Banana Pi BPI-M4

Contents

Introduction

Banana Pi BPI-M4 use Realtek RTD1395 (https://drive.google.com/file/d/1Jt8qUwEjLinMqURMftC3db0Xg9MIWIhu/view?usp=sharing) chp design ,it is a 64-bit quad-core A53 mini single board computer. It features 1 GB/2GB of RAM and 8 GB eMMC. It also has onboard WiFi for b/g/n/ac and BT 4.2. On the ports side, the BPI-M4 has 4 USB 2.0 ports, 1 USB TYPE C port, 1 HDMI port, 1 audio jack. support M.2 Key E PCIE

2.0 interface.

BPI-M4 with 1GB DDR4

BPI-M4 with 2GB DDR4

Overview:Realtek RTD1395

PoE function support

M.2 and PCIE support

BPI-M4 Case

The RTD1395 is equipped with a high-performance quad-core CPU,ARM cortex-A53,with 512K L2 cache embedded. the RTD1395 also integrates and efficient ARM Mali-470 Graphic Processing Unit(GPU) to accelerate 2D and 3D graphics processing. For acceleration of this OSD and 2K user interface,the built-in Streaming Engine of the RTD1395 provides commonly used drawing functions.the CPU is dedicated to applications ,while most of the functions of the RTD1395 is dedicated to manipulating,decoding video streams in vaious formats.e.g. decoding 4K2K H.265,Full HD MPEG1/2/4/H.264/H.264 MVC,AVC/VC-1,VP8,VP9,AVS,AVS plus,HD JPEG,etc. Video DSP can also handle encoding of up to Full HD with H.264 format.Video decoding and encoding can run simultaneously.

Key Features

- Realtek RTD1395 ARM Cortex-A53 Quad-Core 64 Bit
- Mali 470 MP4 GPU OpenGL ES 1.1/2.0 H.264 H.265,2K4K

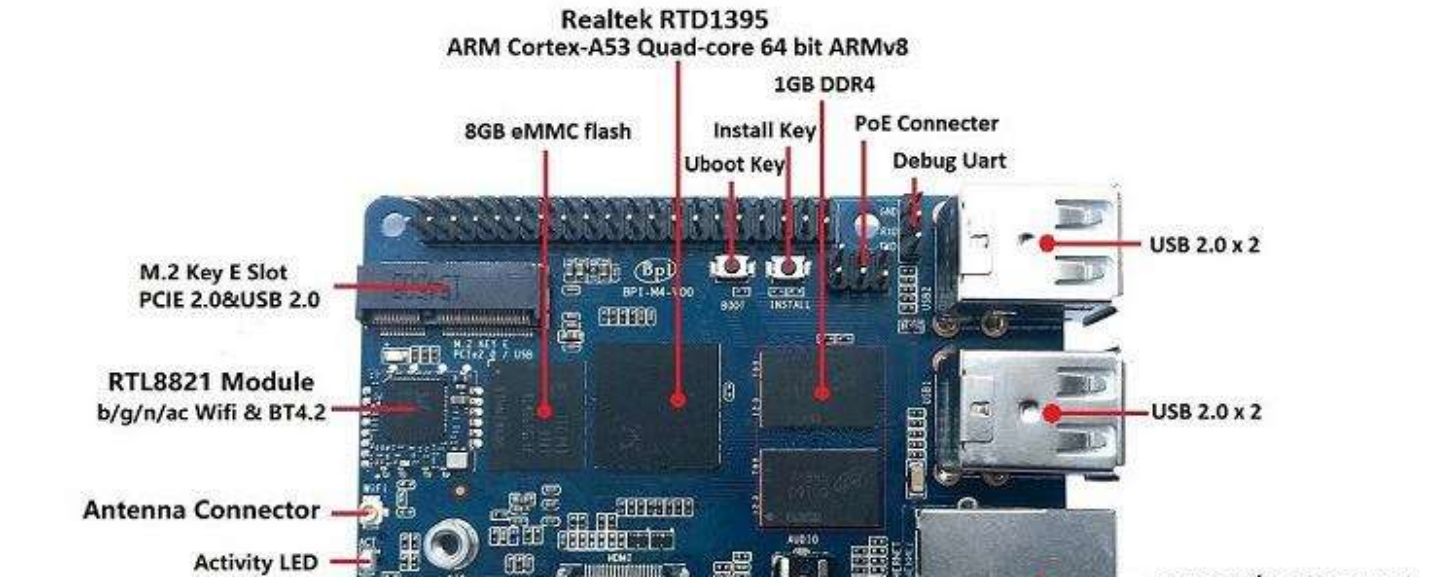
- Onboard1 GB DDR4 (option 2 GB)
- 8G eMMC flash (max 64 GB)
- 10/100 Mbit/s Ethernet and RTL8821 module support Wi-Fi 802.11 b/g/n/AC + Bluetooth 4.2
- USB 2.0 TYPE C
- M.2 Key E slot PCIE 2.0 and USB 2.0
- PoE function support

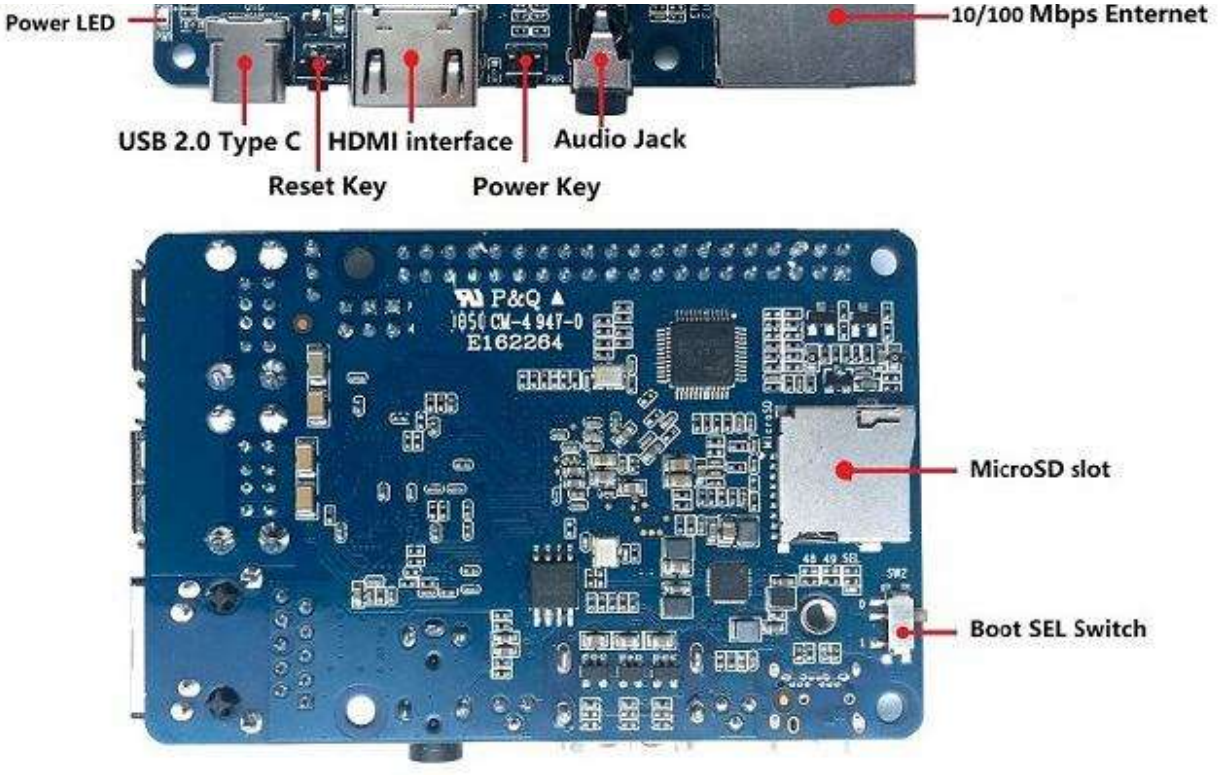
Getting Start

Getting Started with M4

Hardware

Hardware interfact





Hardware spec

HardWare Specification of Banana pi BPI-M4	
CPU	Realtek RTD1395 ARM Cortex-A53 Quad-Core 64 Bit
GPU	Mali 470 MP4 GPU OpenGL ES 1.1/2.0
Memory	1 GB DDR4 (option 2 GB)
Storage	MicroSD slot with support for up to 256GB expansion and 8G eMMC flash with support for up to 64GB
Network	10/100 Mbit/s Ethernet + Wi-Fi 802.11 b/g/n/AC + Bluetooth 4.2
Video Output(s)	HDMI port and multi-channel audio output support 1080P H.264 H.265 2K/4K
Audio Output(s)	3.5mm jack and HDMI
PCIE	M.2 Key E slot PCIE 2.0 and USB 2.0
USB ports	USB 2.0 PORT (x4), USB 2.0 TYPE C(x1)
GPIO	40 Pin Header : GPIO (x28) and Power (+5V, +3.3V and GND). GPIO pins can be used for UART, I2C, SPI or PWM
Switches	Reset, Power and U-boot
LED	Power Status and Activity status
Power Source	5 volt @2A via Micro USB (TYPE C) or PoE support
Size & Weight	92x60mm, 48g
OS	Android and Linux

GPIO PIN define

Banana Pi BPI-M4 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-M4			
GPIO Pin Name	Default Function	Function2：GPIO	Function3
CON1-P01	VCC-3V3		
CON1-P02	DCIN		
CON1-P03	I2C1_SDA	GPIO-17	
CON1-P04	DCIN		
CON1-P05	I2C1_SCL	GPIO-16	
CON1-P06	GND		
CON1-P07	PWM1	GPIO-21	
CON1-P08	UR1_TX	GPIO-9	
CON1-P09	GND		
CON1-P10	UR1_RX	GPIO-8	
CON1-P11	SDIO-D0	GPIO-42	
CON1-P12	AIO_BCK	GPIO-3	
CON1-P13	SDIO-D1	GPIO-43	
CON1-P14	GND		
CON1-P15	SDIO-D2	GPIO-44	
CON1-P16	UR1_RTS	GPIO-11	
CON1-P17	VCC-3V3		
CON1-P18	UR1_CTS	GPIO-10	
CON1-P19	GSPI-MOSI	GPIO-31	
CON1-P20	GND		
CON1-P21	GSPI-MISO	GPIO-18	

CON1-P22	GPIO-47	GPIO-47	
CON1-P23	GSPI-SCK	GPIO-19	
CON1-P24	GSPI-CS	GPIO-20	
CON1-P25	GND		
CON1-P26	PWM2	GPIO-22	
CON1-P27	SDIO-D3	GPIO-45	
CON1-P28	PWM3	GPIO-23	
CON1-P29	SDIO-CLK	GPIO-41	
CON1-P30	GND		
CON1-P31	SDIO-CMD	GPIO-40	
CON1-P32	SPDIF	GPIO-50	
CON1-P33	AIO_CK	GPIO-4	
CON1-P34	GND		
CON1-P35	AIO_LRCK	GPIO-2	
CON1-P36	GPIO-53	GPIO-53	
CON1-P37	GPIO-34	GPIO-34	
CON1-P38	AI_SD	GPIO-5	
CON1-P39	GND		
CON1-P40	AO_SD	GPIO-6	

UART specification:

The header CON2 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 define of Banana pi BPI-M4		
CON2 Pin Name	Default Function	GPIO
CON2-P1	GND	
CON2-P2	UART0-RX	
CON2-P3	UART0-TX	

Resources

Source code

Android

Linux

- Supports Banana Pi BPI-M4 (RTD1395) (Kernel 4.9.119)

    Source code on github: https://github.com/BPI-SINOVOIP/BPI-M4-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-qXGFXKmd7AVy0S81OXM1RA&usp=sharing)
- BPI-M4 schematic diagram:

    google driver:https://drive.google.com/file/d/1A6pj8Y9Ru1_qfMapIdiQnMavEs5xzN5H/view?usp=sharing
    Baidu cloud:https://pan.baidu.com/s/1mnn51dwBV5uxpNheBD4vJA pincode: t6cd

- Banana Pi BPI-M4 CE,FCC,RoHS Certification :http://forum.banana-pi.org/t/banana-pi-bpi-m4-ce-fcc-rohs-certification/9520
- Realtek RTD1395 chip datasheet : https://drive.google.com/file/d/1Jt8qUwEjLinMqURMftC3db0Xg9MIWIhu/view?usp=sharing
- BPI-M4 DXF file download

  google driver: https://drive.google.com/file/d/1xK-DAjdjXiY7BgGcmq7x-aL5g6djznqT/view?usp=sharing
  baidu cloud : 链接: https://pan.baidu.com/s/1bSZFMJ2lD_zuQru6Lf27RQ Pincode: 6pb8

- Banana Pi BPI-M4 Android 8 1 1 demo ,power by raspberry Pi PoE module： https://www.youtube.com/watch?v=aEZ9tSJ-Oao&feature=youtu.be
- Banana Pi BPI-M4 video play h264 4K under Linux with gst-launch-1.0;https://www.youtube.com/watch?v=PwdyGX3tqvo&feature=youtu.be&fbclid=IwAR3AHOgFo4I3bDRl3oLtQXFBj2NUCYBR9GJnEo3tZzpNPKhjE9eKms7JVsQ
- Banana Pi BPI-M4 digital photo download：https://drive.google.com/file/d/1lD9vOhdZMqHFilTPPHY80My0biszvW8r/view?usp=sharing
- BPI-M4 SBC bench test :http://forum.banana-pi.org/t/bpi-m4-sbc-bench-test/9469
- Banana pi BPI-M4: m.2 extension board with nvme ssd： http://forum.banana-pi.org/t/bpi-m4-m-2-extension-board-with-nvme-ssd/11999

Image Release

All image link: https://drive.google.com/drive/folders/1xBxYgKM40GrBa-qfgPDD-cRrUhWBo34u

Android Images

- 2020-10-20 update, Android 8.1 with kernel 4.9.119.

  Download Android 8.1 image (https://download.banana-pi.dev/d/3ebbfa04265d4dddb81b/?p=%2FImages%2FBPI-M4%2Fandroid8&mode=list)

  How to install the Android 8.1 image (https://wiki.banana-pi.org/Getting_Started_with_M4#Install_Android)

  Note: BPI-M4 Android8 image is only support 2GB ddr board because 1GB ddr is not stable and smooth for Android8

Linux Images

Ubuntu Mate 18.04, Ubuntu Server 16.04, Raspbian Stretch

- 2020-05-18 update, Kernel 4.9.119

  Download Image (https://download.banana-pi.dev/d/3ebbfa04265d4dddb81b/?p=%2FImages%2FBPI-M4%2Flinux&mode=list)
  How to Install Image (https://wiki.banana-pi.org/Getting_Started_with_M4#Install_Linux_Image)

Ubuntu linux

- 2019-6-18 update,This release is for banana pi M4 & W2 board, and it is based on Ubuntu Mate 18.04 & Ubuntu Server 16.04 Operation system with kernel 4.9.119.

  BPI-M4/BPI-W2 Ubuntu Mate 18.04

  Fetures Map: http://wiki.banana-pi.org/M4_Image_Map#Ubuntu_18.04_Mate
  Google Drive : https://drive.google.com/open?id=1nPI2dy_KCW4h5korQdvj0iymHIDyxIPq
  Baidu Drive : https://pan.baidu.com/s/1tB_QZ6zgmKiYstcZwn51gg (PinCode：edrc)
  MD5 : 7409b48a46e0bbc2d0ae2e70a49bfb36

  BPI-M4/BPI-W2 Ubuntu Server 16.04
  Fetures Map: http://wiki.banana-pi.org/M4_Image_Map#Ubuntu_18.04_Mate

  Google Drive : https://drive.google.com/open?id=1G4915FPOU4pDzbI0TCFH8wWXUGmNdlkF
  Baidu Drive : https://pan.baidu.com/s/1lkG6gyzn-KPbvrEhf6Q85w (PinCode：5jbo)
  MD5 : 328706256bec238df50f9bd6ab8dfd1b

  Issue: if HDMI doesn't display, please try "ctrl + alt + F1" to change terminal then "ctrl + alt + F7" change to desktop display.
  Forum pthread:http://forum.banana-pi.org/t/bpi-m4-demo-image-release-ubuntu-mate-18-04-ubuntu-server-16-04-2019-06-18/9362

Debian linux

- 2019-08-13 update BPI-M4/BPI-W2 Debian10 Buster Desktop New Demo Image ,This release is for banana pi M4 and W2 board, and it is based on Debian 10 Operation system with kernel 4.9.Debian 10 buster desktop(32bit)

  Fetures Map: http://wiki.banana-pi.org/M4_Image_Map#Debian_10_buster
  Google Drive : https://drive.google.com/open?id=1rVrZStsw2PINBhIxCzOLOtYLbtoECmEk

Baidu Drive : https://pan.baidu.com/s/1WcrBkxm5OyBLedCBwaUz6Q (PinCode：e6m3)
MD5 : 300b37cdfa092d72dceddd4f33825b40
Forum Pthread:http://forum.banana-pi.org/t/bpi-m4-bpi-w2-debian10-buster-desktop-new-demo-image-20190813/9712
FAQ

Issue: if HDMI doesn't display, please try "ctrl + alt + F1" to change terminal then "ctrl + alt + F7" change to desktop display.
SW2: switch to 0，if insert SD, SD start；if doesn't insert SD，EMMC start.

- 2019-08-06 update,BPI-M4/BPI-W2 Debian 10 Buster Lite Demo Image ,This release is for banana pi M4 and W2 board, and it is based on Debian 10 Operation system with kernel 4.9.

Debian 10 buster AArch64 (64bit)

Fetures Map: http://wiki.banana-pi.org/M4_Image_Map#Debian_10_buster
Google Drive : https://drive.google.com/open?id=1QyZX5AGUpEV2OZMXz3qkB8riXROXHdx3
Baidu Drive : https://pan.baidu.com/s/1CGxGUi8rt06tHwfk134Seg (Pincode:7rcz)
MD5 : 5a8b1eb36b782fdd742ba746c645593d

Debian 10 buster (32bit)

Fetures Map: http://wiki.banana-pi.org/M4_Image_Map#Debian_10_buster
Google Drive : https://drive.google.com/open?id=1WJlKTMPAipYnDFqIPl_dmR76oobuO5Wd
Baidu Drive : https://pan.baidu.com/s/1lTtcMTWqE0jG_1PWGtWSqw (Pincode:gny6)
MD5 : a59f2e6a298237a08bb523b53372d937

FAQ

For more info, please see here:
BPI-M4: http://wiki.banana-pi.org/Getting_Started_with_M4
BPI-W2: http://wiki.banana-pi.org/Getting_Started_with_W2

Raspbian Linux

- 2019-6-19 update,This release is for banana pi M4 & W2 board, and it is based on Raspbian 9.8 stretch & AArch64 Linux Mate & AArch Linux Lite Operation system with kernel 4.9.119.

Fetures Map: http://wiki.banana-pi.org/M4_Image_Map#Raspbian_9.8_stretch
Google Drive : https://drive.google.com/open?id=15cypBk4NKL0X8uD3Mffc__Sx05j39xCW
Baidu Drive : https://pan.baidu.com/s/1gwD5ok9XLLQa0InU_-b7EA (PinCode：uuqn)
MD5 : a397a9c4d078c2841f0c243c573dc9a8
FAQ

Issue: if HDMI doesn't display, please try "ctrl + alt + F1" to change terminal then "ctrl + alt + F7" change to desktop display.
SW2: switch to 0，if insert SD, SD start；if doesn't insert SD，EMMC start.

Forum pthread:http://forum.banana-pi.org/t/bpi-m4-bpi-w2-demo-image-release-raspbian-9-8-stretch-aarch64-linux-mate-aarch64-linux-lite-2019-06-19/9370

AArch Linux

- .2019-6-19 update,This release is for banana pi M4 & W2 board, and it is based on AArch64 Linux Mate & AArch linux liteOperation system with kernel 4.9.119.

  Fetures Map:
  Google Drive : https://drive.google.com/open?id=1fsk5S4zQfo3tl97Nty_QA1uAEqgB63YK
  Baidu Drive : https://pan.baidu.com/s/1GvGsfs7t018EoRIv-au1GA (PinCode：o496)
  MD5 : d284b2326a36d2d9039fb8d7e20e2600

- AArch64 Linux Lite

  Fetures Map:
  Google Drive : https://drive.google.com/open?id=17V49oBoJZ18MKjSHD_LKjf1Z7qEokYn7
  Baidu Drive : https://pan.baidu.com/s/1WivDWZHu_GnWOxhVOjoqIQ (PinCode：uhcg)
  MD5 : 53bb6f8d00f8708dab96bc865eaddc5e

  FAQ

  Issue: if HDMI doesn't display, please try "ctrl + alt + F1" to change terminal then "ctrl + alt + F7" change to desktop display.
  SW2: switch to 0，if insert SD, SD start；if doesn't insert SD，EMMC start.

Forum pthread:http://forum.banana-pi.org/t/bpi-m4-bpi-w2-demo-image-release-raspbian-9-8-stretch-aarch64-linux-mate-aarch64-linux-lite-2019-06-19/9370

FAQ

- Easy to buy sample on aliexpress shop (https://pt.aliexpress.com/store/product/Banana-Pi-BPI-M4-Realtek-RTD1395-ARM-64-bit-Board/302756_33036948250.html?spm=2114.12010611.8148356.1.fcef30d9EoKVYY) :

- This page was last edited on 4 November 2021, at 03:29.