Banana Pi

What is Banana Pi?

Banana Pi is a single-board computer. Banana Pi targets to be a cheap, small and flexible enough computer for daily life. Built with ARM Cortex-A7 Dual-core CPU and Mali400MP2 GPU, and open source software, Banana Pi can serve as a platform to make lots of applications for different purposes.

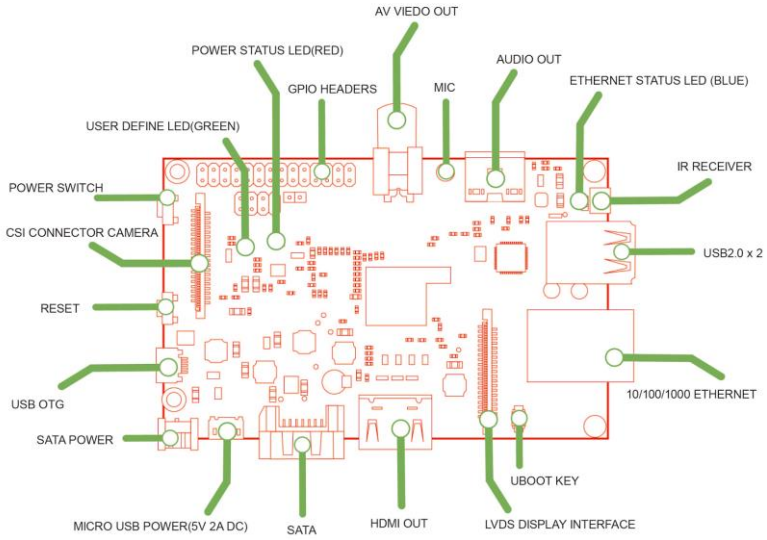
Banana Pi Specification

SoC	**Allwinner A20*** **(ARM Cortex-A7 dual-core, 1GHz, Mali400MP2 GPU)**
System Memory	1GB DDR3 DRAM
Storage	SD card slot, Extensible with SATA connection (2.5" SATA HDD with 5V)
Video output	HDMI, Composite, Extensible with on-board LVDS connector
Audio I/O	HDMI, 3.5mm stereo jack output, On-board microphone input
Connectivity	Gigabit Ethernet
USB	2* USB 2.0 ports, 1* OTG micro USB port, 1* micro USB for power supply**
Expansion	Extensible 26-pin headers, Camera connector, Display connector for LVDS and touch screen
Misc.	3* on-board buttons, (Power, Reset, Uboot key), IR receiver
Dimensions	92mm X 60 mm
Weight	48 g

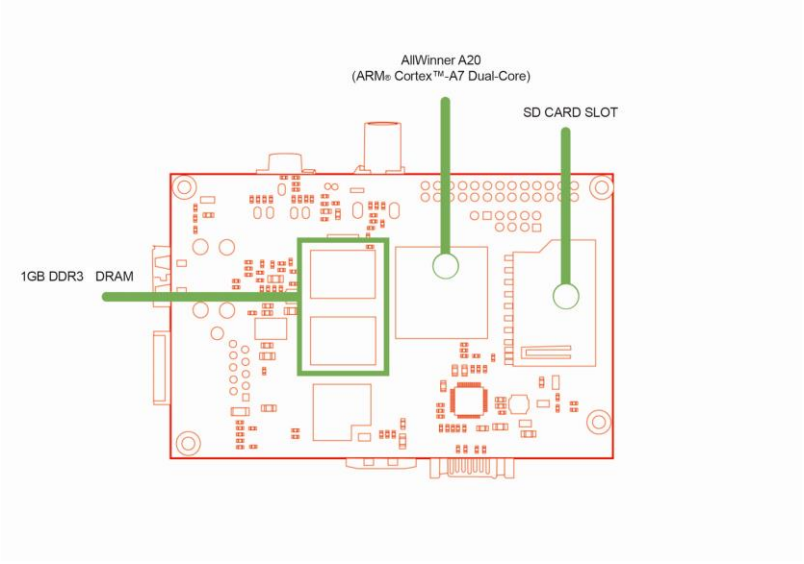
* Allwinner http://www.allwinnertech.com/en/

** Due to limited power amperage from computer USB port , we suggest using 5V 2A external power adapter.

Banana Pi Input/Output (Front side)

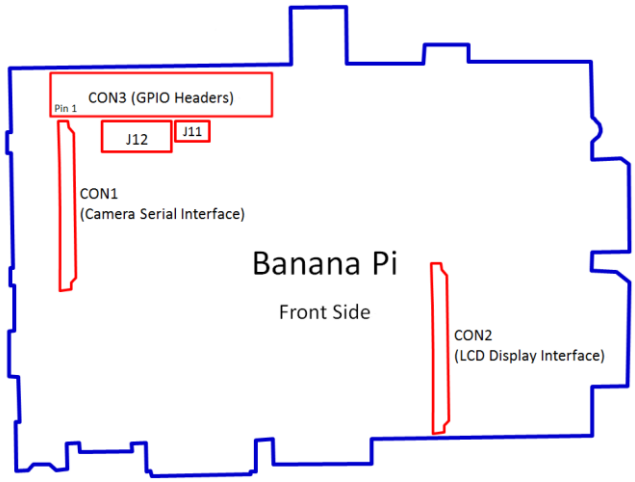


Banana Pi Input/Output (Back side)



Pin Definitions of Extensible connector

Banana Pi has multiple extensible connectors for users to develop their own amazing projects and applications. Most of common extension accessories Including LCD panel, touch screen, camera module, UART console and GPIO control pins are accessible from Banana Pi on-board connectors and headers.

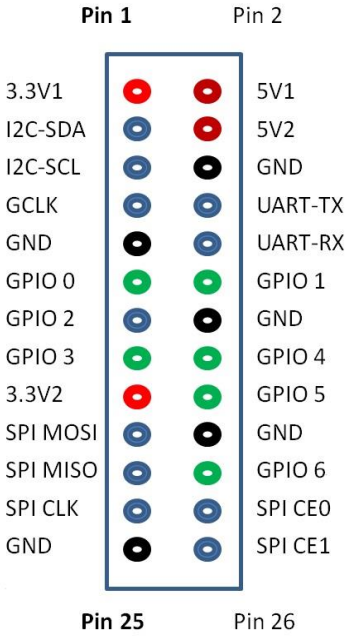


Banana Pi extensible 26-pins GPIO headers

Banana Pi has 26-pins GPIO headers to extend the functions such as I2C, SPI, 5V and 3.3V output…etc. There are also additional GPIO pins available for extension controls and daughter boards. For instance, you can use those headers to connect an Arduino board for your projects. Here could be the start point for your way of exciting applications.

CON3 (GPIO Headers)

CON3 is a DIP-26 headers. The header pin definitions of CON3 are shown as below. You can connect the headers for I2C, UART, SPI connections. The 5V and 3.3 V power output are also available here. Meanwhile, there are several pins free for GPIO pins for your specific usage.



CON3	Pin Name	Multiplex Function Select	GPIO
		Multi 1	Multi 2
Pin 1	3.3V1	VCC-3V3	
Pin 2*	5.0V1	VCC-5V	
Pin 3	SDA	TWI2-SDA	PB21
Pin 4*	5.0V2	VCC-5V	
Pin 5	SCL	TWI2-SCK	PB20
Pin 6	GND3	GND	
Pin 7	IO-GCLK	GPCLK	PI3
Pin 8	TXD0	UART3-TX	PH0
Pin 9	GND1	GND	
Pin10	RXD0	UART3-RX	PH1
Pin11	IO-0	IO-0(UART2-RX)	PI19
Pin12	IO-1	IO-1	PH2
Pin13	IO-2	IO-2(UART2-TX)	PI18
Pin14	GND4	GND	
Pin15	IO-3	IO-3(UART2-CTS)	PI17
Pin16	IO-4	IO-4(CAN_TX)	PH20
Pin17	3.3V2	VCC-3V3	
Pin18	IO-5	IO-5(CAN_RX)	PH21
Pin19	SPI-MOSI	SPI0_MOSI	PI12
Pin20	GND5	SPI0_GND	
Pin21	SPI-MISO	SPI0-MISO	PI13
Pin22	IO-6	IO-6(UART2_RTS)	PI16
Pin23	SPI-CLK	SPI0_CLK	PI11
Pin24	SPI-CE0	SPI0_CS0	PI10
Pin25	GND2	GND	
Pin26	SPI-CE1	SPI0_CS1	PI14

* Those 5V pins(CON3 Pin2 & CON3 Pin4) are voltage output pins from BananaPi's PMIC(AXP209). They can NOT be power input pins from external power source. Otherwise, it may damage the BPi board.

CON1 (Camera Serial Interface)

CON1 is an extensible on-board CSI connector of Banana Pi. It is a 40-pin FPC connector which can connect external camera module with proper signal pin mappings. The pin definitions of CON1 are shown as below.

CON1 Pin	Pin Name	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	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	

CON2 (LCD display interface)

CON2 is an extensible on-board LCD display LVDS connector of Banana Pi. It is a 40-pin FPC connector which can connect external LCD panel (LVDS) and touch screen (I2C) module as well. The pin definitions of CON2 are shown as below.

CON2 Pin	Pin Name	Multiplex Function Select	GPIO
		Multi 1	Multi 2
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		PH9
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		PH6
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

J11 (UART)

The jumper J11 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.

J11 Pin	**Pin Name**	**Multiplex Function Select**	**GPIO**
		Multi 1	**Multi 2**
J11 Pin1	TXD	UART0-TX	PB22
J11 Pin2	RXD	UART0-RX	PB23

J12 (UART and Power source)

The jumper J12 provides the power source including 3.3V and 5V. There is a pair of UART TX/RX signals output here.

J12 Pin	**Pin Name**	**Multiplex Function Select**	**GPIO**
		Multi 1	**Multi 2**
J12 Pin 1	5V		
J12 Pin2	3.3V		
J12 Pin3	NC	IO-7	PH5
J12 Pin4	RXD	UART7_RX	PI21
J12 Pin5	NC	IO-8	PH3
J12 Pin6	TXD	UART7_TX	PI20
J12 Pin7	GND		
J12 Pin8	GND		