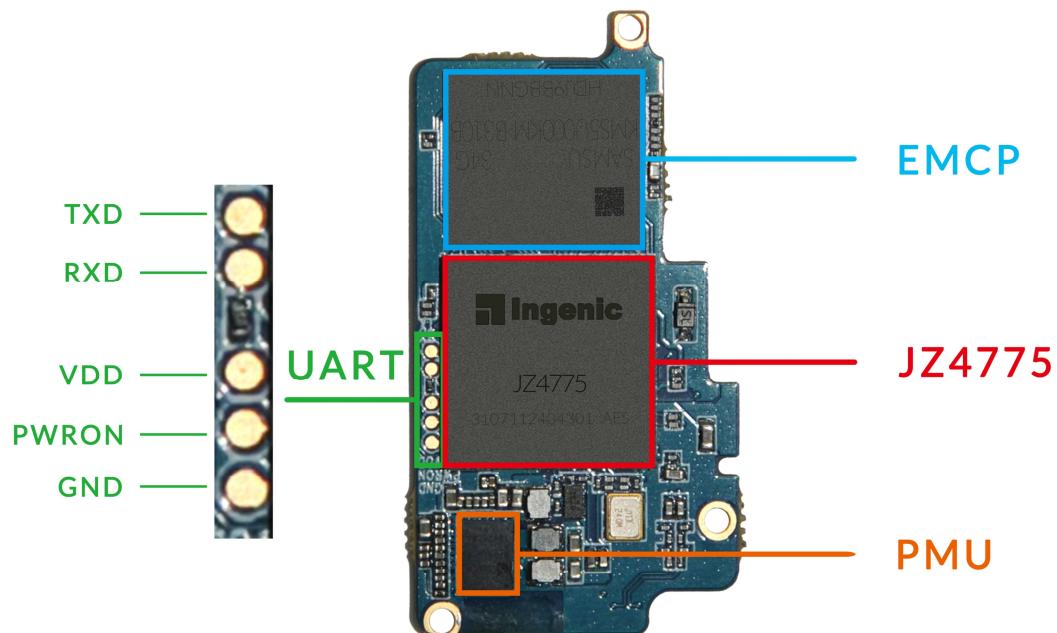


Figure 1-1 Front Side of Newton

1.2 Back Side of Newton

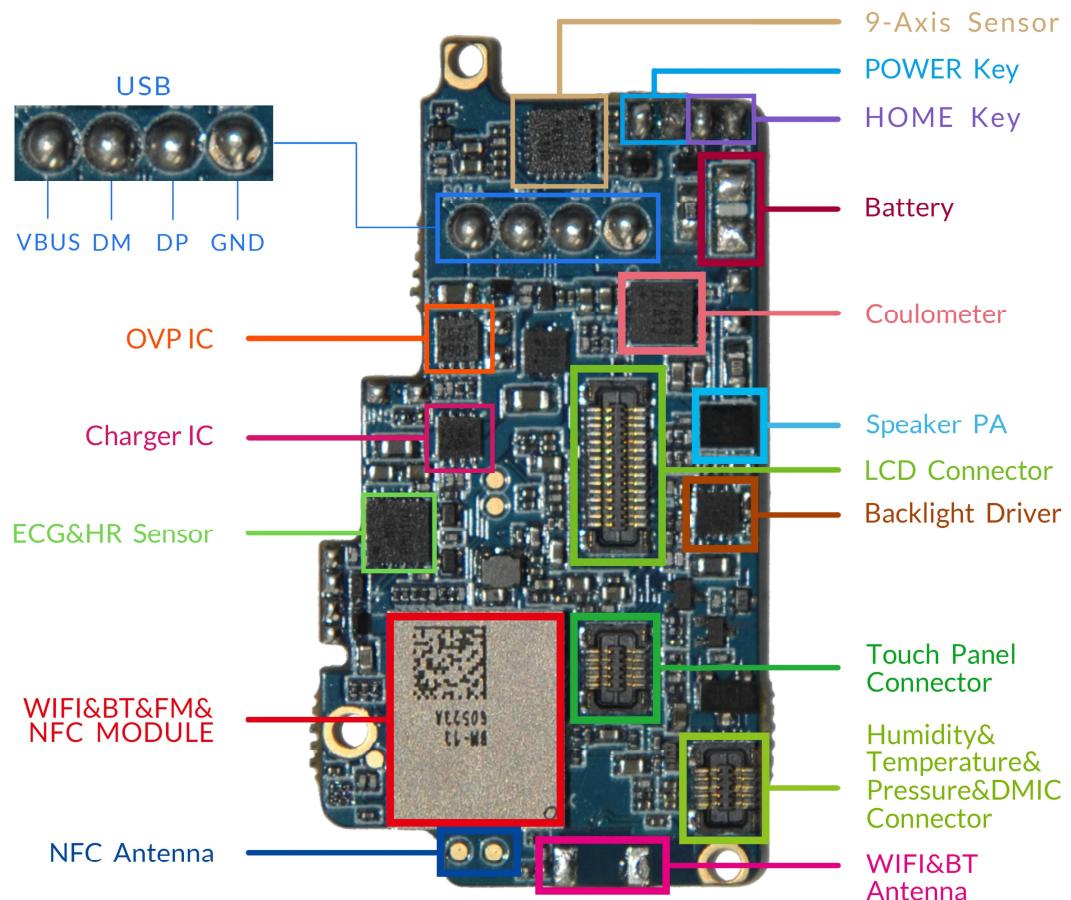


Figure 1-2 Back Side of Newton

1.3 Newton System

Newton System has two parts: Newton and Debug board. All the functional devices are located on Newton, Debug board expose USB interface and converter UART(Serial port) into USB.

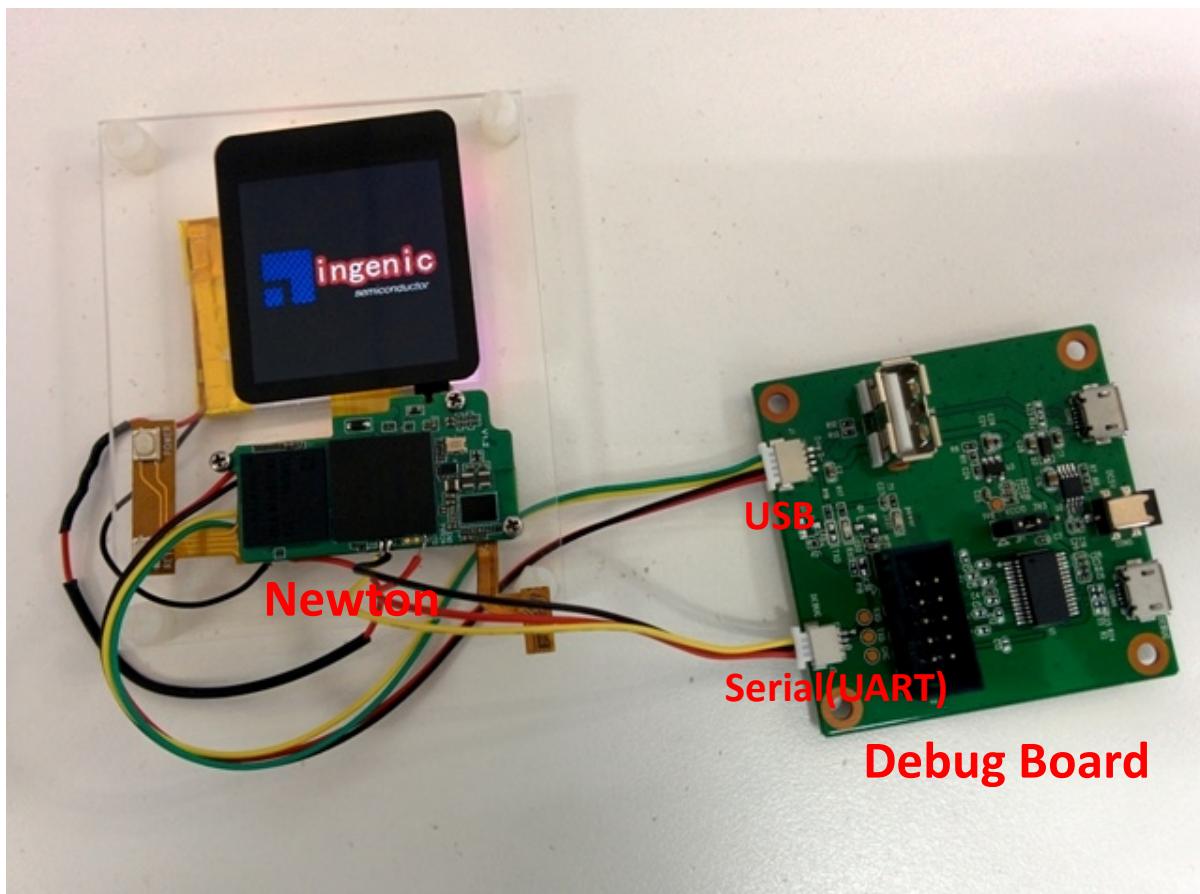


Figure 1-3 Connection

1.4 Debug Board

Debug board can be seemed as two parts:

Left part is for USB function: Newton connects to debug board with cable, debug expose the USB interface to PC.

The right part is for UART debugging: Newton connects to debug board with cable, debug board integrates IC for converting UART into USB, for PC will identify it as an USB console.

Informations of debug board in this document is enough for debugging. You can refer to “” for further requirement.

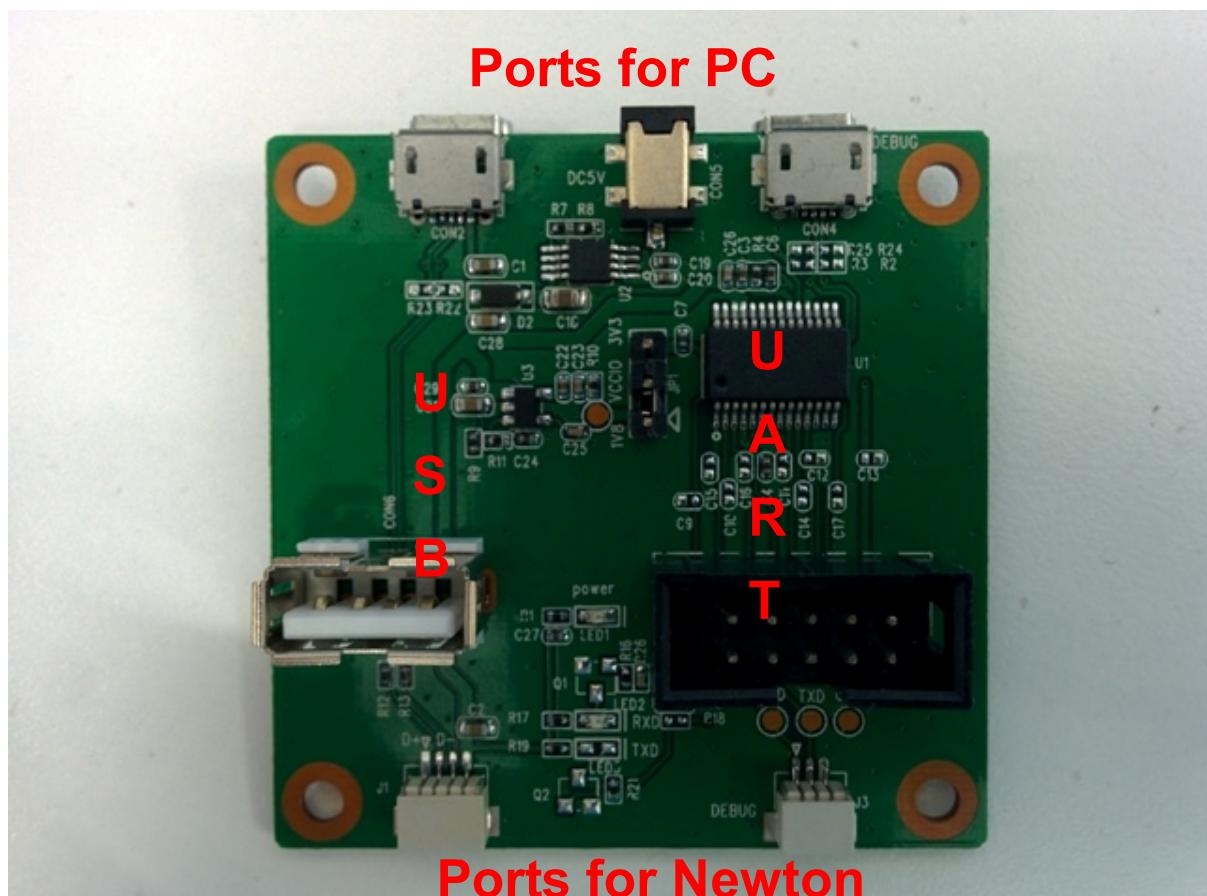


Figure 1-4 Debug Board

All ports for PC are based on USB. You can choose any one of these two sockets which on the same side depending on the type of your cable.

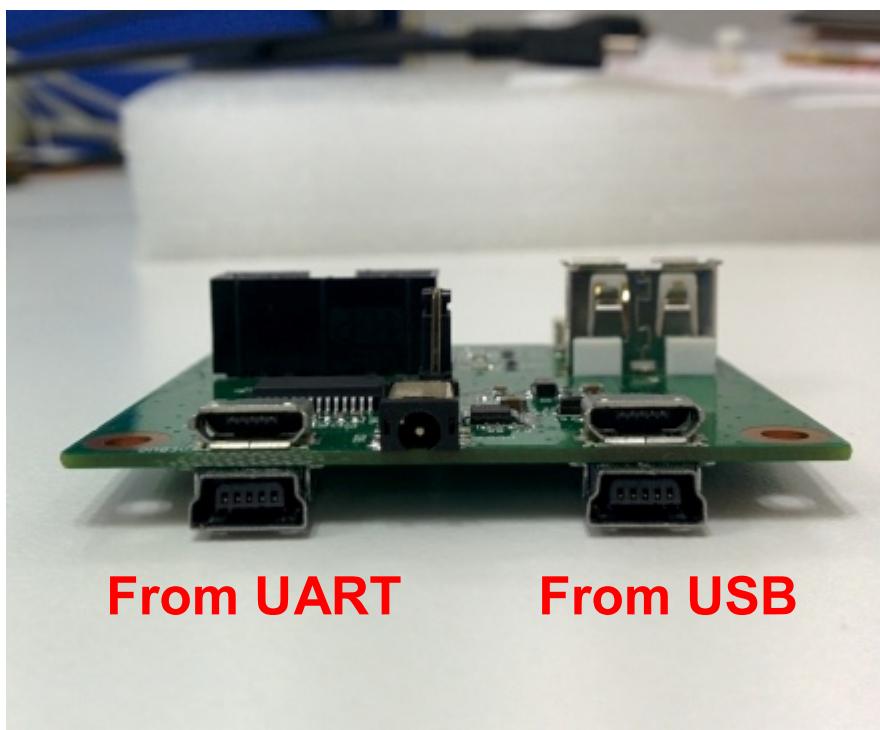
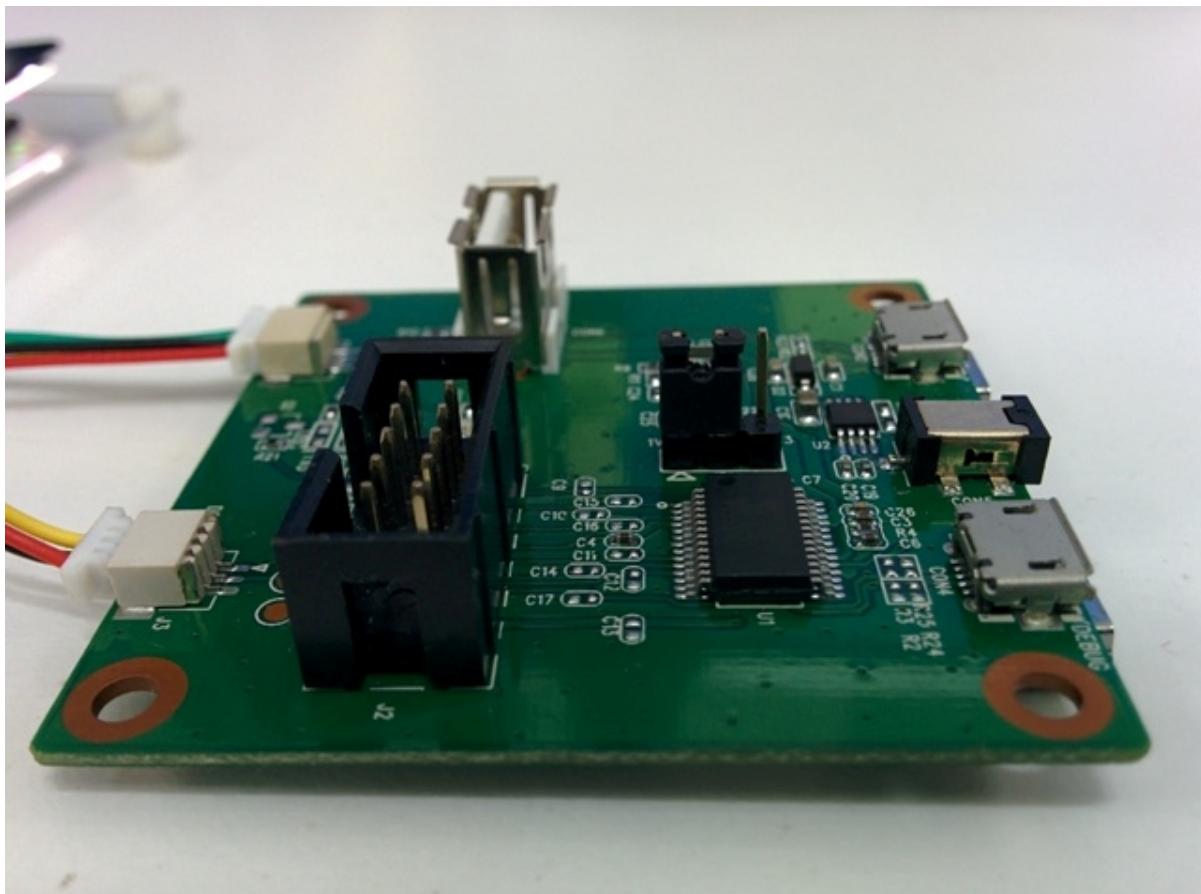


Figure 1-5 USB Socket

The jumper on debug board should be always short 1V8 with VCCIO. As follow:

**Figure 1-6 Jumper on Debug Board**

2 Preparation

2.1 Checking of Newton-kit

Newton-kit should contain:

- a. One Newton board.
- b. One LCD panel.
- c. One Li-battery.
- d. POWER and HOME keys.
- e. One debug board.
- f. Two USB cable(one for flashing/adb, one for serial debugging).

2.2 A Windows based PC for flashing

A Windows base PC is needed for flashing the images into Newton. System later than Windows XP is OK. Here we use Windows XP as example.

2.3 Demo File

The demo file contains the images and a burning tool. The directory tree is showed as following after extraction:

Android:

```

newton-android-demo
├── images
│   ├── mbr-xboot-gpt.bin          /* Bootloader */
│   ├── boot.img                   /* Kernel */
│   ├── recovery.img               /* Recovery */
│   └── system.img                /* Android System */
├── cloner-win32-driver          /* Windows driver for flashing tool */
└── cloner-0.19.7-windows       /* Flahing tool */

```

Linux:

```

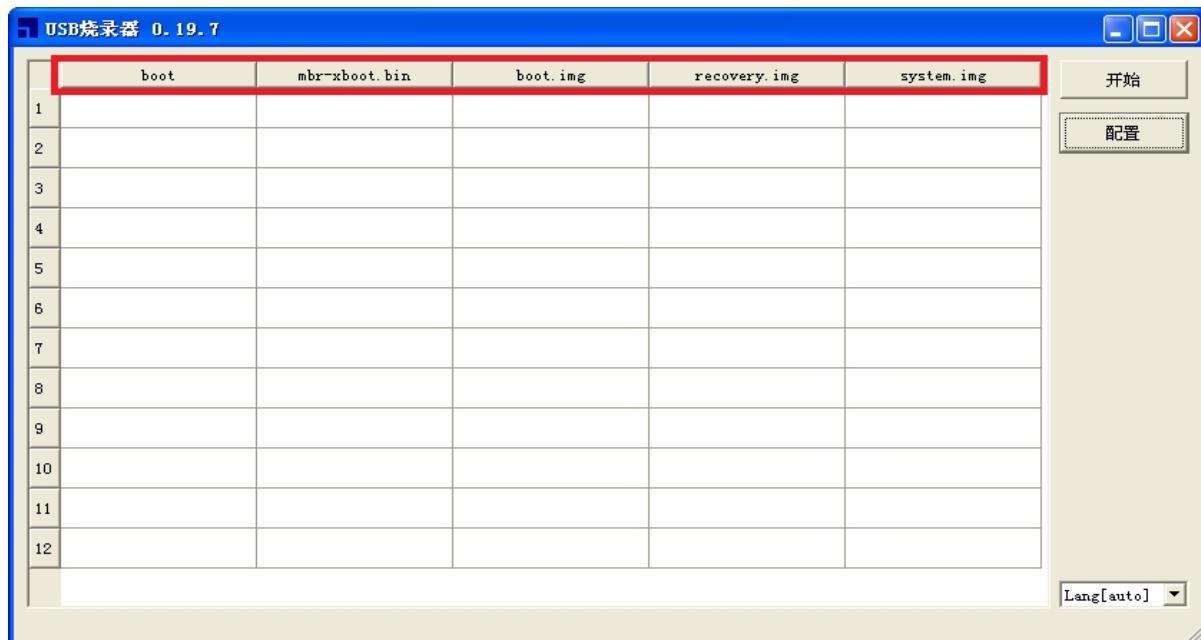
newton-linux-demo
├── images
│   ├── u-boot-with-spl-mbr.bin    /* Bootloader */
│   ├── ulimage                    /* Kernel */
│   ├── rootfs.ext2                /* Rootfs */
├── cloner-win32-driver          /* Windows driver for flashing tool */
└── cloner-0.19.7-windows       /* Flahing tool */

```

3 Install the driver for flashing tool

3.1 Installation Method

You will be asked to install the driver for flashing tool if you are the first time to use flashing tool on the PC. If you have installed the driver, but the UI is not the one as following, please reference to "Section 3.4 updating the driver".



3.2 Setting Newton into Burning Mode

The steps to boot Newton board into burning mode are:

- a. Connect the battery.
- b. Connect Newton to debug board.
- c. Connect debug board to PC with USB cables.
- d. Press HOME and POWER at the same time for about 10 seconds.
- e. Release POWER first, release HOME after 2 seconds, then Newton will enter into burning mode.

If Newton entered into burning mode successfully, the PC will detect a new USB device, and try to install the driver for the new device automatically. You should install it manually. Please refer to "Section 3.3 Install the driver".

3.3 Install the Driver

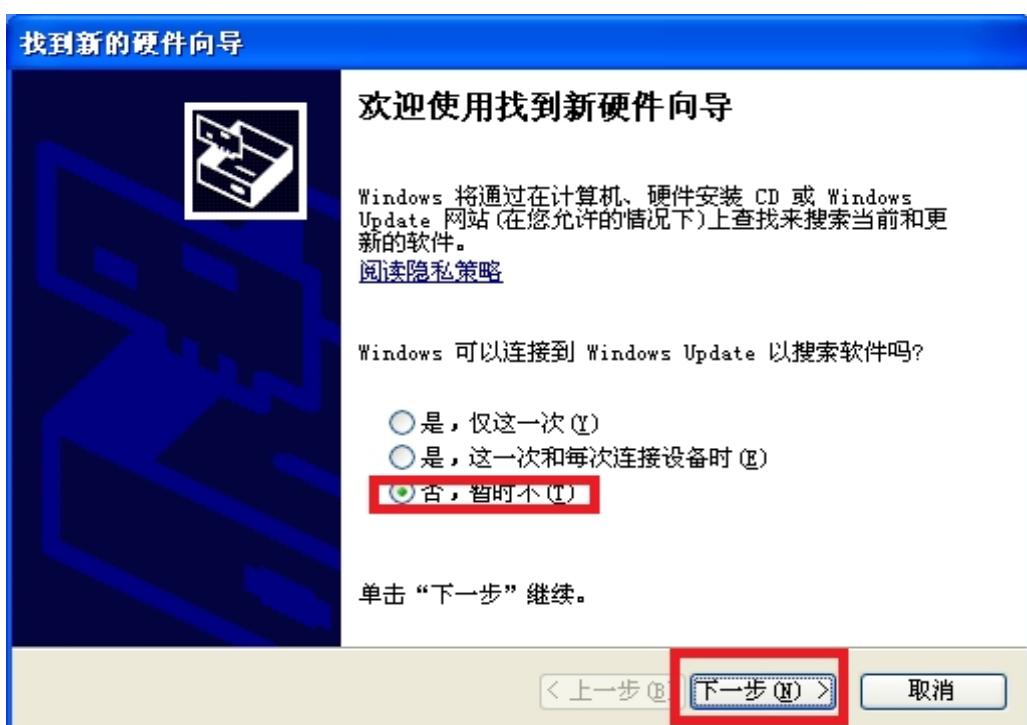


Figure 3-1 New device has been detected

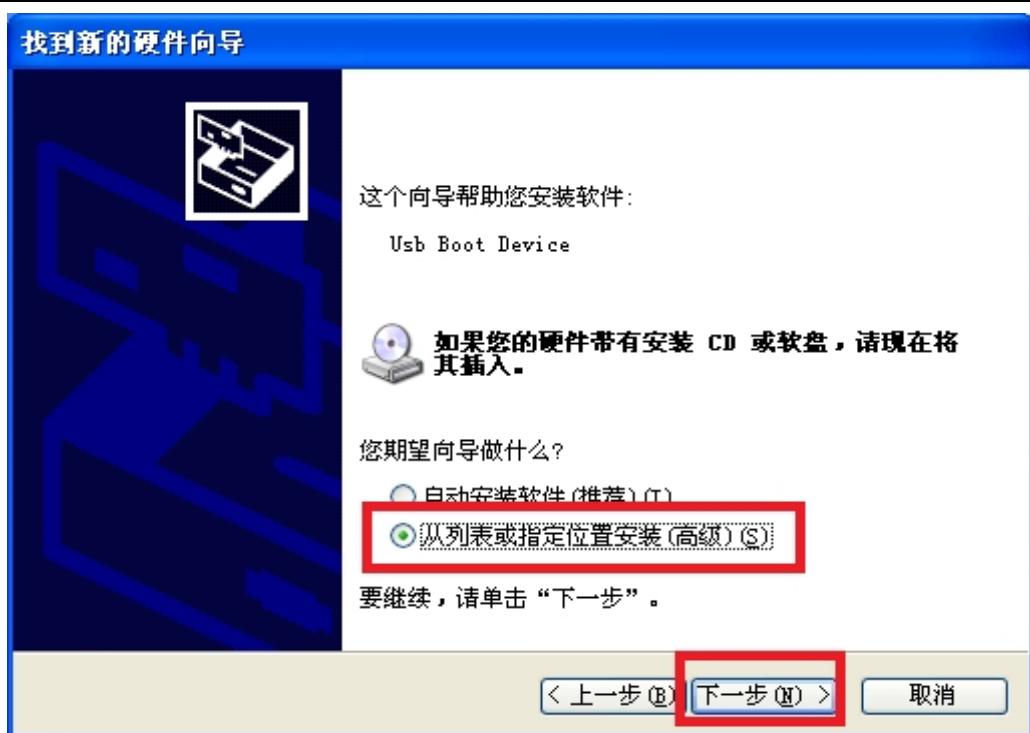


Figure 3-2 Install from list or certain place

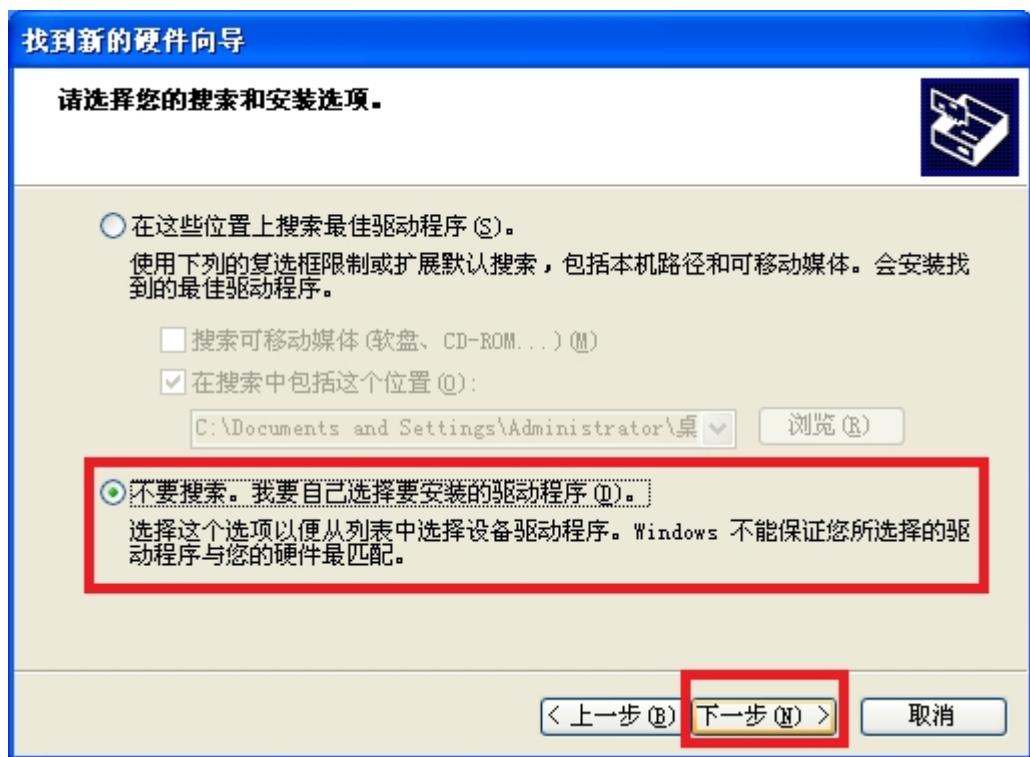


Figure 3-3 Do not search, Let me chose the driver

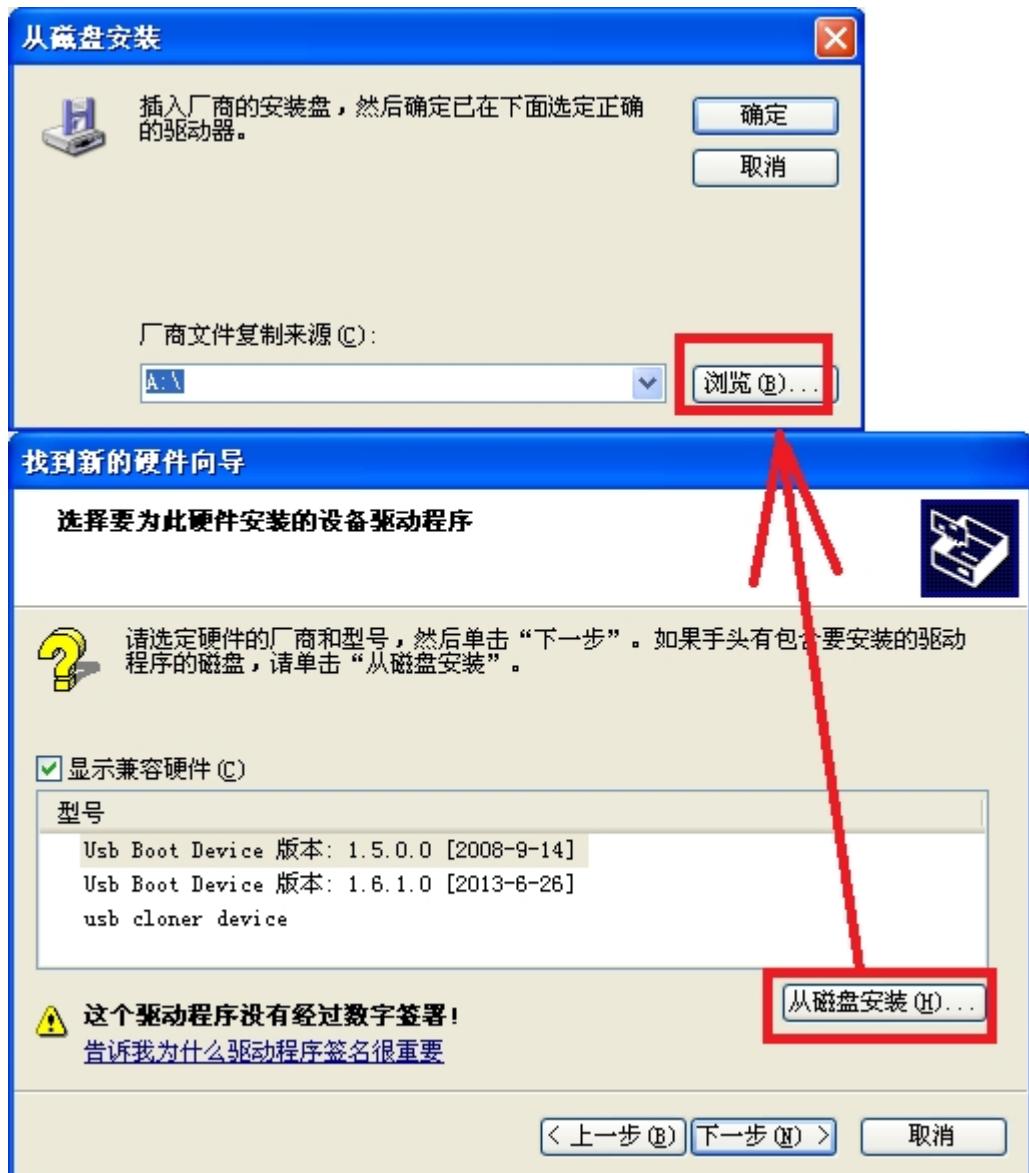


Figure 3-4 Install from disc

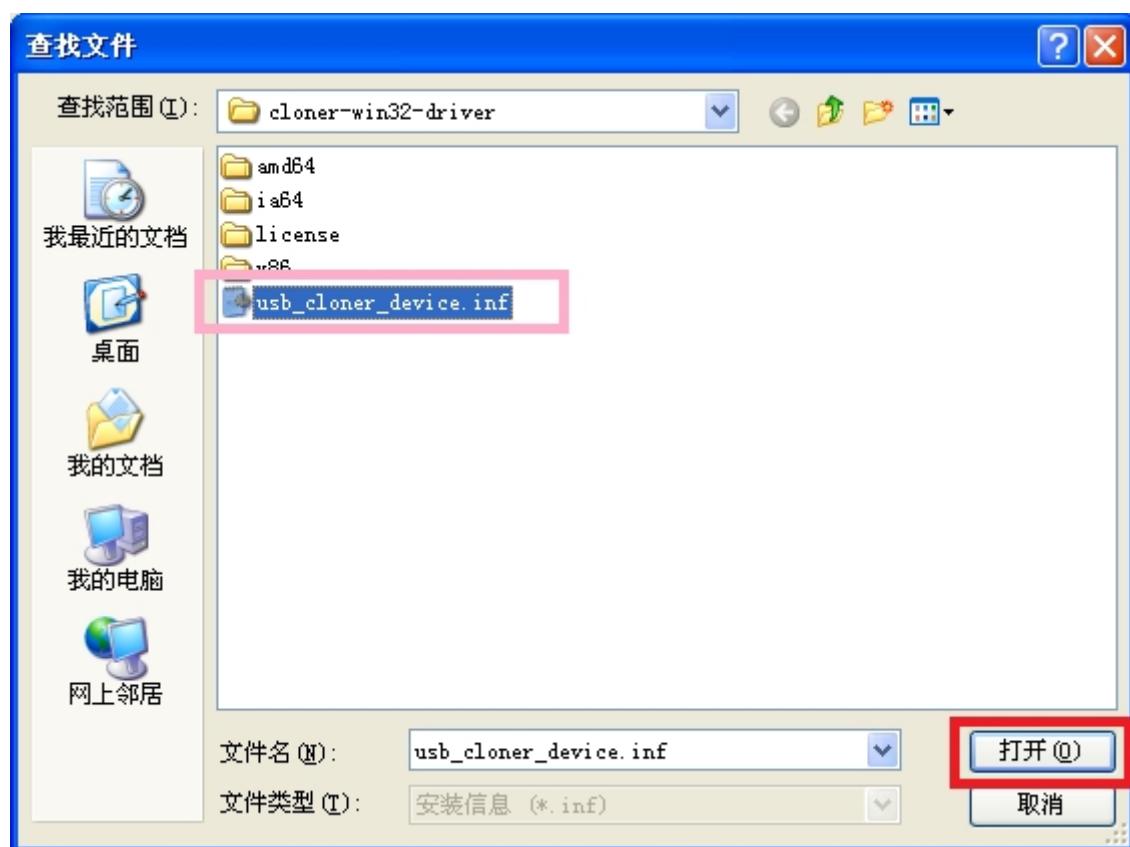


Figure 3-5 Find and chose the file

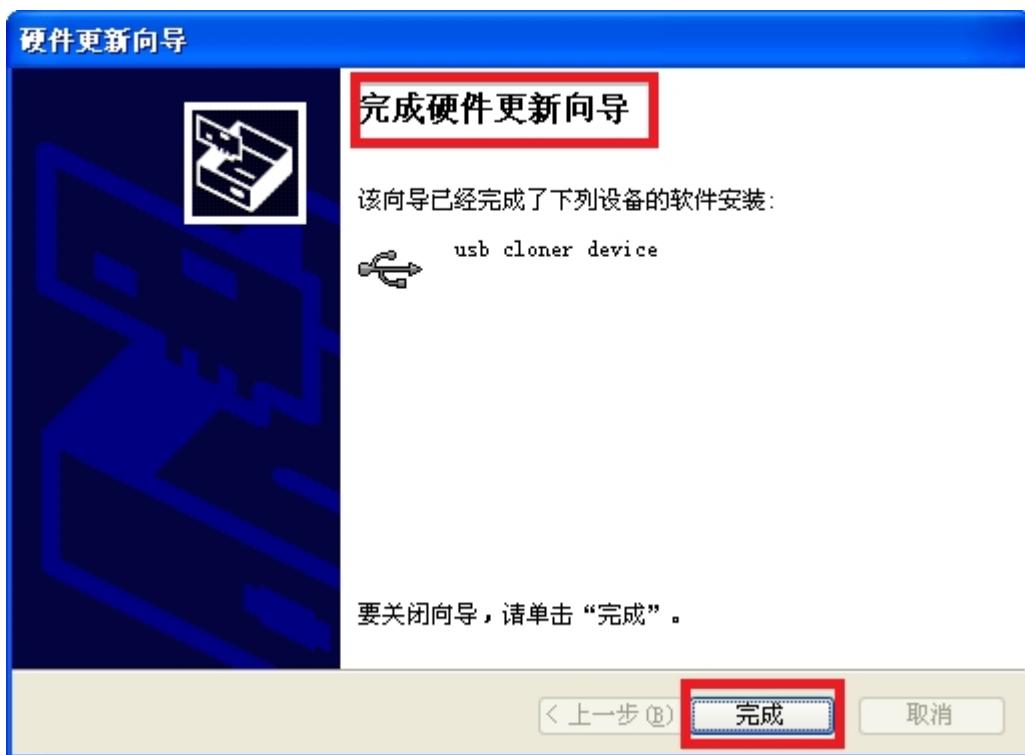


Figure 3-6 Finish

3.4 Updating the Driver

Set Newton into burning mode.

Open the “Device Manager” and find “Ingenic USB Boot Device”.

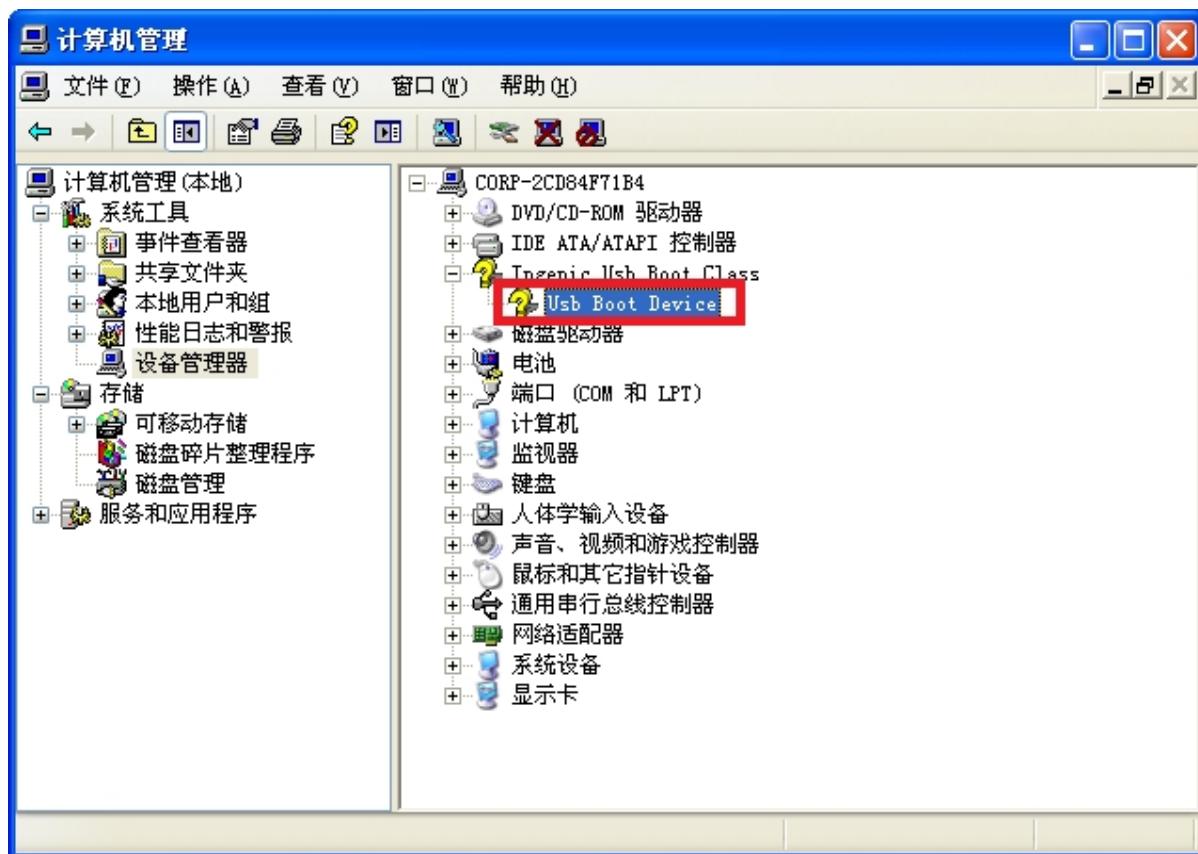


Figure 3-7 USB Boot Device

Right click on “USB Boot Device”, select “Update Driver Software...”.

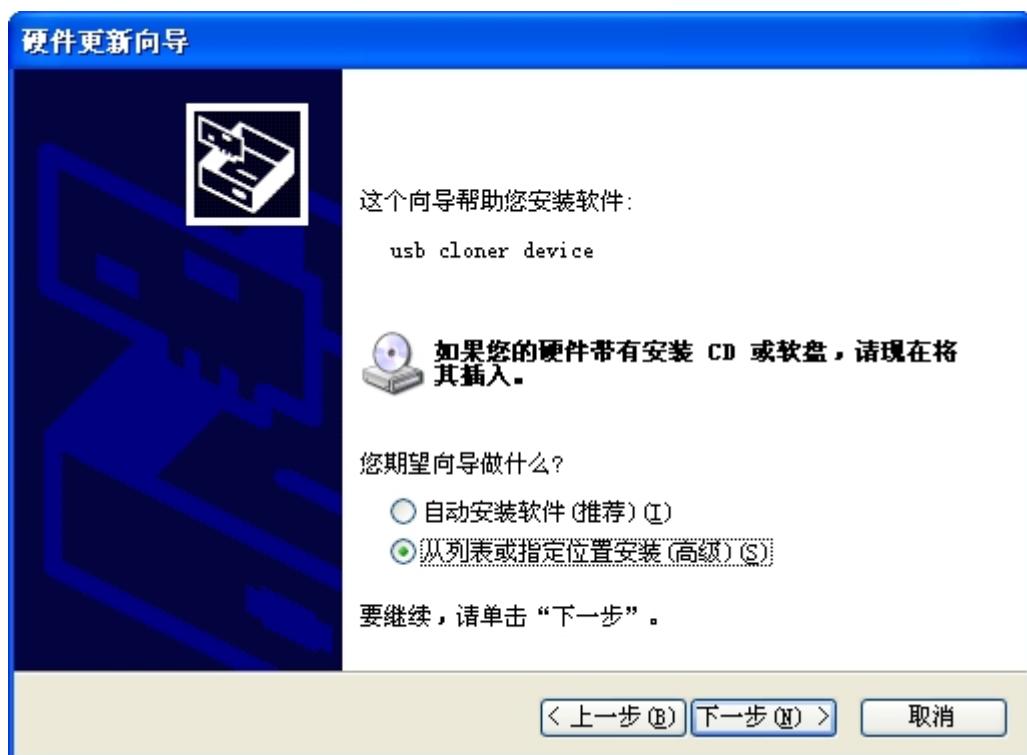


Figure 3-8 Install from list or certain place

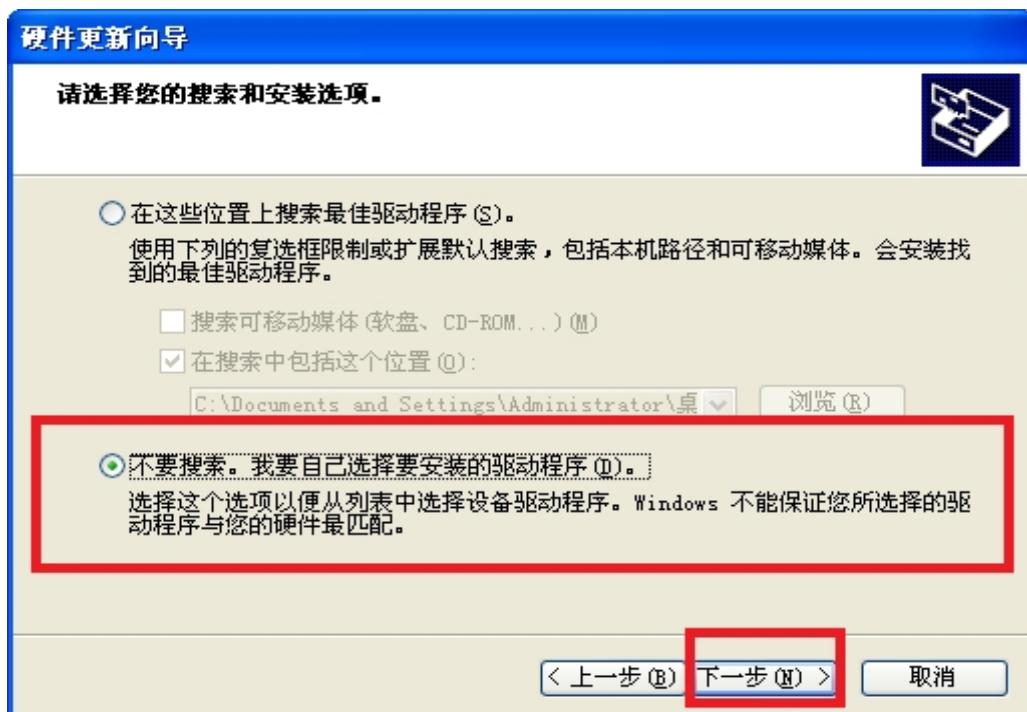


Figure 3-9 Do not search, Let me chose the driver

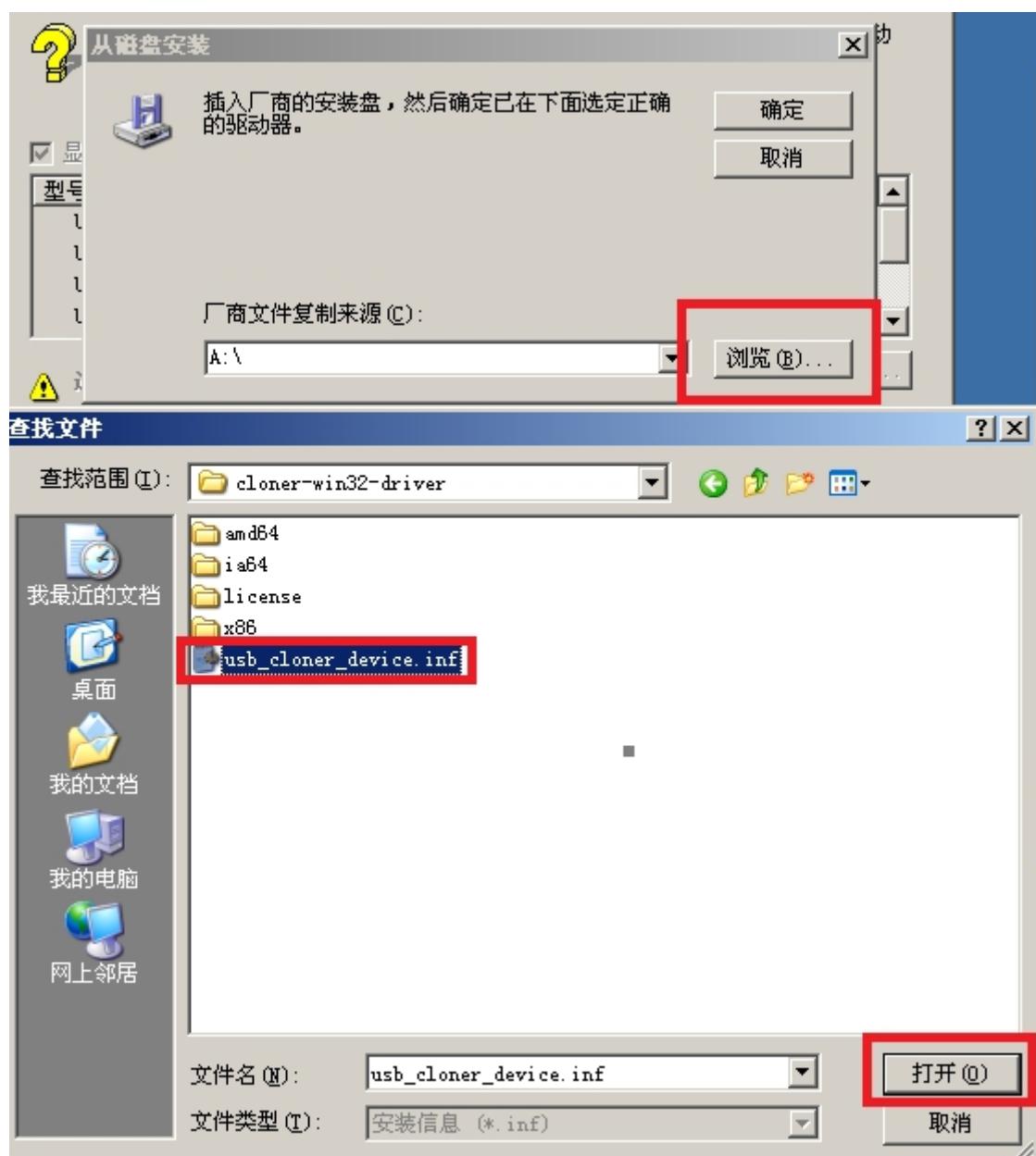


Figure 3-10 Find and chose the file



Figure 3-11 Finish

4 Start Flashing

Screen captures in this section are base on Android.

4.1 Steps of Flashing

- a. Enter the path of flashing tool and run the flashing tool. And press “START”.
- b. Connect Newton to debug board.
- c. Connect debug board to PC.
- d. Set Newton into the burning mode.
- e. Flashing tool will start flashing automatically.
- f. Reboot Newton.

NOTICE: Because Flashing tool can not find the device which has already been enumerated, so after running the Flashing tool and pressing ‘start’, Newton needs to be enumerated by PC again.

Following are the details.

4.2 Run the Flashing Tool

Enter cloner-0.19.7-windows in the demo package. Run cloner.exe.

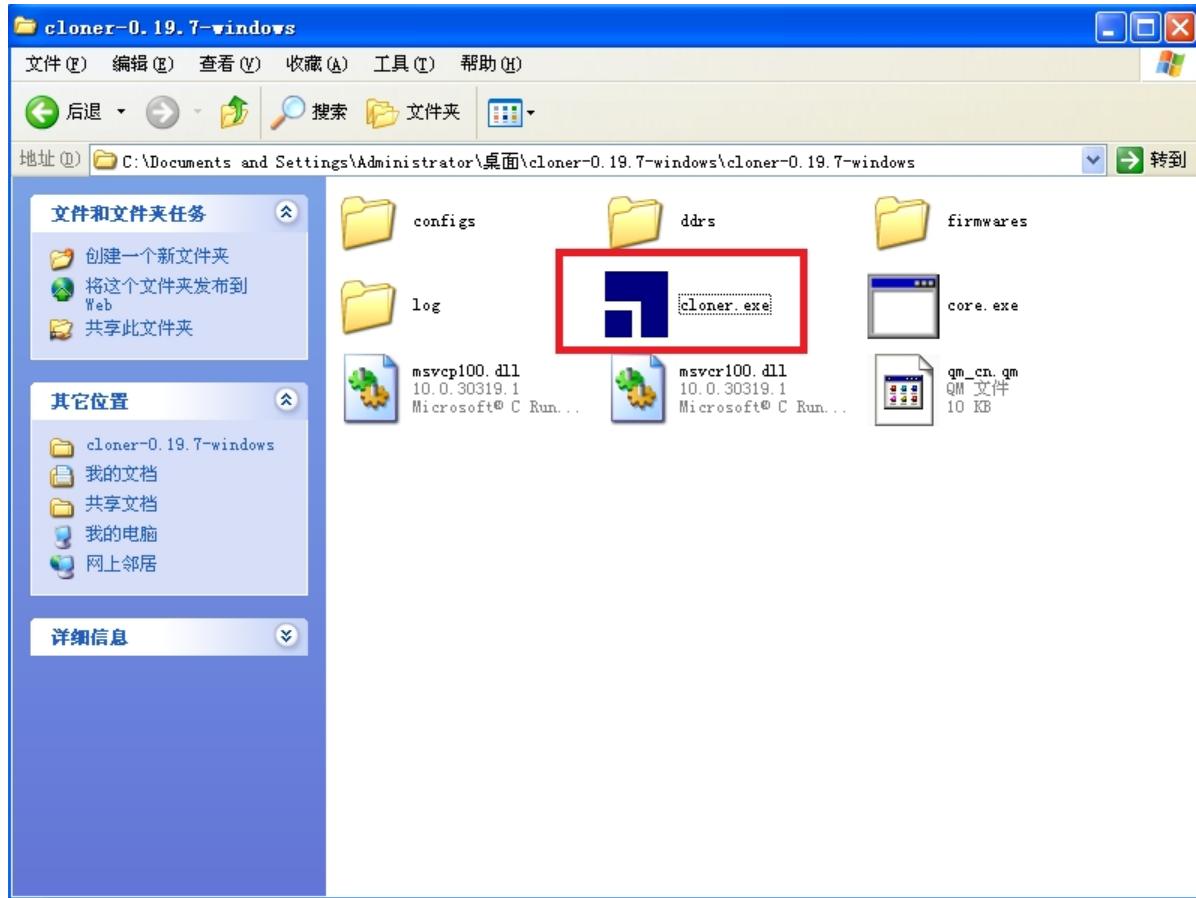


Figure 4-1 Path to cloner

You will see the UI as following.

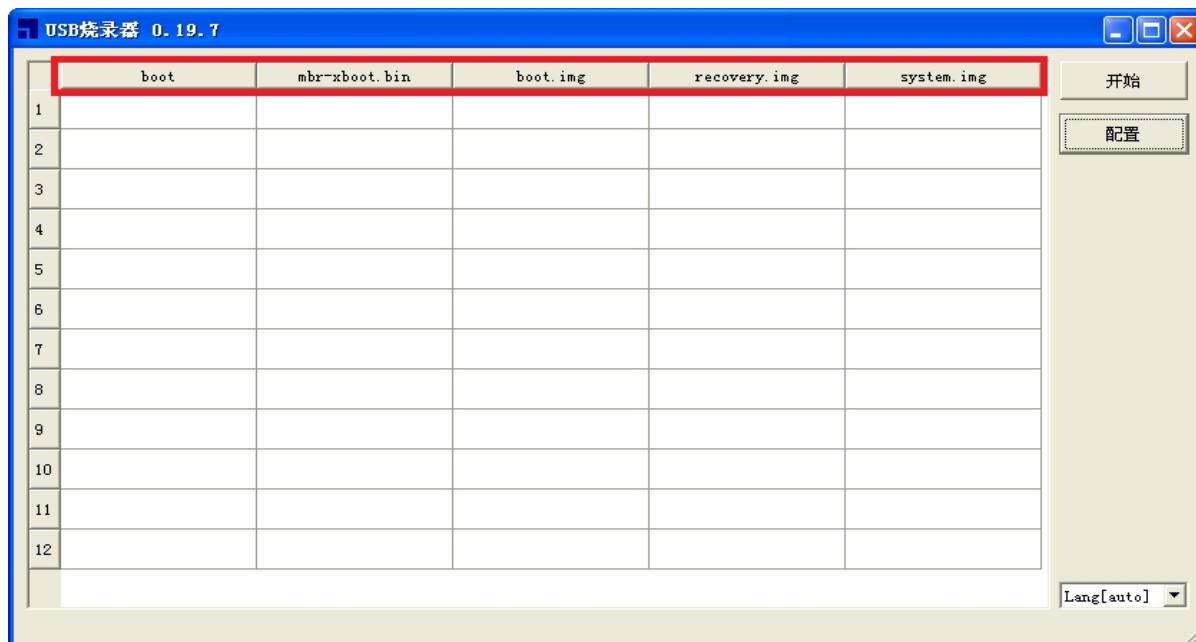


Figure 4-2 UI

4.3 Setting Newton into Burning Mode

The steps to boot Newton board into burning mode are:

- a. Connect the battery.
- b. Connect Newton to debug board.
- c. Connect debug board to PC with USB cables.
- d. Press HOME and POWER at the same time for about 10 seconds.
- e. Release POWER first, release HOME after 2 seconds, then Newton will enter into burning mode.

4.4 Flashing Started

If you have installed the driver, Flashing tool will start the flashing progress.

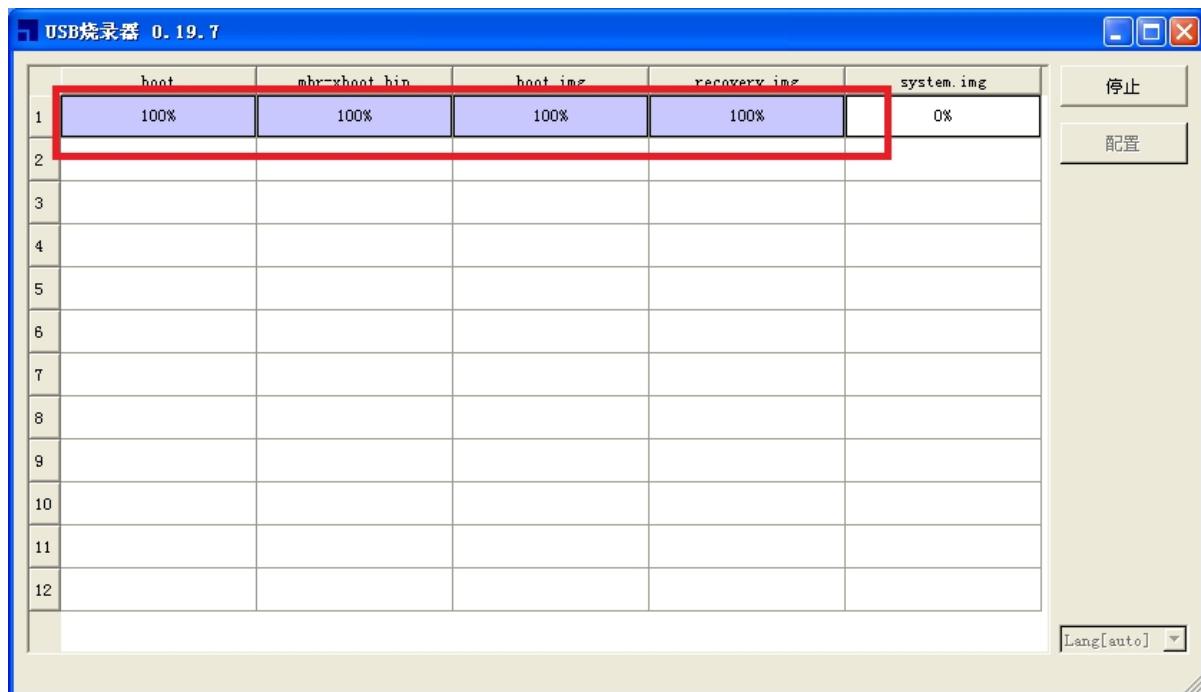


Figure 4-3 Flashing started

4.5 Finish

Wait for several minitues until progress bar reaching 100%.

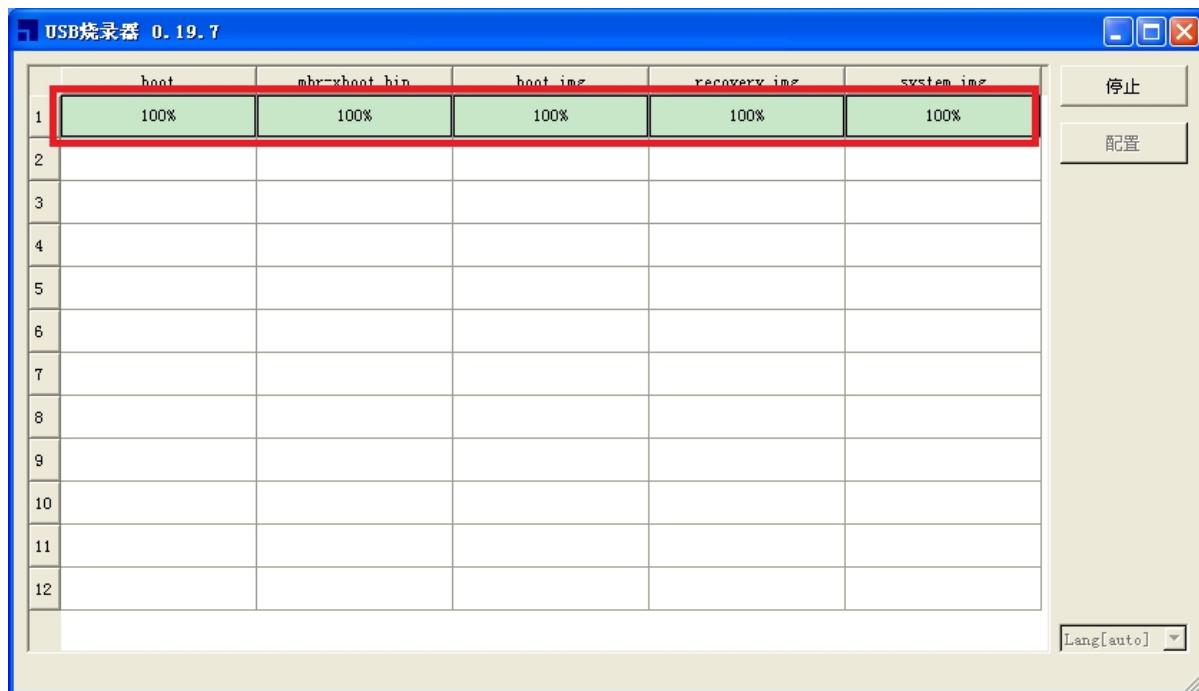


Figure 4-4 Finish

4.6 Auto-Restart the Newton Board

After flashing's finish, Newton will reboot automatically.

5 Boot and Reset

5.1 Normal Boot

- Connect the battery
- Press down POWER key for 3 seconds
- Newton boots up normally

5.2 Hardware Reset

Press POWER for about 10 seconds, Newton will perform hardware reset.

6 FAQ

Q1: Why I have to press POWER and HOME for about 10 seconds to set Newton into burning mode?

Answer: because the hardware design has no reset circuit, Newton will generate reset signal through the on-board PMU. When you press the POWER key for about 10 seconds, the PMU will detect this action and send a reset signal to the CPU. CPU will then detect the HOME key to decide to enter the burning mode after reset.

Q2: Why battery must be connected to Newton while booting or being flashed?

Answer: There is an OVP (Over Voltage Protection) IC on the board, and this chip can not work without battery.

Q3: I can't burn or failed to burn, what reasons may be?

Answer: The possible reasons are a) the battery is in low power, b) the flashing tool driver was not installed correctly, c) the flashing tool was not closed and restart after installing the driver, d) other hardware reasons.

Q4: Why Newton can not boot even after pressing POWER for 3 seconds?

Answer: The possible reasons are a) battery was not connected correctly, b) battery is in low power, c) flashing failure or the flashed wrong binaries, d) other hardware reasons.

Q5: Can I use the flashing tool on other OS like Linux or MAC OS except Windows?

Answer: No. The flashing tool can only run on Windows for now. Please pay your attention on our website for any updating.

Q6: Can I debugging with serial port ? What are the parameters?

Answer: Yes you can get the serial out put through debug board. 57600 baudrate, 8 data bits, 1 stop bit, no parity, and no flow control.