Banana PI M1

User Manual

<Version: V2.0 >

Banana PI is the open source hardware platform which published to assistant the Elastos.org open source OS, Banana PI is the dual core Android 4.2 product which more better than the Raspberry Pi.

Banana Pi series run Android,Debian linux,Ubuntu linux, Raspberry Pi imange and cubieboard imange.

Elastos coordinate multi CUP to from the family cloud entirnment which based on the “software/hardware service”

Banana PI hardware: 1Ghz ARM7 dual-core processor, 1GB DDR3 SDRAM,

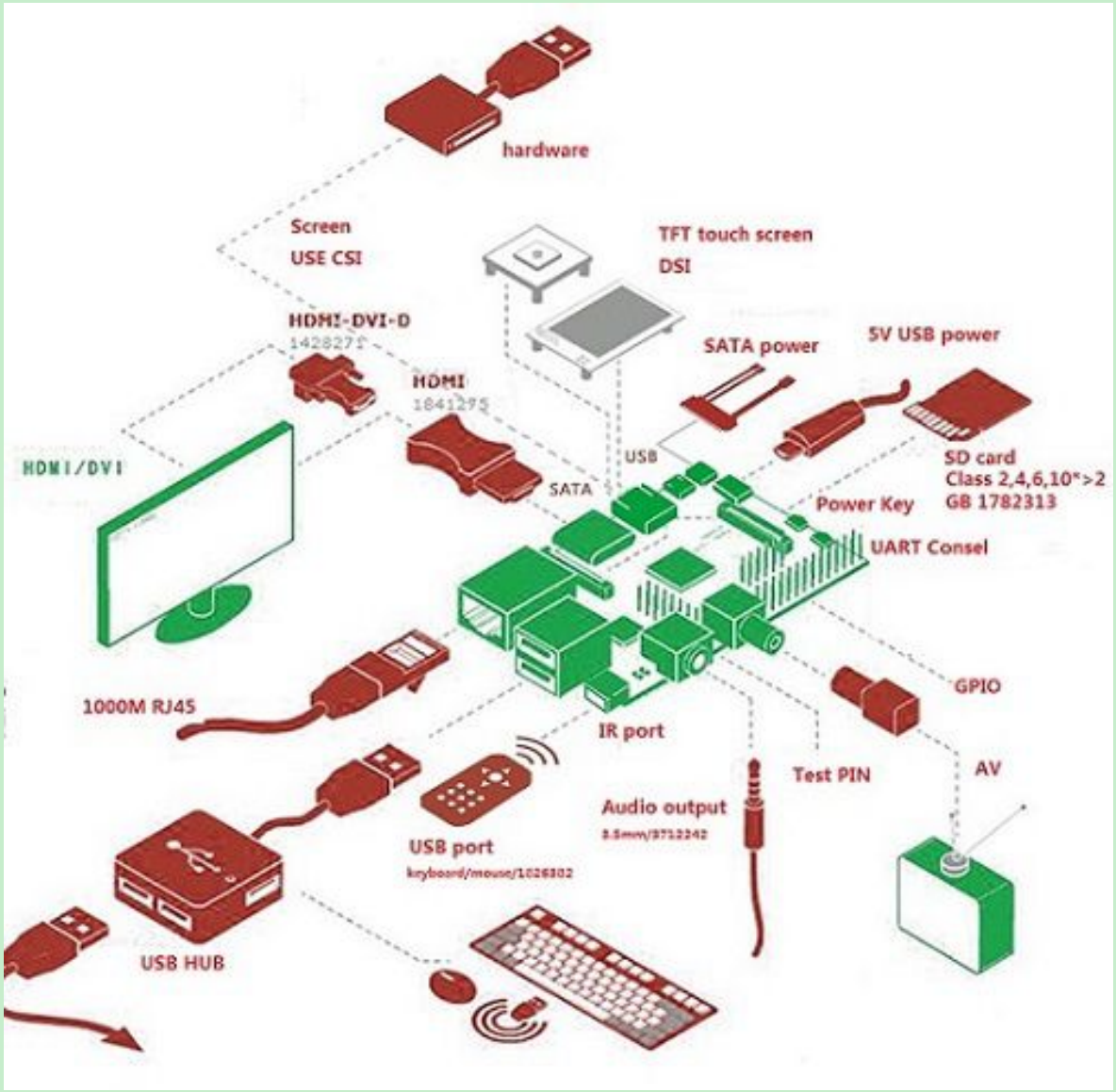
Banana PI with Gigabit ethernet port, SATA Socket. It can run with Android 4.2.2 smoothly. The size of Banana PI M1 like the credit card, it can easily run with the game it support 1080P high definition video output, the GPIO compatible with Raspberry Pi and can run the ROM Image directly

Hardware specification

CPU	A20 ARM Cortex™-A7 Dual-Core
GPU	ARM Mali400MP2Complies with OpenGL ES 2.0/1.1
Memory (SDRAM)	1GB DDR3 (shared with GPU)
Onboard Storage	SD (Max. 64GB) / MMC card slot UP to 2T on 2.5 SATA disk
Onboard Network	10/100/1000 Ethernet RJ45,optional WIFI
Video Input	A CSI input connector allows for the connection of a designed camera module
Video Outputs	HDMI, CVBS , LVDS/RGB
Audio Output	3.5 mm Jack and HDMI
Power Source	5 volt via MicroUSB(DC In Only) and/or MicroUSB (OTG)
USB 2.0 Ports	2 (direct from Allwinner A20 chip)
Buttons	Reset button: Next to MicroUSB connector Power button: Next to Reset button Boot button (Optional): Behind HDMI connector
GPIO(2X13) pin	GPIO,UART,I2C bus,SPI bus with two chip selects, CAN bus,ADC,PWM,+3.3v,+5v,ground.
LED	Power Key & RJ45
Remote	IR (Optional)
OS	Android 4.2,Firefox OS and Linux etc. OS

Interface definition	
Product size	92 mm × 60mm
Weight	48g

Hardware connect sketch map



Use method

1, download the relevant Image file

Android Images files

Android

Image	Banana PI_m1_android.img.gz
Tools	PhoenixCard_V309.rar
Instruction	Instruction
SHA-1 Checksum	N/A
Description	An Android port
Release Date	2013-11-07
Version	4.2.2
Kernel	3.3

Linux Images

To use an image file, **you will need to untar it first, and write it to a suitable SD card (4GB or larger):**

Linux users should use the UNIX tool dd: sudo dd if=YourSDCardImage of=/dev/YourSDCard bs=1M

Windows users should use Win32DiskImager

Debian

Image	Banana PI_m1_debian.img.gz
Tools	dd or Win32 Disk Imager
Default login	cubie / cubieboard
Description	A Debian port
Release Date	2013-11-07
Kernel	3.4

Ubuntu

Image	Banana PI_m1_ubuntu.img.gz
Tools	dd or Win32 Disk Imager
Default login	linaro / linaro
Description	A Ubuntu port based on linaro
Release Date	2013-11-07
Version	13.08
Kernel	3.4

2, The process of making the card

Make start the SD card according the downed image file. The android image file use the PhoenixCard (Android Image) tools, Linux use the dd-like tools (Debian or Ubuntu image)

We provide the card which compatible with the Rasberry PI to use on Banana PI, no matter the image or the 8GB card, please use the root competence under the linux or Ubuntu. And Mount to check the device name/dev/sdx of the SD card.
If have the card was mounted, then first need to umount/ dex/sdxxx

1, Use the card to make image

dd if=/dev/sdX of=pi.8GB bs=10M

The sdx here have to see the which SD card your system correspondence , Sda or SDB or SDC. It will have the PI.8GB image file which almost 8GB, it is the mother-board.

“If” means input file, “of” mean the output file, “bs” means buffer size
The details you can check mad dd
If for convenient transfer, need to compression file:
tar czvf pi.8GB.tgz pi.8GB
Then can compress to 2.4GB, because the raspberry PI have 1.4GB, and Debin is about 2GB, so after compression, it is about 2.4GB

If need to restore to pi.8GBv: tar xvf pi.8GB.tgz

2, Use the image file to make the SD card

dd if=pi.8GB of=/dev/sdX bs=10M

The sdx here have to see which SD card your system correspondence , Sda or SDB or SDC.

3, Insert the made SD start card

4, Connect with the display screen

5, Connect with the USB charger wire

6, Open the system

7, GPIO define

2， GPIO

Banana Pi V1.4 PIN define

PIN	PIN define	GPIO
CON1-P01	LINEINL	
CON1-P02	LINEINR	
CON1-P37	HPL	
CON1-P36	HPR	
CON1-P07	FMINL	
CON1-P09	FMINR	
CON1-P04	ADC_X1	
CON1-P06	ADC_X2	
CON1-P08	ADC_Y1	
CON1-P10	ADC_Y2	
CON1-P13	LRADC0	

CON1-P15	LRADC1	
CON1-P33	RESET#	
CON1-P17	CSI-D0	PE4
CON1-P19	CSI-D1	PE5
CON1-P21	CSI-D2	PE6
CON1-P23	CSI-D3	PE7
CON1-P25	CSI-D4	PE8
CON1-P27	CSI-D5	PE9
CON1-P29	CSI-D6	PE10
CON1-P31	CSI-D7	PE11
CON1-P20	CSI-PCLK	PE0
CON1-P24	CSI-MCLK	PE1
CON1-P28	CSI-VSYNC	PE3
CON1-P30	CSI-HSYNC	PE2
CON1-P18	CSI0-STBY-EN	PH19
CON1-P26	CSI0-RESET#	PH14
CON1-P32	CSI1-STBY-EN	PH18
CON1-P34	CSI1-RESET#	PH13
CON1-P14	TWI1-SDA	PB19
CON1-P16	TWI1-SCK	PB18
CON1-P12	CSI-FLASH	PH17
CON1-P22	CSI0-PWR-EN	PH16
CON1-P35	CSI-IO0	PH11
CON1-P38	IPSOUT	
CON1-P40	IPSOUT	
CON1-P05	GND	
CON1-P11	GND	
CON1-P39	GND	
CON1-P03	VCC-CSI	

CON2-P09	LCD0-D00	PD0
CON2-P11	LCD0-D01	PD1
CON2-P13	LCD0-D02	PD2
CON2-P15	LCD0-D03	PD3
CON2-P17	LCD0-D04	PD4
CON2-P19	LCD0-D05	PD5
CON2-P21	LCD0-D06	PD6
CON2-P23	LCD0-D07	PD7
CON2-P25	LCD0-D08	PD8
CON2-P27	LCD0-D09	PD9
CON2-P29	LCD0-D10	PD10

CON2-P31	LCD0-D11	PD11
CON2-P33	LCD0-D12	PD12
CON2-P35	LCD0-D13	PD13
CON2-P37	LCD0-D14	PD14
CON2-P39	LCD0-D15	PD15
CON2-P40	LCD0-D16	PD16
CON2-P38	LCD0-D17	PD17
CON2-P36	LCD0-D18	PD18
CON2-P34	LCD0-D19	PD19
CON2-P32	LCD0-D20	PD20
CON2-P30	LCD0-D21	PD21
CON2-P28	LCD0-D22	PD22
CON2-P26	LCD0-D23	PD23
CON2-P22	LCD0-CLK	PD24
CON2-P20	LCD0-CS	PH6
CON2-P18	LCD0-HSYNC	PD26
CON2-P16	LCD0-VSYNC	PD27
CON2-P14	LCD0-DE	PD25
CON2-P12	LCD0-I02	PH9
CON2-P10	PWM0	PB2
CON2-P08	LCD0-I01	PH8
CON2-P06	LCD0-I00	PH7
CON2-P04	TWI3-SCK	PI0
CON2-P02	TWI3-SDA	PI1
CON2-P07	LCDIO-03	PH12
CON2-P01	IPSOUT	
CON2-P03	IPSOUT	
CON2-P05	GND	
CON2-P24	GND	
CON3-P18	CAN_RX	PH21
CON3-P16	CAN_TX	PH20
CON3-P23	SPI0_CLK	PI11
CON3-P21	SPI0_MISO	PI13
CON3-P19	SPI0_MOSI	PI12
CON3-P24	SPI0_CS0	PI10
CON3-P26	SPI0_CS1	PI14
CON3-P05	TWI2-SCK	PB20
CON3-P03	TWI2-SDA	PB21
CON3-P15	UART2_CTS	PI17
CON3-P22	UART2_RTS	PI16

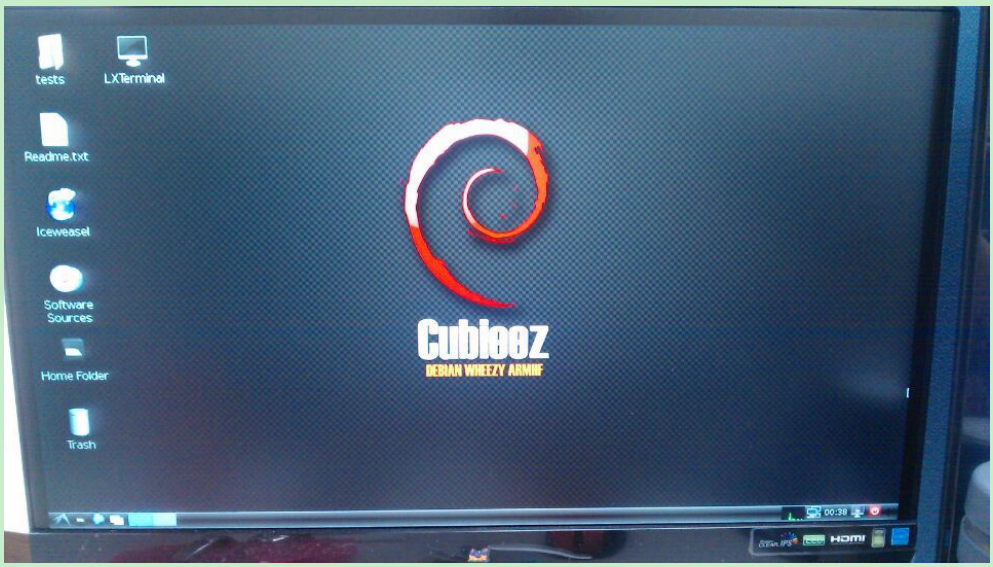
CON3-P11	UART2_RX	PI19
CON3-P13	UART2_TX	PI18
CON3-P10	UART3_RX	PH1
CON3-P08	UART3_TX	PH0
CON3-P12	PH2	PH2
CON3-P07	PWM1	PI3
CON3-P01	VCC-3V3	
CON3-P17	VCC-3V3	
CON3-P02	VCC-5V	
CON3-P04	VCC-5V	
CON3-P09	GND	
CON3-P25	GND	
CON3-P06	GND	
CON3-P14	GND	
CON3-P20	GND	
J12-P03	PH5	PH5
J12-P05	PH3	PH3
J12-P04	UART7_RX	PI21
J12-P06	UART7_TX	PI20
J12-P01	VCC-5V	
J12-P02	VCC-3V3	
J12-P07	GND	
J12-P08	GND	
J11-P01	UART0-TX	PB22
J11-P02	UART0-RX	PB23

7, The splash screen show as below

Android system screen

Ubuntu system screen

Debian system screen



Raspberry Pi