

Banana Pi BPI-M2+

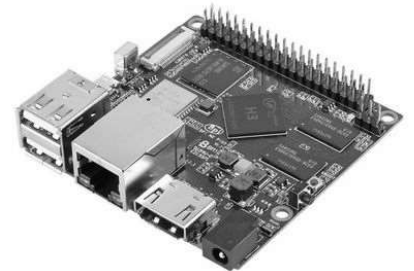
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Introduction

Banana PI BPI-M2+ is the open source hardware platform, use Allwinner H3 (option H2+ chip and H5 chip) chip on board. and mini size only 65mm*65mm,

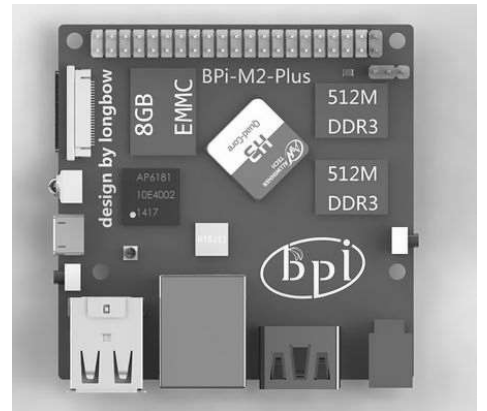
PBI-M2 hardware: 1Ghz ARM7 quad-core processor, 1GB DDR3 SDRAM, 8G eMMC flash on board, and SDIO wifi&BT 4.0 module on board. Gigabit ethernet.



Overview: Allwinner H3



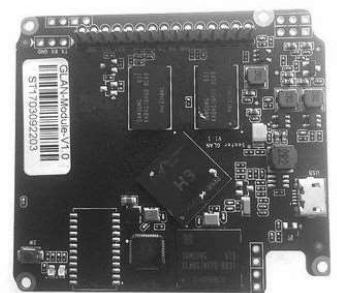
Overview: back



Overview:3D design



Case BPI-M2+ Premium Aluminum Enclosure



BPI-4.0 OEM&ODM Successful case H3 for Network security information analysis instrument

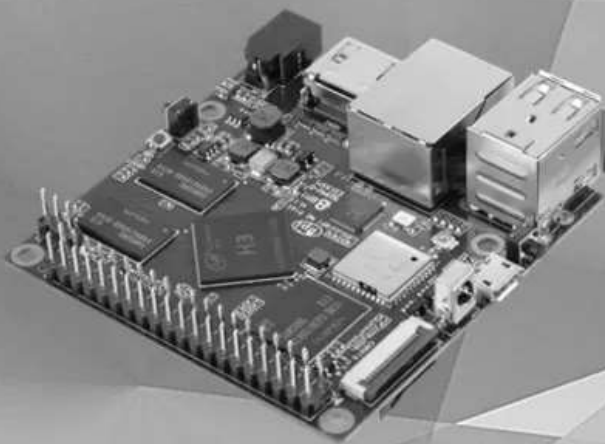
eBlocker. Family



BPI-4.0 OEM&ODM Successful case:H3 for eBlocker VPN router



Banana Pi BPI-M2 Pro S905x3 design,same size and interface as BPI-M2+



Banana Pi BPI-M2+

Allwinner H3
Quad core ARM Cortex A7
1GB Ram, 8GB EMMC
GigE LAN, WIFI&BT

BPI-M2+ series run Android,Debian linux,Ubuntu linux, Raspberry Pi image and others image. Banana Pi,it can easily run with the game it support 1080P high definition video output and 4K support, the GPIO compatible with Raspberry Pi B+ .

Banana Pi BPI-M2+ not support sata port, so you need use USB for hardisk

Key Features

- Allwinner H3 Quad-core 1.2GHz Cortex-A7 (option H2+ H5).
- 1GB DDR3
- 8GB eMMC onboard
- HDMI out

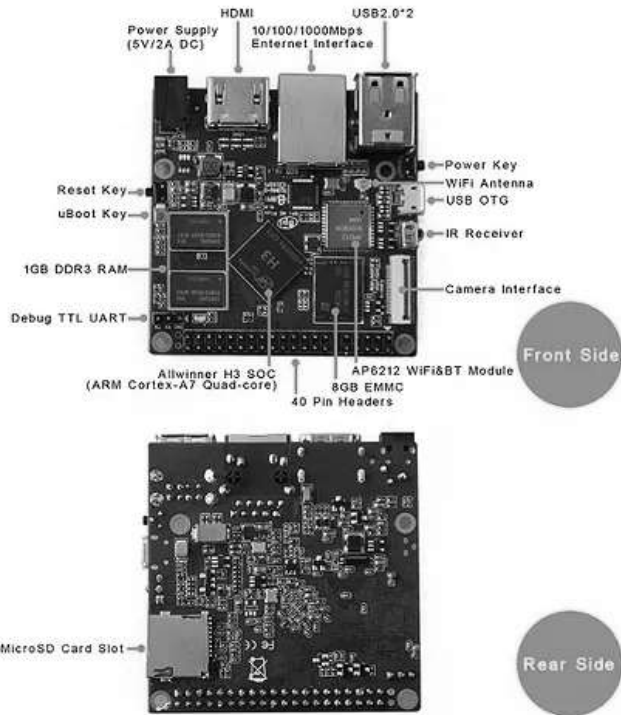
- WiFi and BlueTooth onboard
- 10/100/1000Mbps Ethernet Port
- CSI camera interface

Getting Start

- Quick Start Banana pi SBC
- Getting Start with M2P

Hardware

Hardware interface



Hardware spec

HardWare Specification of Banana Pi M2+(Plus)	
CPU	H3 Quad-core Cortex-A7 H.265/HEVC 4K
GPU	Mali400MP2 GPU @600 MHz,Supports OpenGL ES 2.0
Memory	1GB DDR3 (shared with GPU)
Flash	8GB eMMC flash onboard
Network	10/100/1000 Ethernet
WIFI&BT	SDIO AP6212 for Wifi &BT 4.0 (option AP6181 AP6335)
Video Input	A CSI input connector Camera:1 Supports 8-bit YUV422 CMOS sensor interface,2 Supports CCIR656 protocol for NTSC and PAL, 3 Supports SM pixel camera sensor, 4 Supports video capture solution up to 1080p@30fps
Video Outputs	Supports HDMI output with HDCP, Supports HDMI CEC, Supports HDMI 30 function, Integrated CVBS, Supports simultaneous output of HDMI and CVBS
Audio Outputs	HDMI
Power	5V/2A DC input can supply power, but USB OTG input don't supply power
USB 2.0 ports	two USB 2.0 HOST, one USB 2.0 OTG
GPIO	40 Pins Header,compatible with Raspberry Pi B+
LED	Power led & Status led
IR	IR input on board
OS	Android, Ubuntu, Debian, Raspberry Pi Image

GPIO PIN define

Banana Pi BPI-M2+ (BPI-M2 Plus) has a 40-pin GPIO header that matches that of the Model Raspberry Pi 3. Following is the Banana Pi GPIO Pinout:

40 PIN GPIO of Banana pi BPI-M2+			
GPIO Pin Name	Default Function	Function2: GPIO	Function3
CON2-P01	VCC-3V3		
CON2-P02	VCC-5V		
CON2-P03	TWI0-SDA	PA12-EINT12	
CON2-P04	VCC-5V		
CON2-P05	TWI0-SCK	PA11-EINT11	
CON2-P06	GND		
CON2-P07	PWM1	PA6-EINT6	
CON2-P08	UART3-TX	PA13-EINT13	SPI1-CS
CON2-P09	GND		
CON2-P10	UART3-RX	PA14-EINT14	SPI1-CLK
CON2-P11	UART2-RX	PA1-EINT1	
CON2-P12	UART3-CTS	PA16-EINT16	SPI1-MISO
CON2-P13	UART2-TX	PA0-EINT0	
CON2-P14	GND		
CON2-P15	UART2-CTS	PA3-EINT3	
CON2-P16	UART3-RTS	PA15-EINT15	SPI1-MOSI
CON2-P17	VCC-3V3		
CON2-P18	PC4	PC4	
CON2-P19	SPI0-MOSI	PC0	
CON2-P20	GND		
CON2-P21	SPI0-MISO	PC1	
CON2-P22	UART2-RTS	PA2-EINT2	
CON2-P23	SPI0-CLK	PC2	
CON2-P24	SPI0-CS	PC3	
CON2-P25	GND		
CON2-P26	PC7	PC7	
CON2-P27	TWI1-SDA	PA19-EINT19	
CON2-P28	TWI1-SCK	PA18-EINT18	
CON2-P29	PA7-EINT7	PA7-EINT7	
CON2-P30	GND		
CON2-P31	PA8-EINT8	PA8-EINT8	
CON2-P32	PL2-S-EINT2	PL2-S-EINT2	
CON2-P33	PA9-EINT9	PA9-EINT9	
CON2-P34	GND		
CON2-P35	PA10-EINT10	PA10-EINT10	
CON2-P36	PL4-S-EINT4	PL4-S-EINT4	
CON2-P37	PA17-EINT17	PA17-EINT17	SPDIF-OUT
CON2-P38	PA21-EINT21	PA21-EINT21	
CON2-P39	GND		
CON2-P40	PA20-EINT20	PA20-EINT20	

CSI Camera Connector specification:

The CSI Camera Connector is a 24-pin FPC connector which can connect external camera module with proper signal pin mappings. The pin definitions of the CSI interface are shown as below. This is marked on the Banana Pi board as “CSI”.

CSI Camera PIN of Banana pi BPI-M2+		
CSI Pin Name	Default Function	Function2: GPIO
CN3-P01	NC	
CN3-P02	GND	
CN3-P03	CSI0-SDA	PE13
CN3-P04	CSI0-AVDD	
CN3-P05	CSI0-SCK	PE12
CN3-P06	CSI0-Reset	PE14
CN3-P07	CSI0-VSYNC	PE3
CN3-P08	CSI0-PWDN	PE15
CN3-P09	CSI0-HSYNC	PE2
CN3-P10	CSI0-DVDD	
CN3-P11	CSI0-DOVDD	
CN3-P12	CSI0-D7	PE11
CN3-P13	CSI0-MCLK	PE1
CN3-P14	CSI0-D6	PE10
CN3-P15	GND	
CN3-P16	CSI0-D5	PE9
CN3-P17	CSI0-PCLK	PE0
CN3-P18	CSI0-D4	PE8
CN3-P19	CSI0-D0	PE4
CN3-P20	CSI0-D3	PE7
CN3-P21	CSI0-D1	PE5
CN3-P22	CSI0-D2	PE6
CN3-P23	GND	
CN3-P24	CSI0-DOVDD	

UART specification:

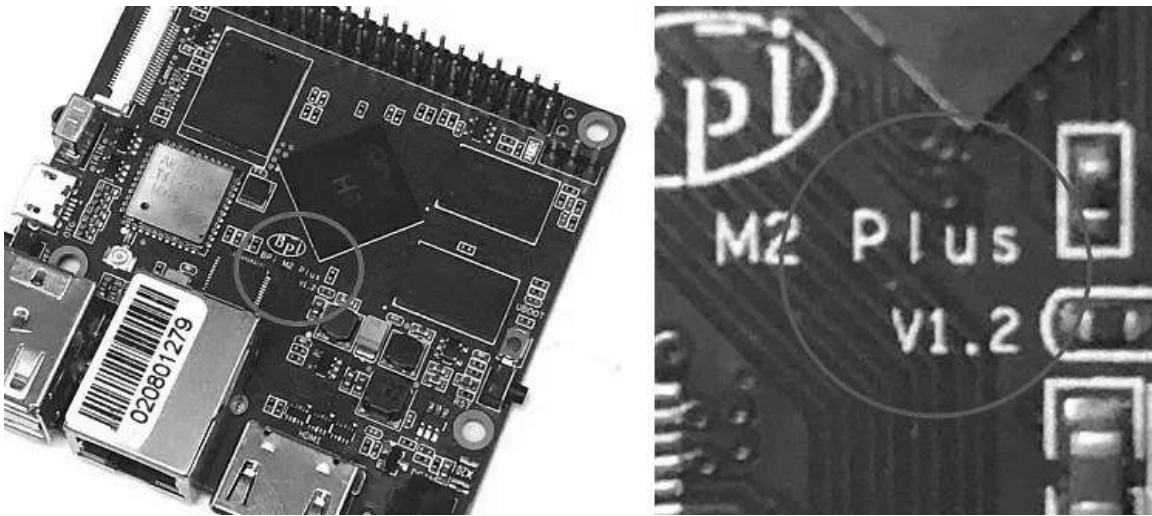
The jumper CON3 is the UART interface. For developers of Banana Pi, this is an easy way to get the UART console output to check the system status and log message.

Uart PIN of Banana pi BPI-M2+		
CON3 Pin Name	Default Function	GPIO
CON3 P03	UART0-TXD	PA4
CON3 P02	UART0-RXD	PA5
CON3 P01	GND	

Hardware V1.2 Version

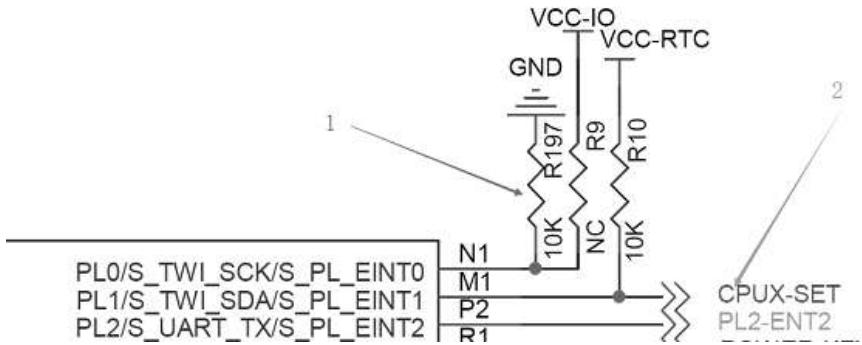
BPI-M2+ V1.2 hardware version add PMU Voltage regulation design

How to check BPI-M2+ V1.2 hardware version:

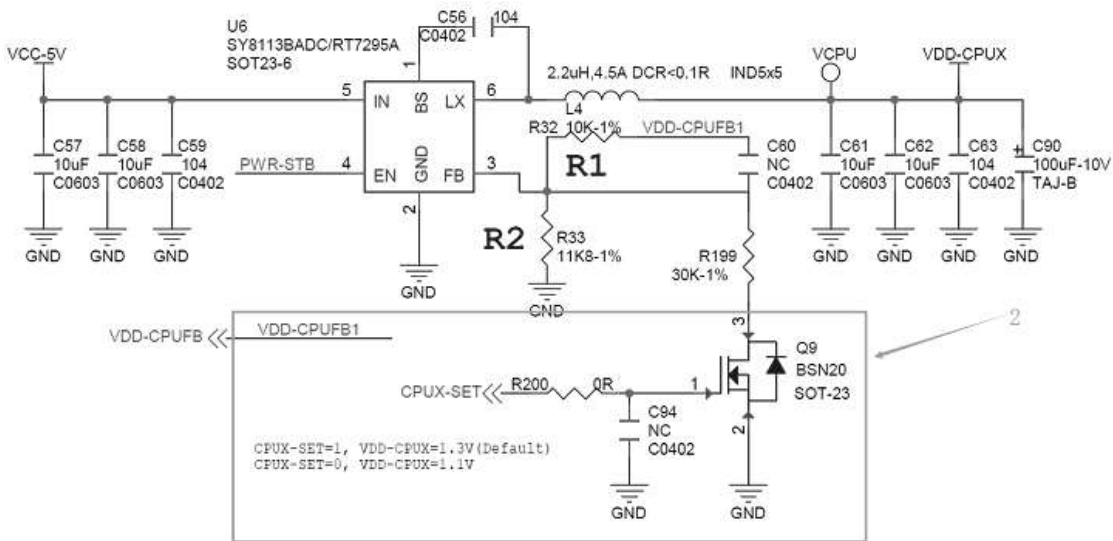


BPi-M2+ V1.2 modification

- 1, PL0 Instead the drop-down 10K, As a hardware version identification (V1.1 is pull up)
- 2, PL1 Change to voltage regulation GPIO



voltage regulation schematic diagram:



Software

Development

Basic Development

OpenCV 3.4x on BananaPi

Resources

source code

- linux kernel 4.4 on github :<https://github.com/BPI-SINOVOIP/BPI-M2P-bsp-4.4>
- Linux kernel 3.4 on bithub:<https://github.com/BPI-SINOVOIP/BPI-M2P-bsp>

documents

- Because of the Google security update some of the old links will not work if the images you want to use cannot be downloaded from the new link bpi-image Files (https://drive.google.com/drive/folders/0B_YnvHgh2rwjVjNyS2pheEtWQlk?resourcekey=0-U4TI84zIBdId7bHHjf2qKA)
- All banana pi docement(SCH file,DXF file,and doc) (<https://drive.google.com/drive/folders/0B4PAo2nW2Kfndjh6SW9MS2xKSWs?resourcekey=0-qXGFXXmd7AVy0S81OXM1RA&usp=sharing>)
- How To Change The Boot Logo : <http://forum.banana-pi.org/t/how-to-change-the-boot-logo/7660>
- BPI-M2+ V1.2 schematic diagram

google drive: google driver (<https://drive.google.com/drive/folders/0B4PAo2nW2KfnfVqbjJGTfIFTTd1b1o1OUxDNk5ackVDM0RNUjBpZ0FQU19SbDk1MngzZWM?resourcekey=0-ZRCiv304nGzVq-w7lwnpjg&usp=sharing>)
baidu cloud : <https://pan.baidu.com/s/1vjBURLzFF2LYCe8CBcs9Mg>

- BPI-M2+ V1.1 schematic diagram: <https://drive.google.com/file/d/0B4PAo2nW2KfnMW5sVkxWSW9qa28/view?usp=sharing>
- DXF file google download link :BPI-M2+ DXF file (<https://drive.google.com/file/d/0B4PAo2nW2KfnaDRVLUpvV3hIVUk/view?usp=sharing>)
- 3D design file google download link: BPI-M2+ 3D design (<https://drive.google.com/file/d/0B4PAo2nW2KfnVV8zaDhYazRvOU0/view?usp=sharing>)
- BPI-M2+ BT Lab test :BPI-M2+ BT Lab test report (<https://bananapi.gitbooks.io/bpi-m2-/content/en/bpi-m2+bt40testreport.html>)
- BPI-M2+ WIFI Lab test :BPI-M2+ WIFI Lab test report (<https://bananapi.gitbooks.io/bpi-m2-/content/en/bpi-m2+wifilabtest.html>)
- Validation test :BPI-M2+ validation test report (<https://bananapi.gitbooks.io/bpi-m2-/content/en/bpi-m2+validationtestreport.html>)
- CE FCC RoHS : BPI-M2+ CE,FCC,RoHS (<https://bananapi.gitbooks.io/bpi-m2-/content/en/bpim2+cefccrohscertification.html>)
- Allwinner documents:
 - allwinner H3 chip doc baidu link: <https://pan.baidu.com/s/1qTULI2CR02d0Hw9itq1rw>
 - Allwinner H2+ chip doc baidu link: <https://pan.baidu.com/s/1TGMYr3rhizfhlG5hl6hLyg>
- Banana Pi M2 Plus - Unboxing e apresentação da placa.: https://www.youtube.com/watch?v=_87uHfyMIUA&feature=youtu.be
- Sinovoip Banana Pi M2+ - linux-sunxi.org wiki : http://linux-sunxi.org/Sinovoip_Banana_Pi_M2%2B

Image Release

Android

Android 7.0

2018-10-20 android 7.0 share by <https://www.facebook.com/vitor1104>

- image download link : <http://setordigital.blogspot.com/2018/10/android-70-nougat-para-banana-pi-m2.html>

how to install : <http://setordigital.blogspot.com/2017/01/como-instalar-o-android-no-orange-pi.html>
Forum pthread : <http://forum.banana-pi.org/t/banana-pi-bpi-m2-new-image-android-7-0-nougat-2018-10-20/7082>

2018-06-30 update HDMI-Version

- Image Link:

Google Drive : https://drive.google.com/file/d/1TY4CgFxCt3pR6S2nw5w-_XkNsW9fPBhI
Baidu Drive : <https://pan.baidu.com/s/1ETpbauIezp1228n7kdWo4A>
Forum thread: <http://forum.banana-pi.org/t/bananapi-bpi-m2p-h3-new-image-android7-0-release-2018-6-30/6147>
How to Google registration: <https://www.google.com/android/uncertified/> Android7.0 needs to register devices by yourself

Android 4.4

- Image Link:

Google Drive: https://drive.google.com/open?id=0B_YnvHgh2rwjOWg4ZzBnR0VieFU
Baidu Drive: <https://pan.baidu.com/s/1gfr7vJ9>
Forum thread: <http://forum.banana-pi.org/t/bpi-m2-new-image-android-4-4-version-v3/2765>

H3Droid android

- H3Droid 1.3.5 version image download: <https://h3droid.com/download>
forum pthread: <http://forum.banana-pi.org/t/h3droid-android-development-on-allwinner-h3-chip-project/3459/14>

Linux

- 2020-04-23 update, Ubuntu 16.04 Mate Desktop, Ubuntu 16.04 Server, Debian 9 and Raspbian Stretch images, base on kernel 4.4
google drive : https://drive.google.com/drive/folders/0B_YnvHgh2rwjNExjUmlRNXdVNUE
baidu cloud: https://pan.baidu.com/s/1Tay4F7nJJV1MzI_aO4NjHw pincode: ih9p

Ubuntu

- 2018-5-17 update : Ubuntu 16.04 V1.1 new eMMC and PMU support, base on kernel 3.4
Image Link:
Google Drive: <https://drive.google.com/file/d/1YOiOksFTYwCj0Ow11fiGkb74yEsPpbHJ/view>
baidu cloud : <https://pan.baidu.com/s/1Jf-AZF6a4jZugqxx2QXH3Q>
Source Code Github Repo: <https://github.com/BPI-SINOVOIP/BPI-M2P-bsp>
Forum thread:
<http://forum.banana-pi.org/t/banana-pi-bpi-m2p-new-image-release-ubuntu-16-04-v1-1/5719>
- 2017-07-14 update : ubuntu-16.04-mate-desktop, base on kernel 3.4
Image Link:
Google Drive: [Google Drive: https://drive.google.com/open?id=1dlfo9LGNrc-_cpKd1uJnrNx0PdonBnK](https://drive.google.com/open?id=1dlfo9LGNrc-_cpKd1uJnrNx0PdonBnK)
baidu cloud : <http://pan.baidu.com/s/1dEX2TDR>
Source Code Github Repo: <https://github.com/BPI-SINOVOIP/BPI-M2P-bsp>
Forum thread:
<http://forum.banana-pi.org/t/bpi-m2-new-image-ubuntu-16-04-mate-desktop-beta-bpi-m2p-sd-emmc-2017-07-14/3572>
- 2018-11-09 update ,This release is for banana pi M2P board which is based on Allwinner H3, We release three images, Ubuntu 16.04, Raspbian 9 and Debian 9, base on kernel 4.4.
M2P Ubuntu 16.04
Features Map: http://wiki.banana-pi.org/M2P-H3_Image_Map#Kernel_4.4.55
Google Drive : <https://drive.google.com/file/d/1dgrtVqbR4I6xYISfWBJeGwh8xI79L1PD/view?usp=sharing>
Baidu Drive : https://pan.baidu.com/s/1RHZ-b7PcY9ybeiy95C_VIg
md5sum : 59f2cc29ce045c15e51fac20ff6924aa
forum pthread: <http://forum.banana-pi.org/t/bananapi-bpi-m2p-h3-new-demo-images-release-with-kernel-4-4-2018-11-09/7210>
- 2018-01-02 update : Ubuntu image, base on Kernel 4.4
image Link: <https://mega.nz/#!haRDBJLC!vE9r-b34WhkPGXt69DjPdQ65ONuCsM9RCjnvCUE1s>
Forum thread:
<http://forum.banana-pi.org/t/bpi-m2-new-image-bpi-m2-kernel-4-4-55/4577>

Armbian image

- Armbain have support BPI-M2+, Armbian Bionic and Armbian Stretch version
image download : <https://www.armbian.com/banana-pi-m2-plus/>
- Armbian 5.51 debin Bananapi-m2+ build by BPI 2018-07-12

google download : https://drive.google.com/open?id=1H_KEVWTRwgSgal5gt8jKqBT-y4IqIX84

baidu download : <https://pan.baidu.com/s/1OaBRKHPGqjgat0mntHyYxg>

discuss on forum : <http://forum.banana-pi.org/t/bpi-m2-new-image-2018-07-12-armbian-5-51-debin-bananapi-m2-build-by-bpi-2018-07-12/6265>

- Armbian Xenial and Armbian Jessie

armbin image download: <https://www.armbian.com/banana-pi-m2-plus/>

Openelec Kodi

- Openelec Kodi 16.0 (xbmc)

file name:<http://OpenELEC-H3.arm-7.0-devel-20161026220508-r23113-g64b34b3-bpim2p.img.gz>

download link: <http://down.nu/images/2016-10-26>

baidu cloud:<http://pan.baidu.com/s/1mhMTEnI>

forum pthread:<http://forum.banana-pi.org/t/openelec-kodi-16-0-xbmc-on-the-banana-pi-bpi-m2-project/1600>

Debian linux

- 2019-09-18 update, Banana Pi BPI-M2+ boot debian 10 with grub (u-boot-2019.07 + kernel 5.1.1)

google drive: <https://drive.google.com/file/d/1ZQx732W8u83LECsFqCT9DtEPiQati-z6/view?usp=sharing>

- 2018-11-09 update ,This release is for banana pi M2P board which is based on Allwinner H3, We release three images, Ubuntu 16.04, Raspbian 9 and Debian 9 with kernel 4.4.

M2P Debian 9 Features Map :http://wiki.banana-pi.org/M2P-H3_Image_Map#Kernel_4.4.55_2

Google Drive : https://drive.google.com/file/d/13HTp2smKPPK_4byHCl_T3Atg8_NfyQ5S/view?usp=sharing

Baidu Drive : <https://pan.baidu.com/s/1h3TSAzY8ootahOjxkoTG1Q>

md5sum : f979f1a68d759e804e0a90654f4577f1

forum pthread :<http://forum.banana-pi.org/t/bananapi-bpi-m2p-h3-new-demo-images-release-with-kernel-4-4-2018-11-09/7210>

Raspbian

- 2018-11-09 update ,This release is for banana pi M2P board which is based on Allwinner H3, We release three images, Ubuntu 16.04, Raspbian 9 and Debian 9 with kernel 4.4.

M2P Raspbian 9 Features Map:http://wiki.banana-pi.org/M2P-H3_Image_Map#Kernel_4.4.55_3_1

Google Drive :<https://drive.google.com/open?id=182a1iSYyW8UMJHOyzbu35RfLi-Wn5H8h>

Baidu Drive : <https://pan.baidu.com/s/1g5Suk-Ybd3jdhdX82lIBwg>

md5sum : 53ec3986ec3df84fa2548d0742f700fa

fourm pthread : <http://forum.banana-pi.org/t/bananapi-bpi-m2p-h3-new-demo-images-release-with-kernel-4-4-2018-11-09/7210>

- 2018-5-22 update : Raspbian jessie 8.0 kernel 3.4

Image Link:

Google Drive: https://drive.google.com/open?id=1-jQNZrJQi_KajZre6c6mbt5bHilF0h1x

baidu cloud :https://pan.baidu.com/s/16KJbtwjT_PBCZJkYV79_ag

Source Code Github Repo: <https://github.com/BPI-SINOVOIP/BPI-M2P-bsp>

Forum thread:

<http://forum.banana-pi.org/t/banana-pi-bpi-m2p-new-image-release-raspbian-jessie-8-0-2018-5-22/5788>

- 2018-5-22 update : Raspbian 8.0 V1.1 new eMMC and PMU

Image Link:

Google Drive: https://drive.google.com/open?id=1-jQNZrJQi_KajZre6c6mbt5bHilF0h1x

baidu cloud : https://pan.baidu.com/s/16KJbtwjT_PBCZJkYV79_ag

Forum thread:

<http://forum.banana-pi.org/t/banana-pi-bpi-m2p-new-image-release-raspbian-jessie-8-0-2018-5-22/5788>

OpenSUSE

- OpenSUSE have official support Banana Pi BPI-M2+

```
openSUSE-Tumbleweed-ARM-JeOS-sinovoipbpim2plus.armv7l-2018.08.13-Snapshot20180822.raw.xz
openSUSE-Tumbleweed-ARM-JeOS-sinovoipbpim2plus.armv7l-2018.08.13-Snapshot20180822.raw.xz.sha256
openSUSE-Tumbleweed-ARM-JeOS-sinovoipbpim2plus.armv7l-2018.08.13-Snapshot20180905.raw.xz
openSUSE-Tumbleweed-ARM-JeOS-sinovoipbpim2plus.armv7l-2018.08.13-Snapshot20180905.raw.xz.sha256
openSUSE-Tumbleweed-ARM-JeOS-sinovoipbpim2plus.armv7l-Current.xz
openSUSE-Tumbleweed-ARM-JeOS-sinovoipbpim2plus.armv7l-Current.xz.sha256
```

image download : <http://download.opensuse.org/ports/armv7hl/factory/images/>

FreeBSD

FreeBSD on Allwinner (sunxi) systems for banana pi

Banana pi as the official partner of Allwinner , must banana pi product use Allwinner chip design . such as A20/A31S/H3/H2+/A64/A83T , and FreeBSD have support many Allwinner . so easy to use on banana pi board.

- Allwinner A20 (sun7i), a dual-core Cortex-A7 BPI-M1/BPI-M1+/BPI-R1
- Allwinner A31 and A31s (sun6i), a quad-core Cortex-A7 BPI-M2
- Allwinner A64 (sun50i), a quad-core Cortex-A53 BPI-M64
- Allwinner A83T (sun8i), an octa-core Cortex-A7 BPI-M3
- Allwinner H3 (sun8i), a quad-core Cortex-A7 BPI-M2+/BPI-M2+ EDU/

<https://wiki.freebsd.org/FreeBSD/arm/Allwinner>

Lakka TV

- Banana Pi M2+ with H3 chip
- Banana Pi M3 with A83T chip
- BPI-M1 and BPI-M1+ use A20 chip
- more about this : <https://bananapi.gitbooks.io/bpi-m3/content/en/lakkatv.html>

<http://mirror.lakka.tv/nightly/>

Dietpi

- Dietpi have official support BPI-M2+ : <http://forum.banana-pi.org/t/dietpi-have-official-support-bpi-m2/1882>

RetroPie

- RetroPie for Banana Pi BPI-M2+/M2 Zero v.1.2.1 beta

image download link: <http://www.nintendont.it/download/nintendont-retropie-banana-pi-m2-plus-v-1-1-0-beta/>
forum pthread : <http://forum.banana-pi.org/t/bpi-m2-zero-new-image-retropie-for-banana-pi-m2-zero-v-1-2-1-beta/4889>

retrorangepi

- retrorangepi support BPI-M2+ BPI-M2 Zero : <http://retrorangepi.download/download/index2.html>

Others image

BPI-M2+ also support other image. such as Centos Kali,Gentoo please choose the newset image .

- others image download link : <http://forum.banana-pi.org/c/Banana-pi-BPI-M2/M2image>

FAQ

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