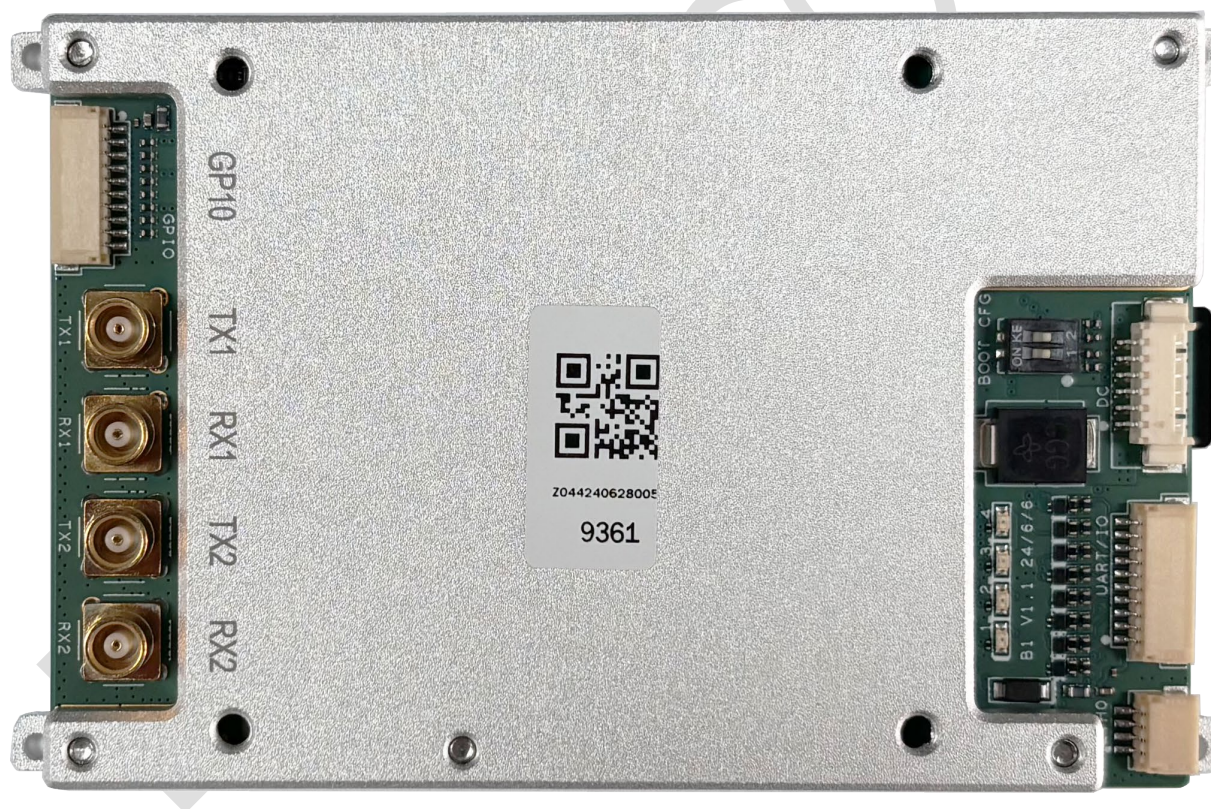
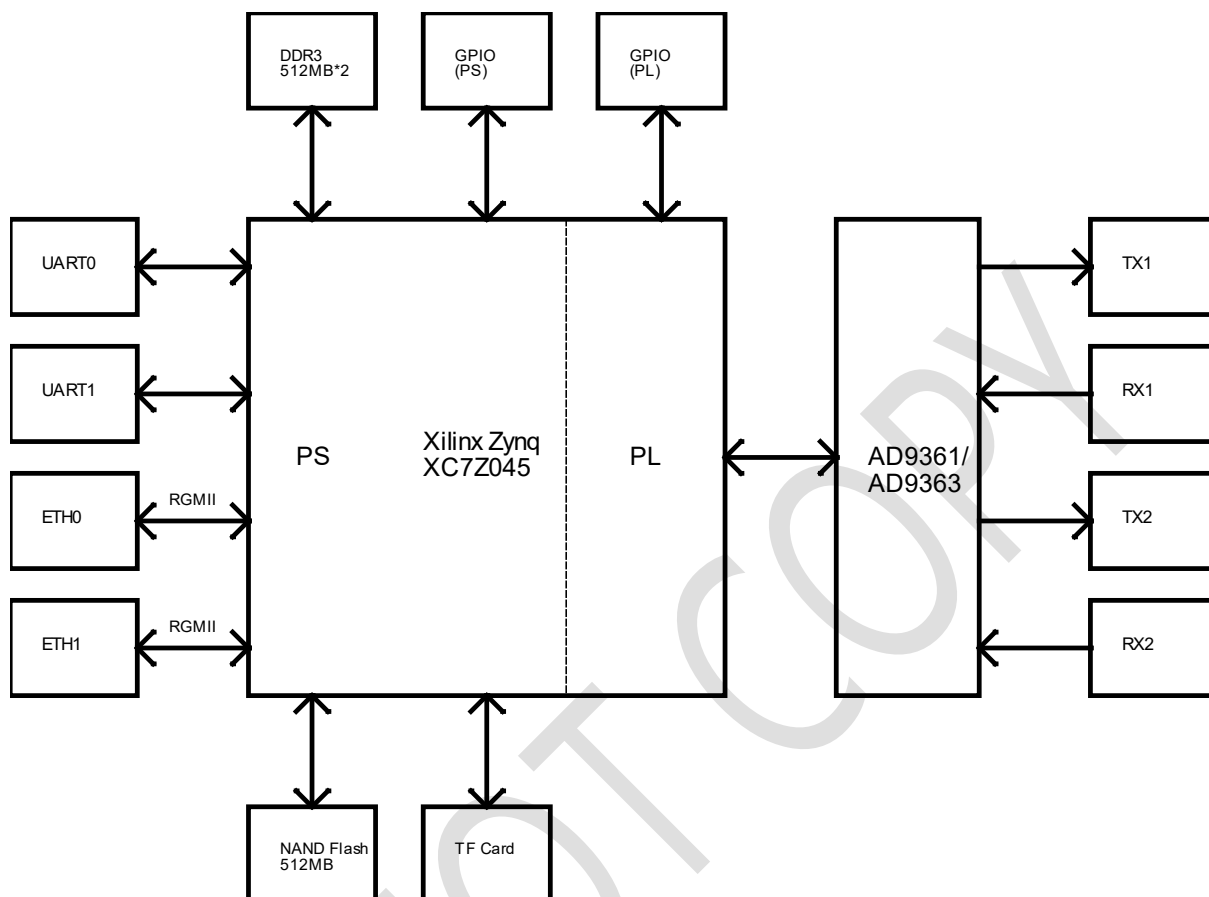


SDR-B1 is a SDR hardware platform launched by Zencheer Communication. It adopts the Xilinx Zynq XC7Z045 FPGA and ADI AD9361/AD9363 RF transceiver chip. With dimension of only 59\*88 mm, it is suitable for applications such as UAV networking and broadband data transmission.

SDR-B1 supports 2\*2 MIMO (dual transmit and dual receive), and provides 2 Ethernet ports, 3 serial ports, and multiple GPIOs. It integrates 512MB NAND Flash and supports TF cards, making it convenient for user development.



## 1. Hardware Block Diagram



## 2. Key Features

- Based on Xilinx XC7Z045+ADI AD9361/AD9363
- Compact size, only 59\*88 mm
- Equipped with 2 Ethernet ports
- Equipped with 3 serial ports

## 3. Hardware Specifications

Main Chip	Xilinx XC7Z045-2FFG900I
Radio Chip	ADI AD9361/AD9363
RAM	1GB DDR3 SDRAM
Flash	512MB NAND Flash
Interfaces	Power input (6Pin)

	Power pass-through output (4Pin) Serial ports and PS GPIO (10Pin) Ethernet port ETH0 (4Pin), 10/100Mbps Ethernet port ETH1 (4Pin), 10/100Mbps JTAG port (7Pin) PL GPIO (10Pin) TF card socket RF interfaces, 4 standard MCX connectors
Power Supply	12-48V input with reverse-polarity protection
Size	59*88*12.9mm
Temperature Range	Storage: -40~+85 degree C Operation: -20~+65 degree C
Software Features	u-boot Based on Petalinux+Meta-adi Supports ADI IIO Oscilloscope

## 4. Interface Definitions

### 1) DC power input, using Molex 53398-0671

Pin number	Definition	Description
1	VIN	Positive power input
2	VIN	Positive power input
3	VIN	Positive power input
4	GND	Ground
5	GND	Ground
6	GND	Ground

### 2) Power pass-through output, using Molex 53261-0471

Pin number	Definition	Description
1	VOUT	Positive power output, sharing the same power rail as the power input.

2	VOUT	Positive power output, sharing the same power rail as the power input.
3	GND	Ground
4	GND	Ground

## 3) Serial ports and PS GPIO (UART/IO), using JST SM10B-SRSS-TB

Pin number	Definition	Description
1	3.3V	Provides 3.3V power output (current limited to 2A) with reverse current protection.
2	UART0_RXD	PS UART0 RXD, 3.3V logic level
3	UART0_TXD	PS UART0 TXD, 3.3V logic level
4	UART1_RXD	PS UART1 RXD, 3.3V logic level
5	UART1_TXD	PS UART1 TXD, 3.3V logic level
6	UART2_RXD	PL UART RXD, 3.3V logic level
7	UART2_TXD	PL UART TXD, 3.3V logic level
8	LED_5	PL AK16, 3.3V logic level
9	PS_MIO15	PS MIO15, 3.3V logic level
10	GND	Gound

## 4) Ethernet port ETH0 (ETH0), using JST SM04B-SRSS-TB

Pin number	Definition	Description
1	RXP	Ethernet port 0 RX+
2	RXN	Ethernet port 0 RX-
3	TXP	Ethernet port 0 TX+
4	TXN	Ethernet port 0 TX-

## 5) Ethernet port ETH1 (ETH1), using JST SM04B-SRSS-TB

Pin number	Definition	Description
1	RXP	Ethernet port 1 RX+
2	RXN	Ethernet port 1 RX-
3	TXP	Ethernet port 1 TX+
4	TXN	Ethernet port 1 TX-

## 6) JTAG, using JST BM07B-SRSS-TB

Pin number	Definition	Description
1	3.3V	Provides 3.3V power output to external devices.
2	GND	Ground
3	JTAG_TCK	PL JTAG TCK
4	JTAG_TDO	PL JTAG TDO
5	JTAG_TDI	PL JTAG TDI
6	JTAG_TMS	PL JTAG TMS
7	NC	No connection

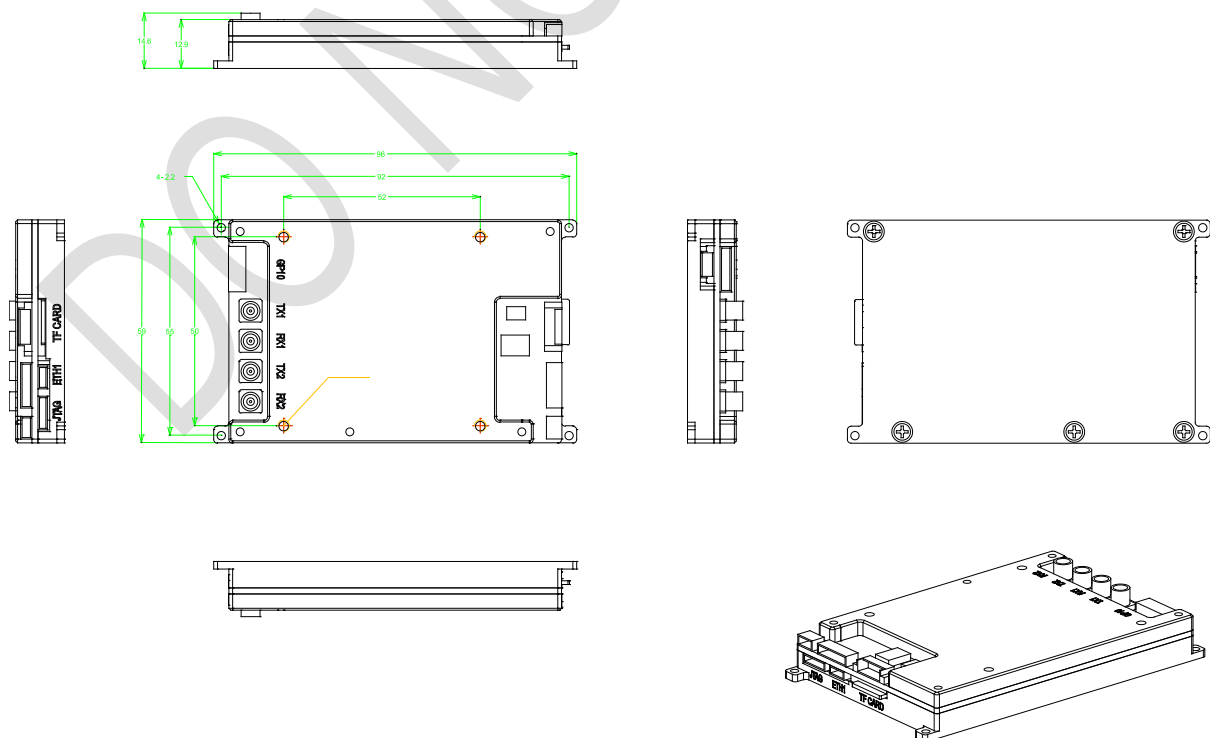
## 7) PL GPIO (GPIO), using JST SM10B-SRSS-TB

Pin number	Definition	PL pin	Description
1	3.3V	--	Provides 3.3V power output to external devices, current-limited to 2A, with reverse current protection.
2	PL_GPIO_0	AF17	Has pull-up resistor and capacitor to ground, suitable for connecting user button, logic level is 3.3V.
3	PL_GPIO_1	AG16	Has pull-up resistor and capacitor to ground, suitable for connecting user button, logic level is 3.3V.
4	PL_GPIO_2	AG15	Has pull-up resistor and capacitor to ground, suitable for connecting user button, logic level is 3.3V.
5	PL_GPIO_3	AF15	Has pull-up resistor and capacitor to ground, suitable for connecting user button, logic level is 3.3V.
6	PL_GPIO_4	AD14	Connected in series with a 220 $\Omega$ current-limiting resistor, suitable for

			driving user LED, logic level is 3.3V.
7	PL_GPIO_5	AE15	Connected in series with a 220ohm current-limiting resistor, suitable for driving user LED, logic level is 3.3V.
8	PL_GPIO_6	AC13	Connected in series with a 220 $\Omega$ current-limiting resistor, suitable for driving user LED, logic level is 3.3V.
9	PL_GPIO_7	AD15	Connected in series with a 220 $\Omega$ current-limiting resistor, suitable for driving user LED, logic level is 3.3V.
10	GND	--	Ground

- 8) TF card socket, using Molex 47352-0001, push-push type, supports standard TF cards.

## 5. Physical Size



Established in March 2016, Zencheer Communication Technology Co., Ltd. is a technology-oriented, market-driven enterprise dedicated to becoming the preferred supplier of wireless products for small and medium-sized customers. We provide high-quality, long-lifecycle, and user-friendly wireless products, including WiFi products, RF amplifiers, and software-defined radio products.

Our core team boasts nearly 20 years of industry experience and possesses leading capabilities in RF and high-speed digital circuit development. We have unique technical resources and rigorous quality control measures, reducing complexity, risk, and costs for our customers, while shortening time to market for their products. We have earned widespread recognition as a high-quality supplier of wireless products, serving a variety of critical applications. While maintaining a strong foundation with our core product lines, we are actively exploring new technological frontiers. More and more customers are choosing to collaborate with us. In the future, Zencheer Communication will continue to innovate, create even more outstanding wireless products, and work with customers to make contributions in an increasing number of fields.

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