Key Features

- Rockchip RK3568 Quad-core ARM Cortex-A55 CPU
- Mali-G52 1-Core-2EE
- 2G LPDDR4 SDRAM (option 4G)
- Mini PCIE interface and M.2 key-e interface
- support 1 SATA interface
- MicroSD slot supports up to 256GB expansion
- 16G eMMC flash (option 16/32/64G)
- 2 MIPI display interface support
- 1 CSI camera interface
- 5 port 10/100/1000 Mb Ethernet port
- (2) USB 3.0 and (1) USB 2.0 otg port

Rockchip RK3568

RK3568 has built-in MICRO-research NPU of Rockchip, 0.8Tops computing power and integrated high performance AI accelerator RKNN NPU. Rockchip also provides developers with an easy-to-use model transformation tool, RKNN-Toolkit, which supports one-click transformation of Caffe/TensorFlow/TF-Lite/ONNX/PyTorch/Keras/Darknet mainstream architecture models.

RK3568 has rich interface expansion capabilities. Supports a variety of peripheral high-speed interfaces, supporting four USB2.0 ports, 4xUSB2.0 HOST+ 1xUSB3.0 HOST+ 1xusB3.0 OTG. Support gigabit Ethernet *2, multi-camera support, support MIPI CSI 4Lanes, can be divided into 2x2Lanes two groups of independent use support 16bit DVP interface, support BT1120 input, support VC mode. RK3568 has a complete display interface, support HDMI 2.0 output support dual channel MIPI DSI, dual channel LVDS, can drive 2.5K LCD screen, can directly drive ink screen, support eDp. RK3568 has plenty of peripherals, supporting 10x UART, 6x I2C, 16x PWM, 4x SPI, 8xSARADC and MINI PCIE.

Rockchip RK3568 chip is a general PURPOSE SoC designed for consumer industry applications. The CPU uses 4-core A55 architecture processor, integrated G52 GRAPHICS processor, built-in independent NPU, and runs Android 11 and Linux. RK3568 is mainly customized for tablet PC, speaker with screen, Android pen, dictionary pen and other consumer products, as well as face payment POS machine, e-book, cloud terminal, video phone, NAS storage and other industry

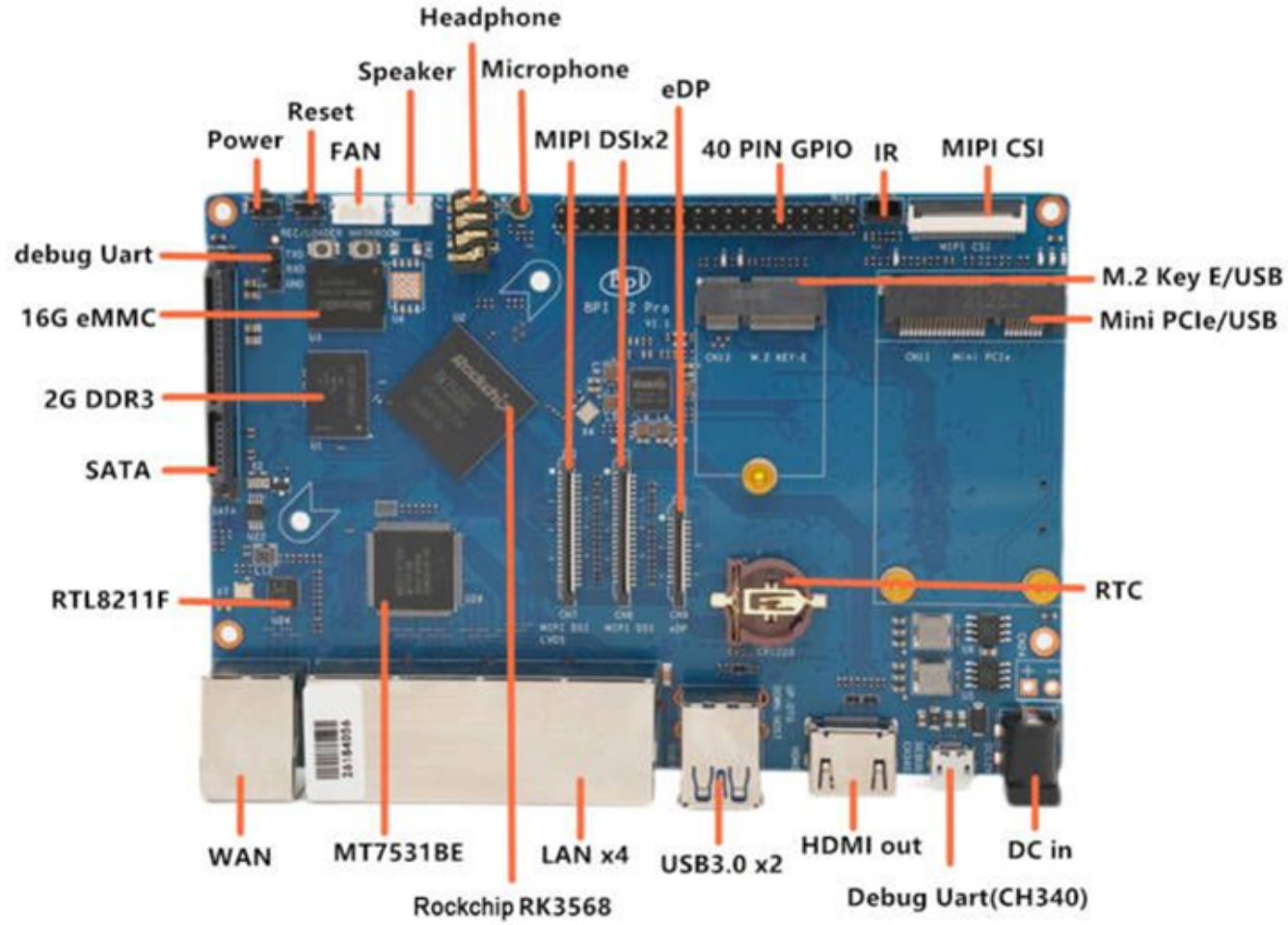
products

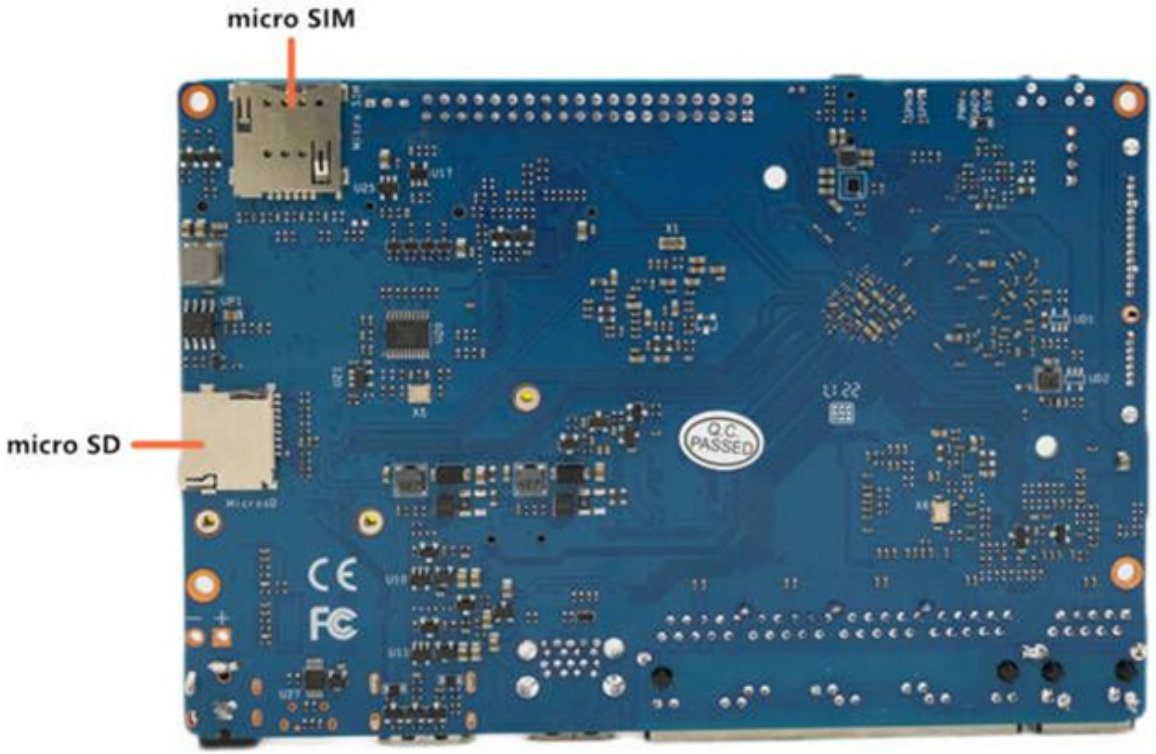
Get Starting

Getting Started with R2PRO

Hardware

Hardware interface


Headphone
Speaker
Microphone
eDP
Reset
Power
FAN
MIPI DSIx2
40 PIN GPIO
IR
MIPI CSI
debug Uart
M.2 Key E/USB
16G eMMC
Mini PCIe/USB
2G DDR3
SATA
RTL8211F
RTC
WAN
MT7531BE
LAN x4
USB3.0 x2
HDMI out
DC in
Rockchip RK3568
Debug Uart(CH340)


micro SIM
micro SD

Hardware spec

	Banana Pi R2 Pro
CPU	Rockchip RK3568 Quad-core ARM Cortex-A55 CPU 2GHz
GPU	Mali-G52 1-Core-2EE OpenGL ES3.2 Vu1kn 1.1 OpenCL 2.0
Memory	2G DDR3 SDRAM (option 4G)
Storage	Onboard 16GB eMMC Flash, Micro SD-Card slot, SATA 3.0 Port,SPI flash
Network	5 x 10/100/1000 Mbit/s Ethernet
Display(s)	1 HDMI port, 2 DSI interface(1 DSI can change to LVDS by software)
Camera	1 CSI camera interfact
Video decoder(s)	H.265 HEVC/MVC Main10 Profile yuv420@L5.1 up to 4096x2304@60fps,H.264 AVC/MVC Main10 Profile yuv400/yuv420/yuv422/@L5.1 up to 4096x2304@60fps
Video encoder(s)	H.264/AVC BP/MP/HP@level4.2， up to 1920x1080@100fps, H.265/HEVC MP@level4.1, up to 1920x1080@100fps (4096x4096@10fps with TILE)
Audio Output(s)	HDMI & I2S & Speaker & Headphone
USB port	USB 3.0 PORT (x2), micro USB OTG (x1)
mini PCIE	1 mini pcie interface & 1 M.2 key-e interface
Remote	IR Receiver (x1)
GPIO	40 Pin Header : GPIO (x28) and Power (+5V, +3.3V and GND). Some of I/O Pin can be used for specific functions as UART, I2C, SPI or PWM
Switches	Reset button, Power button, U-boot button
LED	Power Status and 8P8C
Power Source	12 volt @2A via DC Power and/or Micro USB (OTG)
Size & Weight	148 mm × 100.5mm 100g
OS	OpenWRT, Linux and others OS

GPIO PIN define

BPI-R2 40 PIN GPIO, Debug Uart PIN,MIPI camera ,MIPI LCD0， MIPI LCD1,eDP LCD PIN define.

BPI-R2 Pro all GPIO PIN define

Running on android11 system, connecting with 2x dsi panel + 1x eDP panel:https://www.youtube.com/watch?v=HpDAmNVDwXI

Resources

Source Code

- linux-4.19.xx kernel BSP Source code on github： https://github.com/BPI-SINOVOIP/BPI-R2PRO-BSP/
- linux-5.10.66 kernel BSP Source code on github： https://github.com/BPI-SINOVOIP/BPI-R2PRO-BSP-5.10.x/
- BPI-R2 PRO Android11 Source Code

Baidu Cloud:https://pan.baidu.com/s/1c2vw-df4hh55VB3gSsM6Uw?pwd=8888 (提取码: 8888)
Google Drive:

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
- All banana pi docement(SCH file,DXF file,and doc)
- BPI-R2 Pro schematic diagram : https://drive.google.com/file/d/1aDOL8U6-4bxn7iB_MzCOgHoDhUu0wuQu/view?usp=sharing
- BPI-R2 Pro DXF file： https://drive.google.com/file/d/1N9AWJVHC4fZEko5_RIkc3pI0gK1I0XiV/view?usp=sharing
- MT7531 switch chip datasheet: https://drive.google.com/file/d/1aVdQz3rbKWjkvdga8-LQ-VFXjmHR8yf9/view?usp=sharing
- RTL8367RB-VB-CG Switch chip datasheet:https://drive.google.com/file/d/1Rua-SRJLPoV0NLnvwJg-fopsD178KIts/view?usp=sharing
- BPI-R2 Pro CE,FCC,RoHS certificate : https://banana-pi.org/en/bpi-honor/
- Install google play on Bananapi BPI-R2 pro Android 11/12:https://www.youtube.com/watch?v=pMKBVcJhsx4

Release image

Note: the network disk include linux-4.19.xx and linux-5.10.66 kernel version, linux-5.10.66 kernel version can support DSA feature.

- All image for BPI-R2 Pro google： https://drive.google.com/drive/folders/1gHNGVL_uq8L4t987k-nzg6MKWDSmDcfC
- All image for BPI-R2 Pro : Baidu： https://pan.baidu.com/s/1u5bIp0fMJPre-j0bXGfDWA?pwd=i8q6 Pincode: i8q6

kernel linux-5.10.66 Release image, support DSA feature

Supported OS Note: OpenWRT, Debian10, Ubuntu 16.04. Ubuntu 20.04, Ubunutu 22.04, Ubunut OS support server version, desktop version, mate desktop version.

- kernel linux-5.10.66 image for BPI-R2 Pro : Baidu : https://pan.baidu.com/s/19B6AYrHfbIFgRytTpW8Mbg?pwd=6me6 Pincode: 6me6

AltLinux for Banana Pi BPI R2 pro

- kernel 5.18.9 : https://forum.banana-pi.org/t/altlinux-for-bpi-r2-pro-rk3568/13363

Armbian and LibreELEC for BPI-R2-pro

- https://forum.banana-pi.org/t/armbian-and-libreelec-for-bpi-r2-pro-rk3568/13308

kernel linux-4.19.xx Release image

ubuntu 21.04

- ubuntu 21.04 linux kernel 4.19 image 2022-5-16 update, HDMI ,eDP and SDIO interface RTL8822CS WIFI module working fine

google driver: https://drive.google.com/drive/folders/1pFayiLS3cS0idClUlvHzaySaJMb_AOrB
baidu link: https://pan.baidu.com/s/1zUVDXOmEur3KFpNW_va7Wg?pwd=ci4u Pincode ci4u
video and boot log:https://forum.banana-pi.org/t/banana-pi-bpi-r2-pro-openwrt-ubuntu-debian-linux-image/13158

OpenWRT

- OpenWRT-21.02 linux kernel 4.19 image, 2022-5-16 update,HDMI ,eDP and SDIO interface RTL8822CS WIFI module working fine

  google driver: https://drive.google.com/drive/folders/10HzNC0pWhS8j3W7uaFQ5RGO7UK133Xt-
  baidu link: https://pan.baidu.com/s/1KUIJUB6nd_vKmRXms7NUKg?pwd=i72r Pincode: i72r
  video and boot log:https://forum.banana-pi.org/t/banana-pi-bpi-r2-pro-openwrt-ubuntu-debian-linux-image/13158

Debian

- Debian 10 linux kernel 4.19 image, 2022-5-16 update ,HDMI ,eDP and SDIO interface RTL8822CS WIFI module working fine

  google driver: https://drive.google.com/drive/folders/1LSJlHtkHC_Ua6zVgVI3BRJOVPUb6vWO6
  baidu link: https://pan.baidu.com/s/1rkVWlpeY0hIKPrIh3r7Nfw?pwd=n9gi Pincode: n9gi
  video and boot log:https://forum.banana-pi.org/t/banana-pi-bpi-r2-pro-openwrt-ubuntu-debian-linux-image/13158

Android

How to flash Android Image

- All Android image can find here:

  Google Drive: https://drive.google.com/drive/folders/1Bs0lhnukZ4A_BmbY-QPiJsFguPXh6imh?usp=share_link
  Baidu Cloud: https://pan.baidu.com/s/19_nZls-1tzAsIB3_B-PWrg?pwd=6zw8 (pincode: 6zw8)

- 2023-03-17-Android11-atv-bpi-r2pro.img

  Google Drive:https://drive.google.com/drive/folders/1TZMsaeg99bC8WwxEb8zOMTOAA0TurQ_E?usp=share_link
  Baidu Cloud:https://pan.baidu.com/s/1_Hb0dB_4mHhTXiWP6TAzDA?pwd=bdxa (pincode: bdxa)

- 2023-03-17-Android11-bpi-r2pro.img

  Google Drive:https://drive.google.com/drive/folders/108SbohEB8OsWYaxvFeYhGDzxHaUJ1OcW?usp=share_link
  Baidu Cloud: https://pan.baidu.com/s/1FKdN2b3qA2Cc4syO15zbng?pwd=rnxd (pincode: rnxd)

- 2022-11-16 release, Android12-bpi-r2pro.img

  Google Drive: https://drive.google.com/file/d/1UZ-e6QJIB8ZU-rdGsCnDNaNR2pYHHvxA/view?usp=share_link
  Baidu Cloud: https://pan.baidu.com/s/1tQ5Fg47R0fpUajYpNIsJ3g?pwd=8888 (pincode: 8888)
  MD5:a7b5faf7818f1ab2d36253a5d3ca1d18
  Forum pthread:https://forum.banana-pi.org/t/bananapi-bpi-r2-pro-2022-11-16-android-12/14264

- 2022-06-10 release, Android 11 with kernel 4.19.219, tablet variant image

Google Drive: https://drive.google.com/file/d/1qiLZKU8_2O0hHgP25F0CRxv9MnSJlXpv/view?usp=sharing
Baidu Cloud:https://pan.baidu.com/s/1EUiGaXuPxAkR69g7EOnVaw?pwd=4n6c (pincode: 4n6c)
MD5: ebd336bad0c27c66ae65a4d38103bced

- 2022-06-10 release, Android 11 with kernel 4.19.219, atv variant image

  Google Drive: https://drive.google.com/file/d/104K7W1PX4OFvUtqNGHOnx6RZO49BrTZp/view?usp=sharing
  Baidu Cloud: https://pan.baidu.com/s/1RbNf1dFqMxy1Dx_ysym82w?pwd=v4u8 (pincode: v4u8)
  MD5: 49506a8a3183ab189046b5e2e2833b87