

Banana Pi BPI-M1+

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Introduction

Banana Pi BPI-M1+ upgrade is an open-source single-board computer that adds more connectivity to the classic board. It features the same high performance AllWinner A20 dual-core SoC at 1GHz, 1GB of DDR3 SDRAM, Gigabit Ethernet, SATA, USB, and HDMI connections found in classic BPI-M1+ ; but the Banana Pi M1+ features onboard WiFi g/b/n. The board supports all classic projects and even more because of the onboard WiFi chip. Like its sibling, it can run operating systems including Android, Lubuntu, Ubuntu, Debian, and Raspbian.



Overview



Overview



BPI-M1+ 3D



BPI-M1/M1+ for BPI 4.0 Successful case : smart home gateway



BPI-M1/M1+ for BPI 4.0 Successful case :3G Information security terminal



BPI-M1/M1+ for BPI 4.0 Successful case :4G Industrial safety tablets



BPI-M1+ case

Banana Pi BPI-M1+

- /// Dual-core A20 ARM 1.0GhzCortex-A7
- /// 1 GB DDR3 SDRAM
- /// WIFI Onboard
- /// Gb LAN,HDMI , USD
- /// SD Card, CSI, LVDS display interface
- /// SATA interface



The Banana Pi M1+ is our upgraded M1 board. We feel like the onboard WiFi adds a lot more features to the board and makes it more convenient for users to set up their linux desktop or router projects. Banana Pi is an open platform device, it is for anyone who wants to play and build with developer technology instead of simply using consumer technology. Backed by our community, starting a project and building servers is fun and rewarding. With a Banana Pi, we want you to explore and experience the world of DIY projects and portable computing. We welcome all companies, DIYers, and tech loving people within our community! Together, we can make a difference, we can discover our passions, inspire others, and build a practical project.

Key Features

- Allwinner A20 Dual-core 1.0GHz CPU
- Mali-400 MP2 with Open GL ES 2.0/1.1.
- 1 GB DDR3 memory.
- Wifi support onboard
- 1x SATA interface.
- 1x Gigabit LAN
- 1x USB otg and 2x USB 2.0
- 1X MIC
- AV out
- HDMI out
- IR
- CSI camera interface
- DSI display interface

- 40 PIN gpio
- 3.7V lithium battery interface

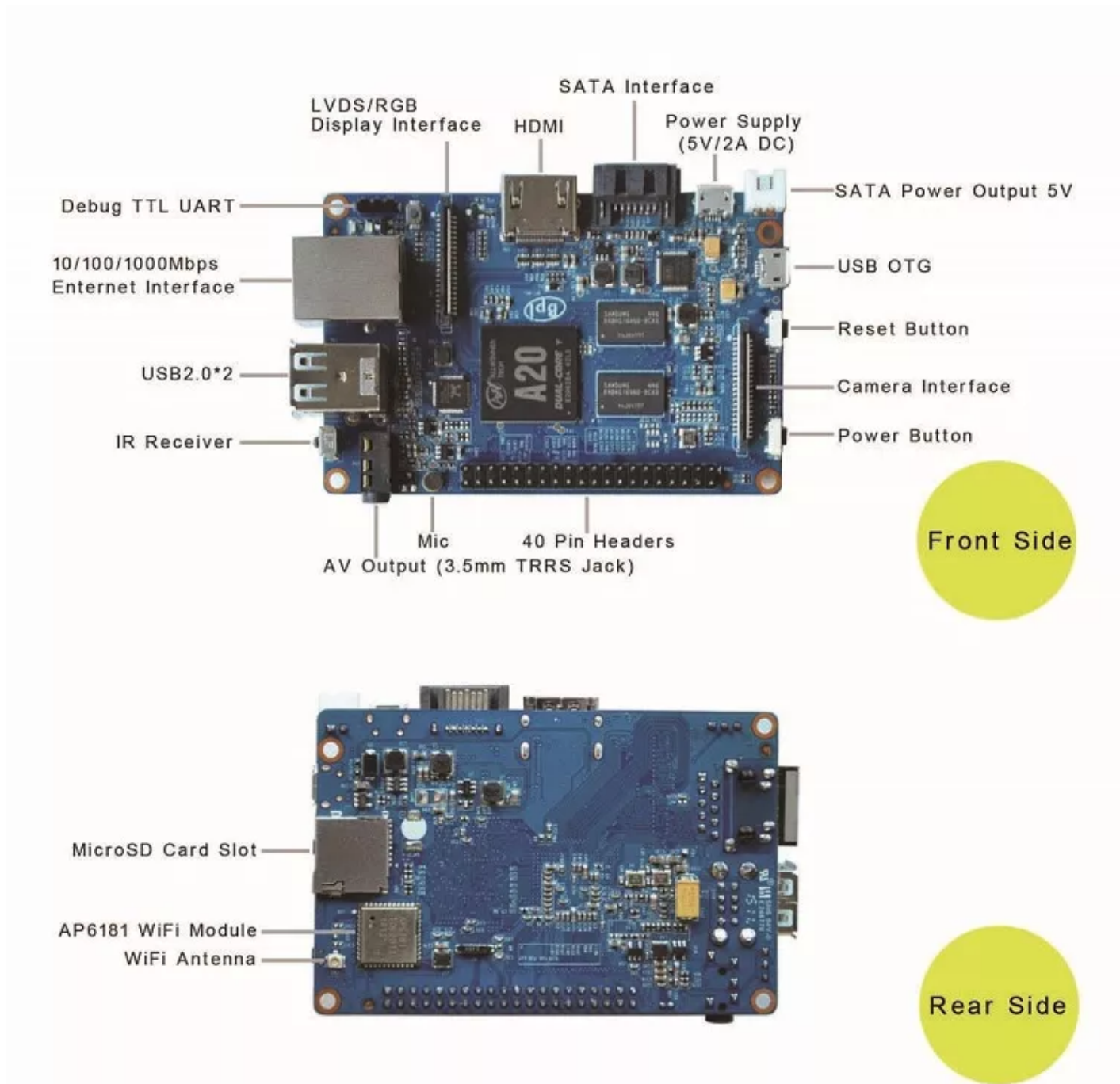
Get startting

- How to burn image : Quick Start Banana pi SBC

- How to development : Getting Started with MIP

Hardware

Hardware interface



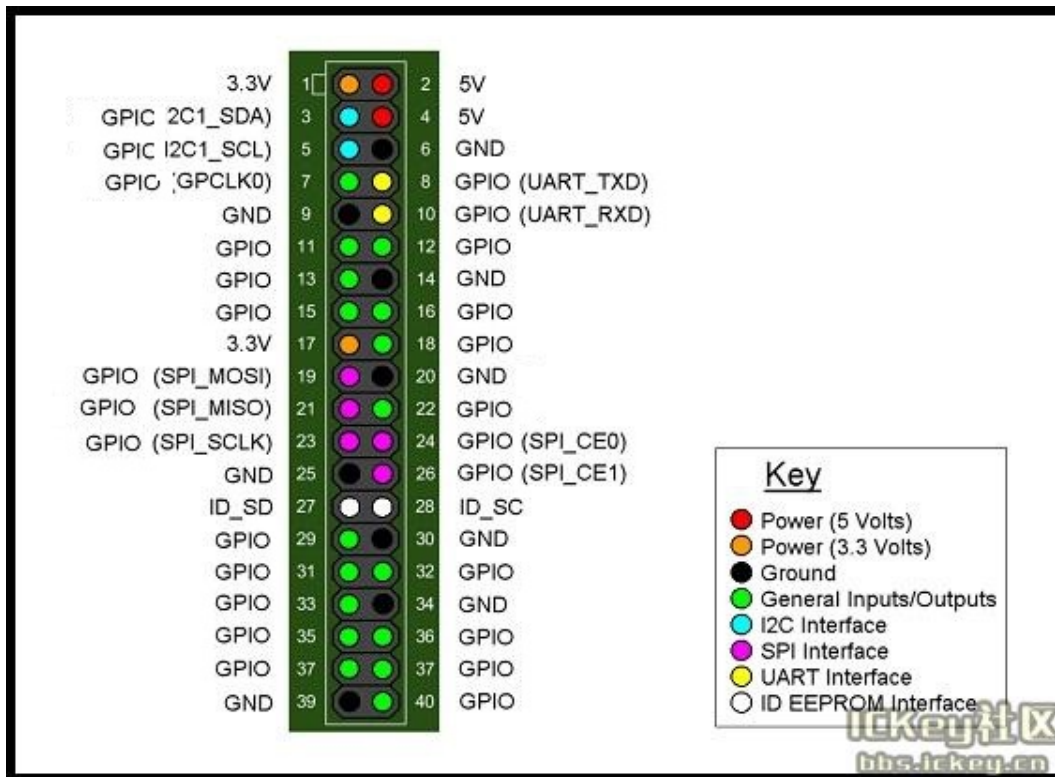
Hardware spec

Banana Pi BPI-M1+	
CPU	A20 ARM Cortex -A7 Dual-Core
GPU	ARM Mali400MP2Complies with OpenGL ES 2.0/1.1
Memory	1GB DDR3

Network	10/100/1000 Ethernet
wifi&BT	Wifi support onboard
Video Input	A CSI input connector allows for the connection of a designed camera module
Video Outputs	HDMI, CVBS, LVDS/RGB
Audio Outputs	3.5mm jack and HDMI
Power Source	5V/2A via Micro USB (DC in only) and / or Micro USB OTG
USB 2.0 ports	2(direct from Allwinner A20 chip)
GPIO	GPIO, UART, I2C BUS, SPI BUS, WITH TWO CHIP SELECTS, CAN bus, ADC, PWM, +3.3V, +5V, GND
LED	Power Key & 8P8C
Storage	SATA 2.0
OS	Android 4.4, Android 4.2, Raspbian, Lubuntu, Open Suse, Debian

GPIO PIN define

Banana Pi BPI-M1+ has a 40-pin GPIO header . Following is the Banana Pi GPIO Pinout:



40 PIN GPIO of Banana pi BPI-M1+		
GPIO Pin Name	Default Function	Function2: GPIO
CON3-P01	VCC-3V3	
CON3-P02	VCC-DC	
CON3-P03	TWI2-SDA	PB21
CON3-P04	VCC-DC	
CON3-P05	TWI2-SCK	PB20
CON3-P06	GND	
CON3-P07	PWM1	PI3
CON3-P08	UART3_TX	PH0
CON3-P09	GND	
CON3-P10	UART3_RX	PH1
CON3-P11	UART2_RX	PI19
CON3-P12	PH2	PH2
CON3-P13	UART2_TX	PI18
CON3-P14	GND	
CON3-P15	UART2_CTS	PI17
CON3-P16	CAN_TX	PH20
CON3-P17	VCC-3V3	
CON3-P18	CAN_RX	PH21
CON3-P19	SPI0_MOSI	PI12
CON3-P20	GND	
CON3-P21	SPI0_MISO	PI13
CON3-P22	UART2_RTS	PI16
CON3-P23	SPI0_CLK	PI11
CON3-P24	SPI0_CS0	PI10
CON3-P25	GND	
CON3-P26	SPI0_CS1	PI14
CON3-P27	TWI3-SDA	PI1
CON3-P28	TWI3-SCK	PI0
CON3-P29	I2S_MCLK	PB5
CON3-P30	GND	
CON3-P31	I2S_BCLK	PB6
CON3-P32	I2S_DI	PB12
CON3-P33	I2S_LRCK	PB7
CON3-P34	GND	
CON3-P35	I2S_DO0	PB8

CON3-P36	UART7_RX	PI21
CON3-P37	IR0_TX	PB3
CON3-P38	UART7_TX	PI20
CON3-P39	GND	
CON3-P40	SPDIF_DO	PB13

CSI Camera Connector specification:

The CSI Camera Connector is a 40-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 “CON1”.

CSI PIN of Banana pi BPI-M1+		
CSI Pin Name	Default Function Pin name	Function2: GPIO
CON1 P01	LINEINL	
CON1 P02	LINEINR	
CON1 P03	VCC-CSI	
CON1 P04	ADC_X1	
CON1 P05	GND	
CON1 P06	ADC_X2	
CON1 P07	FMINL	
CON1 P08	ADC_Y1	
CON1 P09	FMINR	
CON1 P10	ADC_Y2	
CON1 P11	GND	
CON1 P12	CSI-FLASH	PH17
CON1 P13	LRADC0	
CON1 P14	TWI1-SDA	PB19
CON1 P15	LRADC1	
CON1 P16	TWI1-SCK	PB18
CON1 P17	CSI-D0	PE4
CON1 P18	CSI0-STBY-EN	PH19
CON1 P19	CSI0-D1	PE5
CON1 P20	CSI-PCLK	PE0
CON1 P21	CSI-D2	PE6
CON1 P22	CSI0-PWR-EN	PH16
CON1 P23	CSI-D3	PE7
CON1 P24	CSI0-MCLK	PE1
CON1 P25	CSI-D4	PE8
CON1 P26	CSI0-RESET\#	PH14
CON1 P27	CSI-D5	PE9
CON1 P28	CSI-VSYNC	PE3
CON1 P29	CSI-D6	PE10
CON1 P30	CSI-HSYNC	PE2
CON1 P31	CSI-D7	PE11
CON1 P32	CSI1-STBY-EN	PH18
CON1 P33	AP-RESET\#	
CON1 P34	CSI1-RESET\#	PH13
CON1 P35	CSI-IO0	PH11

CON1 P36	HPR	
CON1 P37	HPL	
CON1 P38	IPSOUT	
CON1 P39	GND	
CON1 P40	IPSOUT	

LVDS \(\(\) LCD display interface\)

The LVDS Connector is a 40-pin FPC connector which can connect external LCD panel \(\(\) LVDS\)\) and touch screen \(\(\) I2C\)\) module as well. The pin definitions of this connector are shown as below. This is marked on the Banana Pi board as “CON2”.

LVDS PIN of Banana pi BPI-M1+			
LVDS Pin	Default Function	Function2	Function3: GPIO
CON2 P01	IPSOUT\ (5V output\)		
CON2 P02	TWI3-SDA		PI1
CON2 P03	IPSOUT\ (5V output\)		
CON2 P04	TWI3-SCK		PI0
CON2 P05	GND		
CON2 P06	LCD0-IO0		PH7
CON2 P07	LCDIO-03		PH12
CON2 P08	LCD0-IO1		PH8
CON2 P09	LCD0-D0	LVDS0-VP0	PD0
CON2 P10	PWM0		PB2
CON2 P11	LCD0-D1	LVDS0-VN0	PD1
CON2 P12	LCD0-IO2		
CON2 P13	LCD0-D2	LVDS0-VP1	PD2
CON2 P14	LCD0-DE		PD25
CON2 P15	LCD0-D3	LVDS0-VN1	PD3
CON2 P16	LCD0-VSYNC		PD27
CON2 P17	LCD0-D4	LVDS0-VP2	PD4
CON2 P18	LCD0-HSYNC		PD26
CON2 P19	LCD0-D5	LVDS0-VN2	PD5
CON2 P20	LCD0-CS		
CON2 P21	LCD0-D6	LVDS0-VPC	PD6
CON2 P22	LCD0-CLK		PD24
CON2 P23	LCD0-D7	LVDS0-VNC	PD7
CON2 P24	GND		
CON2 P25	LCD0-D8	LVDS0-VP3	PD8
CON2 P26	LCD0-D23		PD23
CON2 P27	LCD0-D9	LVDS0-VN3	PD9
CON2 P28	LCD0-D22		PD22
CON2 P29	LCD0-D10		PD10
CON2 P30	LCD0-D21		PD21
CON2 P31	LCD0-D11		PD11
CON2 P32	LCD0-D20		PD20
CON2 P33	LCD0-D12		PD12
CON2 P34	LCD0-D19		PD19
CON2 P35	LCD0-D13		PD13

CON2 P36	LCD0-D18		PD18
CON2 P37	LCD0-D14		PD14
CON2 P38	LCD0-D17		PD17
CON2 P39	LCD0-D15		PD15
CON2 P40	LCD0-D16		PD16

UART specification:

The jumper J11 header CON4 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 debug PIN of Banana pi BPI-M1+		
Pin Name	Default Function	GPIO
CON4 P03	UART0-TXD	PB22
CON4 P02	UART0-RXD	PB23
CON4 P01	GND	

Software

Development

Basic Development

Resources

Source code

- Linux kernel 3.4 Source code : <https://github.com/BPI-SINOVOIP/BPI-M1-bsp>
- Android 4.4 source code
LCD7 type: <https://github.com/BPI-SINOVOIP/BPI-A20-Android-4.4>
- Android 4.2.2 source code
HDMI type: <https://github.com/BPI-SINOVOIP/BPI-A20-Android>

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>)
- schematic diagram: google drive (<https://drive.google.com/drive/folders/0B4PAo2nW2KfnfVqbjJGTFIFTTd1b1o1OUxDNk5ackVDM0RNUjBpZ0FQU19SbDk1MngzZWM?resourcekey=0-ZRCiv304nGzvq-w7lwnpjg&usp=sharing>)

- BPI-M1+ DXF file download link : google drive (<https://drive.google.com/folderview?id=0B4PAo2nW2Kfnfkd0QmxaU3F2bHBWdkFiS09vT3VoZkVyNW93OXFjM0dHRVdGazhRWmFzZDQ&usp=sharing&tid=0B4PAo2nW2Kfndjh6SW9MS2xKSWs>)
- BPI-M1+ 3D design file download link :google drive (<https://drive.google.com/folderview?id=0B4PAo2nW2Kfnf95clI4ZzRKUmRENWhMcmwzUIVrYW1Ic3BXZENtUjJQcjk5TXc0RHBKdlU&usp=sharing&tid=0B4PAo2nW2Kfndjh6SW9MS2xKSWs>)
- CE FCC RoHS : BPI-M1 CE,FCC,RoHS (https://bananapi.gitbooks.io/bpi-m1/content/en/bpi-m1_ce_fcc_rohs_certification.html)
- Arch linux wiki for BPI-M1:https://wiki.archlinux.org/index.php/Banana_Pi
- Nas for BPI-M1/BPI-M1+ : https://www.hackster.io/jeffbaocai/bananapi-pro-nas-0815dc?ref=platform&ref_id=8064_popular__&offset=3
- NetBSD/evbarm on Allwinner SoCs : <https://wiki.netbsd.org/ports/evbarm/allwinner/#index1h1>
- Gentoo for banana pi : https://wiki.gentoo.org/wiki/Banana_Pi_the_Gentoo_Way
- openSUSE for banana pi : <https://en.opensuse.org/HCL:BananaPi>
- How to booting from SSD using Ubuntu / Raspbian : <https://bananapi.gitbooks.io/bpi-m1/content/en/howtobootingfromssdusinglubunturaspbian.html>
- Building the cluster on BPI : <https://www.hackster.io/Penguinfly/banana-pi-cluster-47d566>
- Allwinner documents:

allwinner chip online datasheet and documents: <http://dl.linux-sunxi.org/>

Image Release

Android 4.4

- 2018-07-28 update android 4.4 LCD version image

Features Map:http://wiki.banana-pi.org/M1_Image_Map

Baidu Drive:https://pan.baidu.com/s/1DfSlImvW_I-kFjTZMtcVsA

Google Drive: https://drive.google.com/open?id=1qcH9baIhOphsDdlH_yBADuBiZsvrSKnt

Forum pthread :<http://forum.banana-pi.org/t/bananapi-m1-m1p-r1-new-image-release-20180728/6357>

Armbian image

- Armbian_23.02.0-trunk_BananapiM1plus_jammy_edge_6.1.11_xfce_desktop.img.xz, This release is for banana pi M1 Plus board, which is based on Armbian operation system.

jammy edge version with 6.1.11 kernel.

Baidu Drive: <https://pan.baidu.com/s/1hkk122uVjvRct1V7N4OK2w?pwd=8888>

Google Drive: https://drive.google.com/drive/folders/1VpvVkYMqgmSnmfKXQsrEY2B6wRa-cggL?usp=share_link

Discuss on forum : <https://forum.banana-pi.org/t/banana-pi-bpi-m1-plus-new-armbian-image/15158>

- 2022-12-06 Armbian_22.11.0-trunk_Bananapi BPI-M1+ bullseye_edge_6.0.9.img.xz

Google Drive:https://drive.google.com/file/d/1AMEfQIygT8949sfkX6HIjap7WKpQox4i/view?usp=share_link

Baidu Cloud:<https://pan.baidu.com/s/1ePzBiwN0wEd8j3muk1HO1A?pwd=8888> (pincode: 8888)

Discuss on forum: <https://forum.banana-pi.org/t/bananapi-bpi-m1-new-image-release-armbian-bullseye/14447/2>

- Armbian Xenial and Armbian Jessie

Image lowload link :<https://www.armbian.com/banana-pi-plus/>

Ubuntu linux

- 2022-09-07 Armbian_22.11.0-trunk_Bananapim1plus_jammy_edge_5.19.6_xfce_desktop.img

Google Drive:<https://drive.google.com/file/d/1hLPkFx-NhGoCxYIHCqe4q9LwuQ0GosQL/view?usp=sharing>

Baidu Cloud:<https://pan.baidu.com/s/1SOeRKjVmTqTb6rMD71SfAw?pwd=wbnt> (pincode: wbnt)

- Banana Pi new image: Ubuntu 16.04 with Allwinner BSP, use MPV play 1080P video,Allwinner BSP kernel 3.4 , BPI-M2 Ultra/Berry use kernel 3.10

google driver: <https://drive.google.com/drive/folders/1DEO7JdMfDhHynC83K7JMxgnNxf1gV82S>

discuss on forum: <https://forum.banana-pi.org/t/banana-pi-new-image-ubuntu-16-04-with-allwinner-bsp-use-mpv-play-1080p-video/13272>

Debian Linux

- 2022-09-07 Armbian_22.11.0-trunk_Bananapim1plus_bullseye_edge_5.19.6_xfce_desktop

Google Drive:https://drive.google.com/file/d/1XpumxbOR74FSLayoICh4ZN4G3uZ_o0Fo/view?usp=sharing

Baidu Cloud:https://pan.baidu.com/s/1JtqdkE4AsAwCc6i_Wys_VA?pwd=6kgc (pincode: 6kgc)

- 2019-9-18 update. Debian 10 buster mate desktop with grub support (boot-2019.07 + kernel 5.1.1)

google driver:<https://drive.google.com/file/d/1FhbaO6pDBu5jSPYq1ghd7YKKG-KvFy33Q/view?usp=sharing>

forum pthread:<http://forum.banana-pi.org/t/bpi-m1-m1-r1-new-image-debian-10-buster-mate-desktop-with-grub-support-boot-2019-07-kernel-5-1-1/9916>

OpenWRT

Offical OpenWRT

- BPI-M1/BPI-M1+/BPI-R1 use A20 chip,so easy to run openwrt
- wiki : <https://wiki.openwrt.org/toh/lamobo/r1>
- openwrt support for allwinner :[https://wiki.openwrt.org/doc/hardware/soc/soc.allwinner.sunxi?s\[\]=banana&s\[\]=pi](https://wiki.openwrt.org/doc/hardware/soc/soc.allwinner.sunxi?s[]=banana&s[]=pi)
- image download : https://downloads.openwrt.org/chaos_calmer/15.05/sunxi/generic/uboot-sunxi-Lamobo_R1/
- opwrt for Allwinner Soc : [https://wiki.openwrt.org/doc/hardware/soc/soc.allwinner.sunxi?s\[\]=banana&s\[\]=pi](https://wiki.openwrt.org/doc/hardware/soc/soc.allwinner.sunxi?s[]=banana&s[]=pi)

BPI BSP for OpenWRT

- How to build OpenWRT image from github : <https://bananapi.gitbooks.io/bpi-m1/content/en/howtobuildopenwrtimagefromgithub.html>

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>

OpenSuse

- inmage and how to : <https://bananapi.gitbooks.io/bpi-m1/content/en/opensuse.html>

OpenMediaVault

- inmage and how to : <https://bananapi.gitbooks.io/bpi-m1/content/en/openmediavault.html>

Arch Linux

- inmage and how to : https://bananapi.gitbooks.io/bpi-m1/content/en/arch_linux.html

Gentoo Linux

- inmage and how to : <https://bananapi.gitbooks.io/bpi-m1/content/en/gentoolinux.html>

RaspBSD

- inmage and how to : <https://bananapi.gitbooks.io/bpi-m1/content/en/raspbsdombpi-m1.html>

CentOS

- inmage and how to : <https://bananapi.gitbooks.io/bpi-m1/content/en/centos7linuxforbpi.html>

DietPi

- inmage and how to : <https://bananapi.gitbooks.io/bpi-m1/content/en/dietpi.html>

FreeBSD/NetBSD

- inmage and how to : <https://bananapi.gitbooks.io/bpi-m1/content/en/freebsdnetbsd.html>

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/>

Simplenas

- simplenas image : <https://simplenas.com/download/other/banana-pi-m1>

FAQ

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