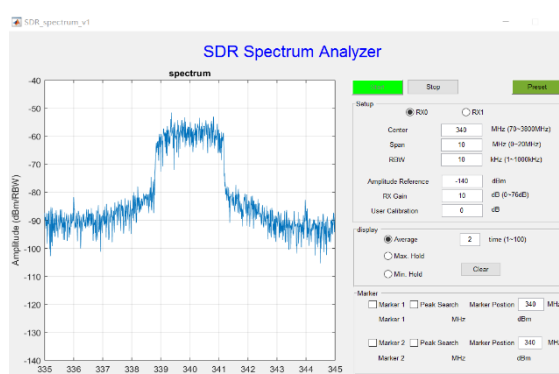


SDR-E Software radio

Product specification

The SDR-E software radio equipment

supports the MATLAB software platform and supports the development and verification of various custom functions. Based on FPGA baseband algorithm processing, with ARM software control function, it can fully realize RF to baseband and baseband to RF wireless



communication transceiver link system. It can assist in teaching experiments on real signals, build real-time communication links, and truly present theoretical knowledge. The equipment is equipped with complete teaching experiment cases and instructions, the case content is easy to use, can be tailored and expanded。

Product characteristics

- 2X2 TX/RX
- Adjustable signal bandwidth : 200 kHz ~ 56 MHz
- Signal frequency: 70 MHz ~ 6.0 GHz
- TDD/FDD
- FPGA+ARM

The significance and practical value in teaching

- Combining theory with practice, helping students understand each principle and implementation method through experiments and source program comparison.

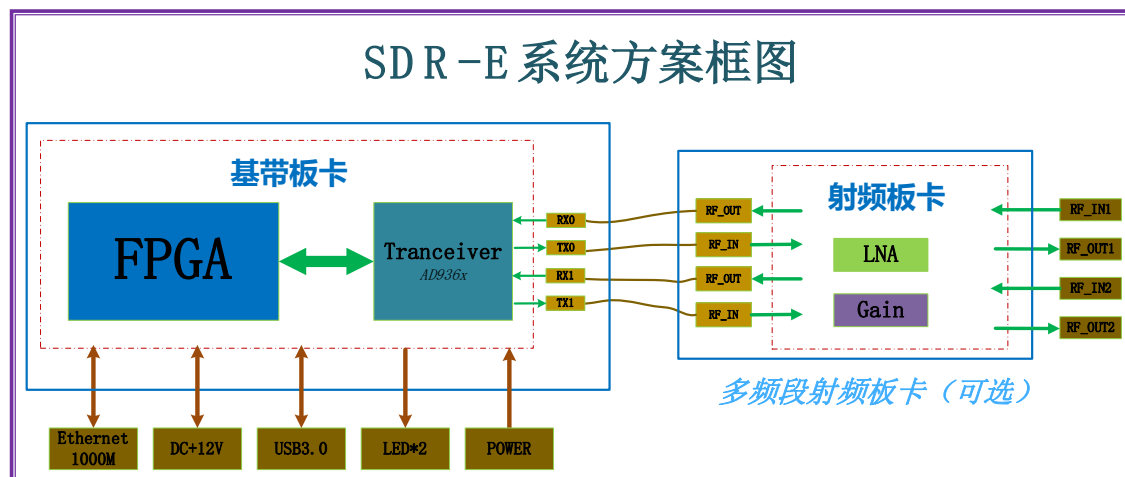
- Through the SDR platform, the basic functions of signal sources or spectrometers can be completed, and customized signal transmission and spectrum observation can be carried out without the need to purchase expensive equipment.
- Through experiments to understand and master the communication principle from the bottom and can carry out a variety of experimental comparison.
- Support a variety of experimental transformation or experiment increase, convenient experiment upgrade.
- Provide a hardware platform for a variety of topics or projects, only through API functions for underlying data access, software development, greatly providing efficiency for development.
- Intuitive and in-depth understanding of software radio, deepen understanding of the composition of communication systems, communication technology to solve the problem

Basic experiment catalogue

No	Experimental content
01	Spectrograph experiment
02	Monophonic and duophonic signal transmission and reception experiments
03	Filter amplitude-frequency response measurement
04	Experiment on PN sequence generation, emission and synchronization
05	AM experiment
06	DSB-SC experiment
07	SSB experiment
08	FM experiment
09	Gaussian signal experiment
10	Frequency estimation applications of PN sequences
11	Digital phase-locked loop bit synchronous extraction
12	QPSK
13	Interpolation experiment

14	BPSK
15	OFDM
16	IQ calibrate

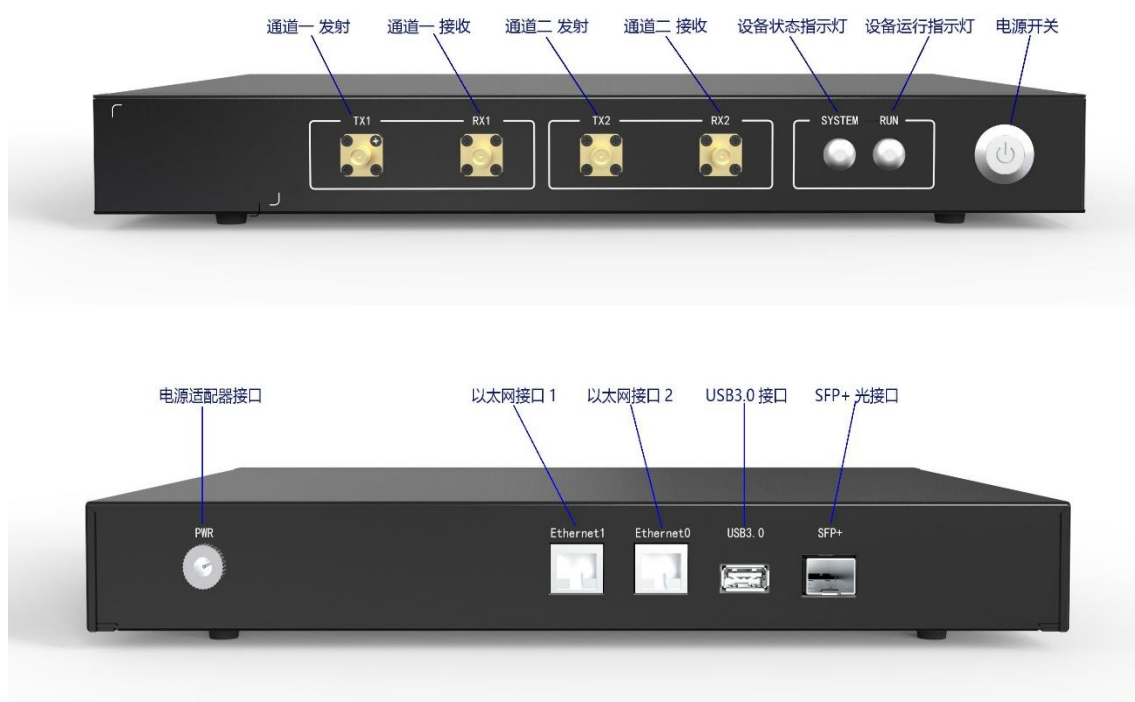
System block diagram



System index

Project	Index requirement
Number of channels	2 TX/2 RX MIMO
Modulation mode	FM、AM、DSB、SSB、GMSK、QAM、OFDM
Maximum output power	-10dBm
Maximum input power	-10dBm
Maximum sampling rate	50.00MSPS
Maximum supported bandwidth	35.8MHz
Data bit width	12bit
Working current	$\leq 1A@12V$
Working voltage	DC12 $\pm$ 3V
Ethernet rate	1000M
Dimension	300mm*220mm*36mm
Working temperature	-20℃ ~ +45℃
Heat dissipation mode	Natural heat dissipation

Device interface description



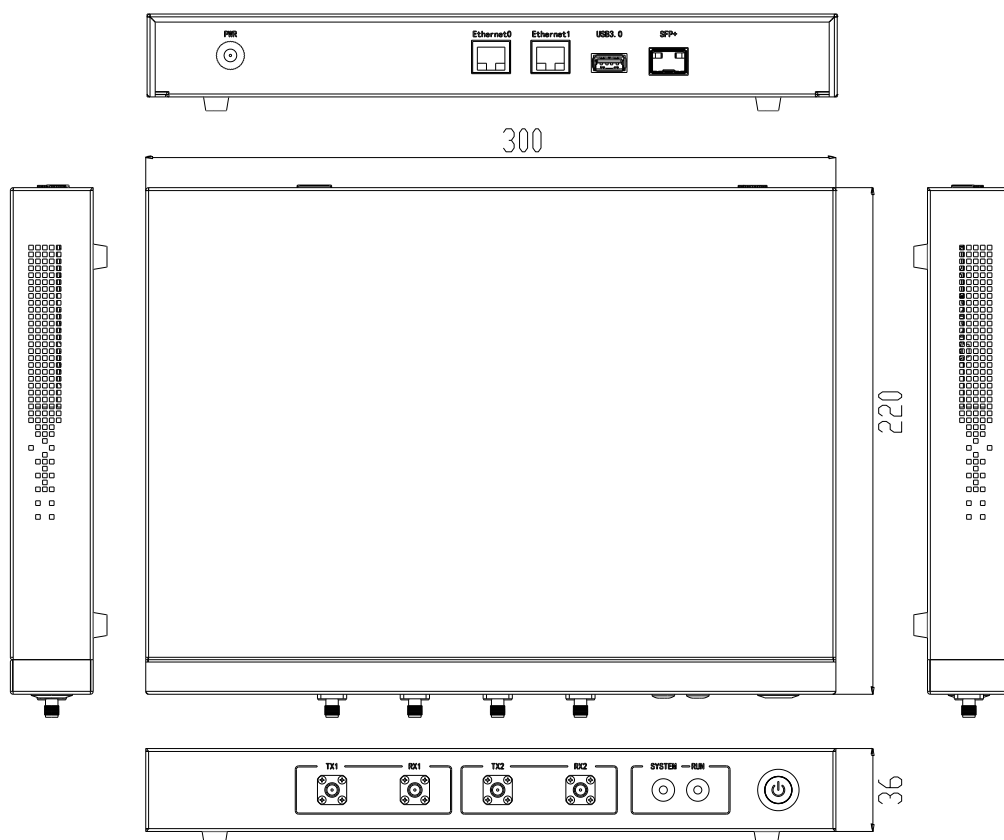
LED indicate

Indicator light	Indicator status	Indicative meaning
System	Steady yellow light	The system is powered on normally
	Steady green light	Normal initialization
	Steady red light	Initialization exception
Run	Extinguish	No read/write operation is performed
	Green flashing	Normal read and write operations
	Red light flashing	Read/write data exception

Device interface list

Name	Num	Note
Power interface	1	DC12V
Power switch	1	Power switch
SMA RF port	4	Radio frequency interface 2T2R
Ethernet port	2	Network port 0 is the default data port Network port 1 is an advanced function port
LED	2	System operating status indication

Dimension



SDR-E series

Model	Frequency	Maximum sampling rate	Support maximum BW
SDR-E100	325MHz~3.8GHz	61.44MSPS	20MHz
SDR-E200	70MHz~6.0GHz	61.44MSPS	56MHz

File version

Version	Date	Reviser	Revision status	Revised content
1.0	2020.08	Jack Hu	C	Create version
1.1	2021.04	Jack Hu	M	Add model classification
1.2	2021.05	Jack Hu	M	The sampling rate can be improved

Revision status: C –Create M –Modify D – Delete R –Release