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Banana Pro

V1.1

2014-11-15

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Revision History

Revision	Data	Author	Description
1.0	2014-11-06	Peter	Initial version
1.1	2014-11-15	Tony	Format and fix error

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1 Introduction



This section will introduce you to using the TTL serial port to log in to the Banana Pro/Pi.

- (1). Familiarise yourself with the pin assignments of the UART interface on the Banana Pro/Pi.
- (2). Use the PL2303 to connect the Banana Pro/Pi and the computer.

The PL2303 operates as a bridge between a USB port and a standard RS232 serial port. There are pins for 3.3V, TXD, RXD, GND and 5V on the PL2303 as shown here.



Beware: it's been reported external link that some of these cables have the polarity of +5V & GND the wrong way round!! (Unfortunately, the plug and its socket are 'keyed' and can only meet each other in one orientation, so it's not just a simple case of turning it upside down - pity!!!)

If you look closely at the photo in this blog, you can see insulating tape where he's chopped both cables and rejoined red to black and vice versa. (If you have the correct tool(s), it is maybe possible to push out the internal metal contacts of the plug like in a Molex connector and then swap them around but it's VERY fiddly. Personally, rather than doing such a 'bodge job' as that blogger did, I would use some insulated bullet connectors.)

2 Setting up the bootable SD card

This chapter describes how to create a bootable SD card. Depending on how the SD card is set up, the locations in which data is written can be different. Throughout this chapter **\${card}** refers to the SD card and **\${p}** to the partition, if there are any.

If the SD card is connected via a USB adapter, Linux will know it for example as **/dev/sdX** (X represents the letters b or c or d, etc.). Please note that this device might be different depending on various factors, so when you are not sure, use the `fdisk` command to check it.

If connected via an SD slot on a device, Linux will know it as **/dev/mmcblk0** (or `mmcblk1`, `mmcblk2`, depending on which mmc slot is being used). (mmc stands for MultiMediaCard by the way!)

Data is either stored raw on the SD card or in a partition. If **\${p}** is used, then the appropriate partition should be written to. Also, this differs for USB adapters and mmc controllers. When using an USB adapter, **\${p}** will be 1, 2, 3 etc so the resulting device is **/dev/sdX1**. Using an mmc controller, this would be p1, p2, p3 etc so the resulting device is **/dev/mmcblk0p1**.

To summarize, **\${card}** and **\${card}\${p}1** mean **/dev/sdX** and **/dev/sdX1** on a USB connected SD card, and **/dev/mmcblk0**, **/dev/mmcblk0p1** on an mmc controller connected device.

If the SD card is physically removed but then inserted into/connected to another slot or port of the PC, the device nodes can change again and be different, so be aware of this and take it into account.

It is assumed that you have already got files such as `u-boot-sunxi-with-spl.bin`, `uImage` and `script.bin`.

2.1 SD card layout

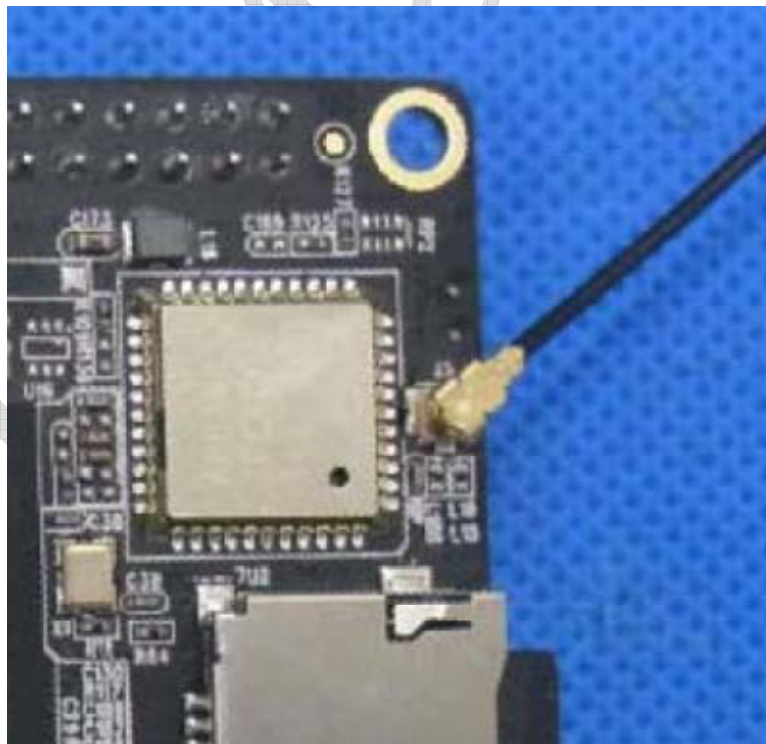
start	size	usage
0	8KB	Unused, available for partition table etc.
8	24KB	Initial SPL loader
32	512KB	u-boot
544	128KB	environment
672	352KB	reserved
1024	-	Free for partitions

3 Setting up the Linux distribution root file system on SD card

From “Building u-boot, script.bin and linux kernel” and “Setting up the bootbleed card” chapter, you already have a bootable SD card, but with no root file system. So this chapter describes how to set up a root file system. Here this depends on what distribution you want to install.

It is assumed that you have a bootable SD card with 2 partitions. Throughout this document, `/${card}` and `/${card}/${p}1` mean `/dev/sdX` and `/dev/sdX1` on a USB connected SD card, and `/dev/mmcblk0`, `/dev/mmcblk0p1` on an mmc controller connected device, as described previously in the aforementioned Section 2.

4 Wifi module





Operation Frequency:	802.11b/g/n(20):2412~2462 MHz 802.11n(40):2422~2452MHz
WIFI module:	AP6210
WIFI Crystal	26MHz
Integrated antenna	UFL antenna, Gain(1dBi),Model: BPRO-A20 Manufacture: Shenzhen LeMaker Science&Technology Co.,Limited.
Modulation Type:	CCK/OFDM/DBPSK/DAPSK
Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps 802.11n(20MHz/40MHz):150/144.44/130/117/115.56/104/ 86.67/78/52/6.5 Mbps
Number Of Channel	802.11b/g/n(20):11CH 802.11n(40):9CH
Output Power(Conducted, PK):	802.11b: 17+/-1dBm 802.11g: 15+/-1dBm 802.11n(20): 14+/-1dBm 802.11n(40): 12+/-1dBm



FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination.

The firmware setting is not accessible by the end user.

The final end product must be labelled in a visible area with the following: "Contains Transmitter Module FCC ID: 2ADVNBPRO-A20"

IMPORTANT NOTE:

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which OEM integrates this module.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:

In the users manual of the end product, The end user has to be informed that the FCC radio frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the users manual:

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

UFL antenna, Gain(1dBi), Model: BPRO-A20

Manufacture: Shenzhen LeMaker Science & Technology Co., Limited.

This allows comparison to other antennas that may be also used provided antenna gain is less or equal and same in-band/out-band characteristics.

This module will be integrated by the Grantee himself, or the OEM integrator which is under the control of Grantee.



LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: 2ADVNBPRO-A20". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label:

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

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