



Banana Pi -A New Generation High-end Single-board Computer

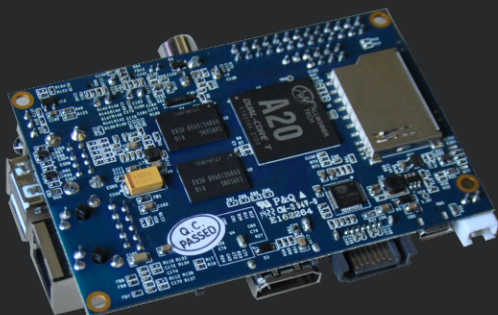
What is a Banana Pi?

We provide you an open hardware, you build your own, fulfill your creations, that is Banana Pi.

Banana Pi is our starting point, we are dedicated to contributing to the open source hardware, and our goal is to build a platform that makes it easier to design and build new devices and related software. We fully respect all contributors' work, and welcome companies and individuals to participate in this project. Together we will make a difference.

Banana Pi is an open-source single-board computer, affordable with extensible configurations. It provides high performance from AllWinner SoC and 1GB DDR3 SDRAM. It is versatile and can run Android, Ubuntu, Debian, Raspberry Pi Image, as well as the Cubieboard Image. The board's layout will be released in the future.

Banana Pi is raw, it is for anyone who wants to play and create with computer technologies, instead of simply being a consumer of electronics. It's a simple, fun and useful, it is a tool that you can use to start taking control of the world around you.



Hardware specification	
CPU	A20 ARM® Cortex™-A7 Dual-Core
GPU	ARM Mali400MP2 Complies with OpenGL ES 2.0/1.1
Memory (SDRAM)	1GB DDR3 (shared with GPU)
Onboard Storage	SD (Max. 64GB) / MMC card slot UP to 2T on SATA disk
Onboard Network	10/100/1000 Ethernet RJ45 (optional USB WIFI Dongle)
Camera Input	A CSI input connector allows for the connection of a designed camera module
Sound Input	Mic
Video Outputs	HDMI, CVBS , LVDS/RGB
Audio Output	3.5 mm Jack and HDMI
Power Source	5 volt via MicroUSB(DC In Only) and/or MicroUSB (OTG)
USB 2.0 Ports	2 (direct from Allwinner A20 chip)
Buttons	Reset button: Next to MicroUSB connector Power button: Next to Reset button UBoot button (optional): Behind HDMI connector
GPIO(2X13) pin	GPIO,UART,I2C bus,SPI bus with two chip selects, CAN bus,ADC,PWM,+3.3v,+5v,ground.
LED	Power Status LED (Red) Ethernet Status LED (Blue) User Define LED (Green)
Remote	IR
Supported OS	Android/ Debian/ Ubuntu/ Raspberry Pi/ Lubuntu/ OpenWrt/ Kali Linux/ OpenSuse/ nOS/ Kano/ fedora/ Arch Linux/ Moebius

Supported Apps



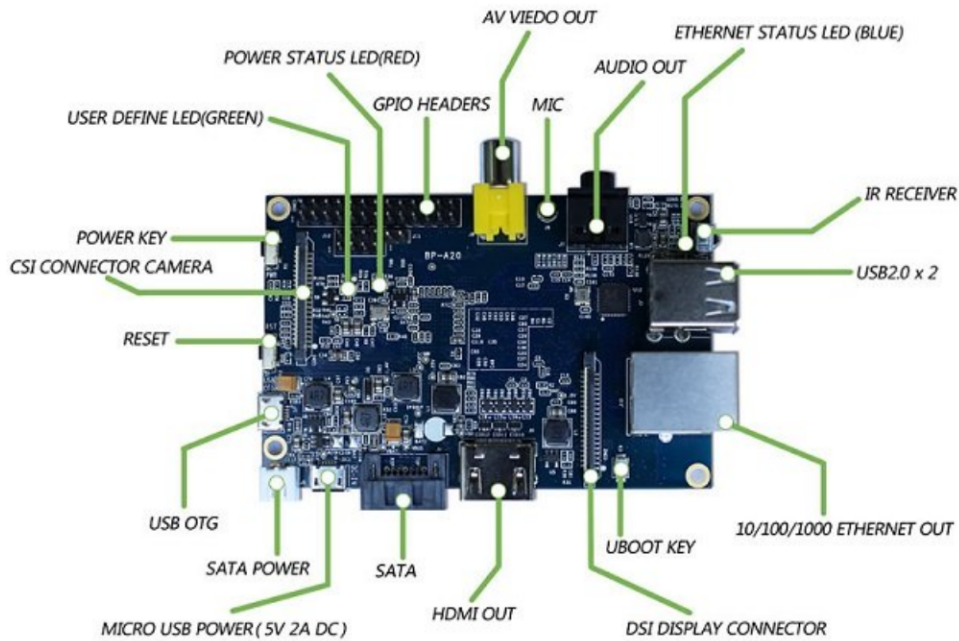
Interface definition

Product size

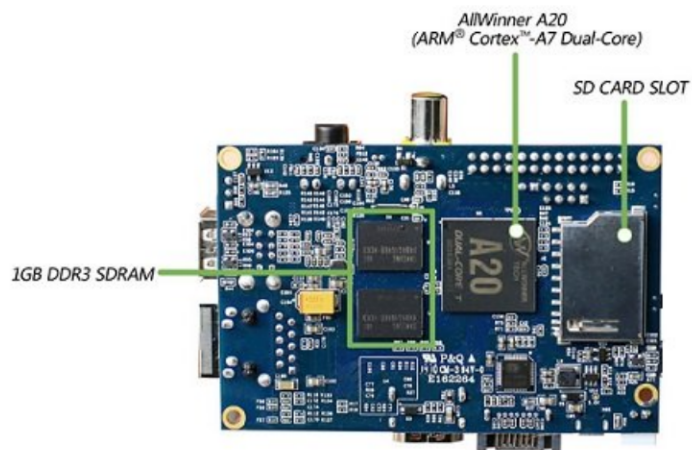
92 mm × 60mm

Weight

48g



Front side



Back side

Pin Definition

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.

The Pin definition of Banana Pi, including CON1, CON2, CON3, J11 and J12 . All pins can be configured to GPIO, and some of them have one or two alternatives.

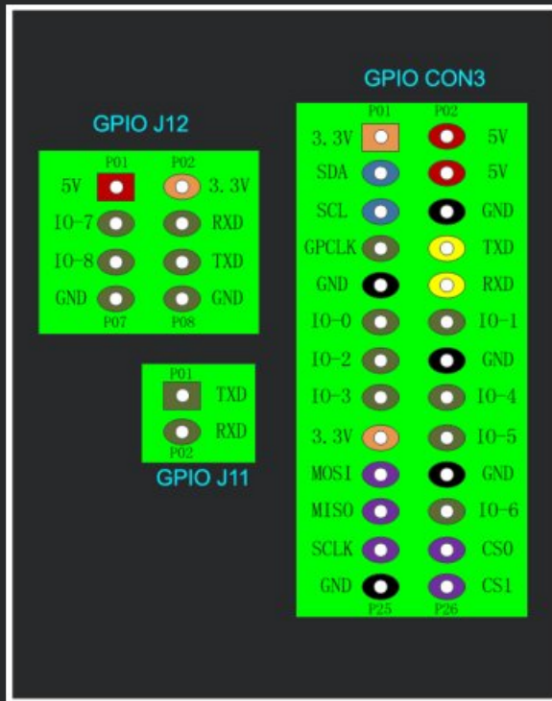
J11 contains the default serial port UART0(UART0-RX, UART0-TX), UART0 is configured to be used for console input/output. Whilst this is useful if you want to login using the serial port. So it is the most common used PIN.

J12 also contains a serial port UART.

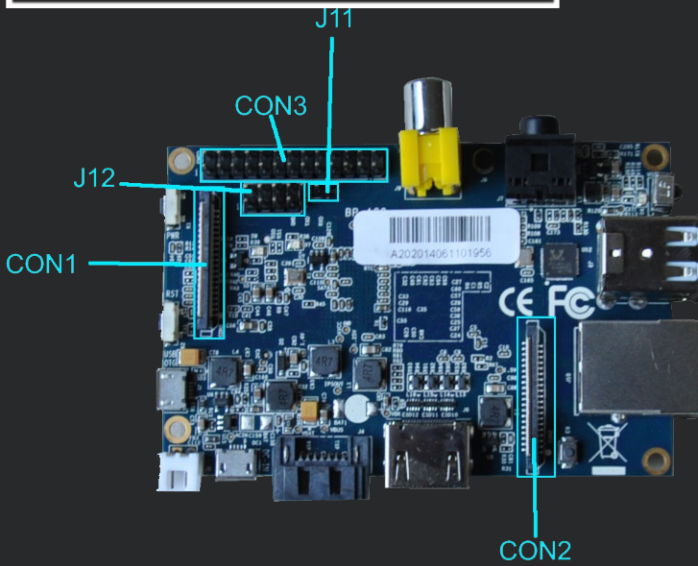
CON3 contains CAN bus, SPI bus, I2C bus, PWM, serial port and etc. It can be configured to be used for kinds of peripheral

CON1 is a CSI camera connector.

CON2 is a LVDS display connector.



Z



Banana Pi CON3, J11, J12 Connectors
Banana Pi Connectors

Layout of

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 Definition

Pin on Board	Pin Definition	IO on A20
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 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 Definition

Pin on Board	Pin Definition	IO on A20
CON2-P01	IPSOUT	
CON2-P02	TWI3-SDA	P11
CON2-P03	IPSOUT	
CON2-P04	TWI3-SC	PI0
CON2-P05	GND	
CON2-P06	LCD0-IO0	PH7
CON2-P07	LCDIO-03	PH12
CON2-P08	LCD0-IO1	PH8
CON2-P09	LCD0-D0	PD0
CON2-P10	PWM0	PB2
CON2-P11	LCD0-D1	PD1
CON2-P12	LCD0-IO2	PH9
CON2-P13	LCD0-D2	PD2
CON2-P14	LCD0-DE	PD25
CON2-P15	LCD0-D3	PD3

CON2-P16	LCD0-VSYNC	PD27
CON2-P17	LCD0-D4	PD4
CON2-P18	LCD0-HSYNC	PD26
CON2-P19	LCD0-D5	PD5
CON2-P20	LCD0-CS	PH6
CON2-P21	LCD0-D6	PD6
CON2-P22	LCD0-CLK	PD24
CON2-P23	LCD0-D7	PD7
CON2-P24	GND	
CON2-P25	LCD0-D8	PD8
CON2-P26	LCD0-D23	PD23
CON2-P27	LCD0-D9	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

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 3.3V power output are also available here. Meanwhile, there are several pins free for GPIO pins for your specific usage.

CON3 Definition

Pin on Board	Pin Definition	IO on A20
CON3-P01	VCC-3.3V	
CON3-P02	VCC-5V	
CON3-P03	TWI2-SDA	PB21
CON3-P04	VCC-5V	
CON3-P05	TWI2-SCK	PB20
CON3-P06	GND	
CON3-P07	GPCLK	PI3
CON3-P08	UART3-TX	PH0
CON3-P09	GND	
CON3-P10	UART3-RX	PH1
CON3-P11	IO-0(UART2-RX)	PI19
CON3-P12	IO-1	PH2
CON3-P13	IO-2(UART2-TX)	PI18
CON3-P14	GND	
CON3-P15	IO-3(UART2-CTS)	PI17
CON3-P16	IO-4(CAN_TX)	PH20
CON3-P17	VCC-3.3V	
CON3-P18	IO-5(CAN_RX)	PH21
CON3-P19	SPI0_MOSI	PI12
CON3-P20	GND	
CON3-P21	SPI0-MISO	PI13
CON3-P22	IO-6(UART2_RTS)	PI16
CON3-P23	SPI0_CLK	PI11
CON3-P24	SPI0_CS0	PI10

CON3-P25	GND	
CON3-P26	SPI0_CS1	PI14

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 Definition

Pin on Board	Pin Definition	IO on A20
J11-P01	UART0-TX	PB22
J11-P02	UART0-RX	PB23

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

J12 Definition

Pin on Board	Pin Definition	IO on A20
J12-P01	VCC-5V	
J12-P02	VCC-3.3V	
J12-P03	IO-7	PH5
J12-P04	UART7_RX	PI21
J12-P05	IO-8	PH3
J12-P06	UART7_TX	PI20
J12-P07	GND	
J12-P08	GND	

Remark:

Android is a trademark of Google Inc.

Debian trademark is a registered United States trademark of Software in the Public Interest, Inc.

Ubuntu is a registered trademarks of Canonical Ltd.

Raspberry Pi is a registered trademark of the Raspberry Pi Foundation.