威视锐® V3 Technology,.Ltd. | Make Radio Programmable

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YunSDR Y390

High performance miniaturized SDR

- Covering the frequency range of 75 MHz to 6 GHz
- Real time bandwidth up to 200MHz
- 40G high-speed interface
- Ready to use software toolkit out of the box
- MATLAB, Python, C #, C/C++secondary development APIs
- Open source GNU Radio environment
- Open source 4G and 5G protocol stacks



Real-time | Networkable | Open APIs | Easy integration

Low-cost | Compact | Light | Low-power

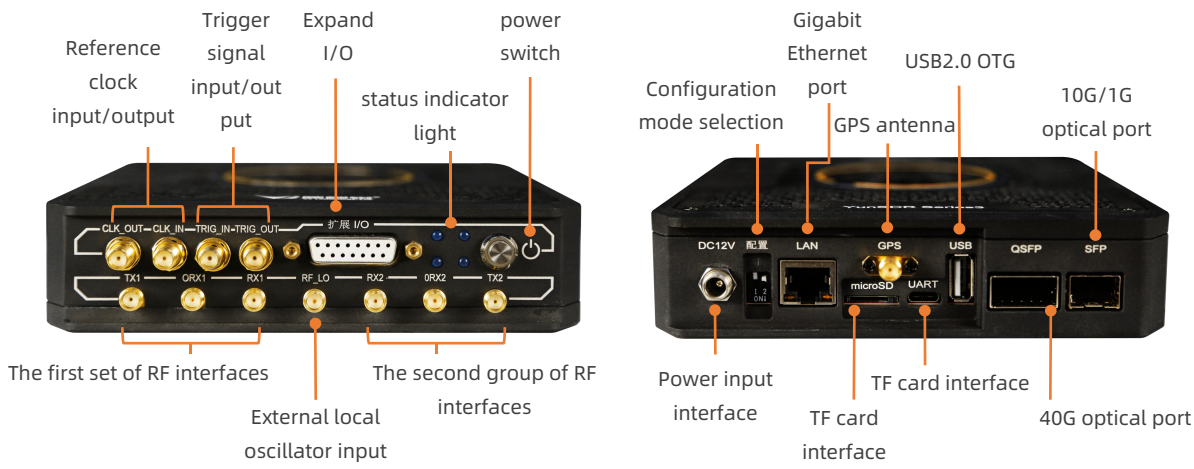
V3 technology (Beijing) LTD

Product description

Y390 integrates the high bandwidth RF transceiver and high-performance Zynq SoC FPGA required for broadband wireless communication, which can meet the bandwidth requirements of most current wireless communication systems. The RF front-end adopts ADRV9009 transceiver, providing up to 200 MHz instantaneous bandwidth per channel and covering the frequency range from 75MHz to 6 GHz. The accompanying software tools can achieve common wireless signal processing functions such as device self check, spectrum analysis, recording and playback, helping engineers quickly locate and solve wireless related problems. The device driver supports mainstream open source projects such as GNU Radio, as well as FPGA underlying development. Users can quickly verify prototypes and reliably deploy various SDR applications, such as 5G base stations, signal intelligence, and spectrum monitoring.

The baseband processor provides a rich range of programmable FPGAs for real-time and low latency processing, as well as a dual core ARM Cortex-A9 processor. Users can deploy applications on pre installed Linux embedded operating systems or use high-speed data interfaces to form SDR systems with the host. Y390 has a flexible reference clock design architecture that supports external PPS, external clock reference, and GPS synchronization interfaces, which is helpful for the implementation of MIMO systems.

Schematic diagram of the interface of YunSDR Y390



cover
300MHz~6GHz

bandwidth
100MHz@2T2R

Programmable baseband
ZYNQ SoC 7Z100 FPGA

Gigabit Ethernet

USB2.0

40G/10G SFP+

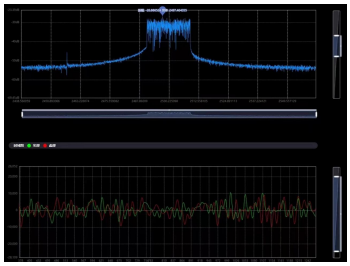
support 5GNR

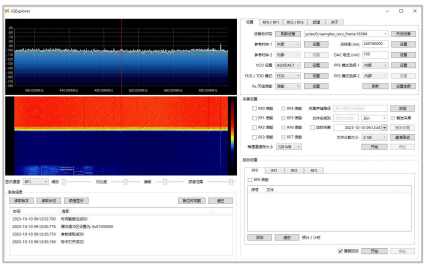
Y390 Indicator characteristics

RF channel: 2TX/2RX, TDD	Transmission power: 15dBm
Supported channels: 75MHz~6GHz	Real time bandwidth: 200 MHz
Intermediate frequency mode: 2-channel zero intermediate frequency	Emission EVM:<1.5%
Configurable sampling rate: 122.88125153.6MHz	PL DDR3 SDRAM： 1GB， PS DDR3 SDRAM： 1GB
Data processing unit: XILINX ZYNQ SoC 7Z100, built-in dual core ARM Cortex-A9 CPU 800 MHz	SPF+port (1 Gigabit Ethernet, 10 Gigabit Ethernet, Aurora), QSFP port (40Gbps, Aurora)
Data interface: Gigabit Ethernet/QSFP/10G SFP+/USB 2.0 OTG/TF card	Synchronization interface: Supports external local oscillator input and external reference clock input/output
Debugging interface: USB JTAG	Power supply: 12V DC power supply, power below 30W
Size: 205mm x 150mm x 38ms length x width x height	Weight: Approximately 1.2 Kg

Application scenarios

- Spectrum monitoring ensures that airborne signals have nowhere to hide
- Record playback and reproduce the outdoor environment at any time
- Python programming, unified development language for wireless and AI









5G base station and UE



Wireless channel simulator



Signal intelligence and spectrum cognition

Development process support

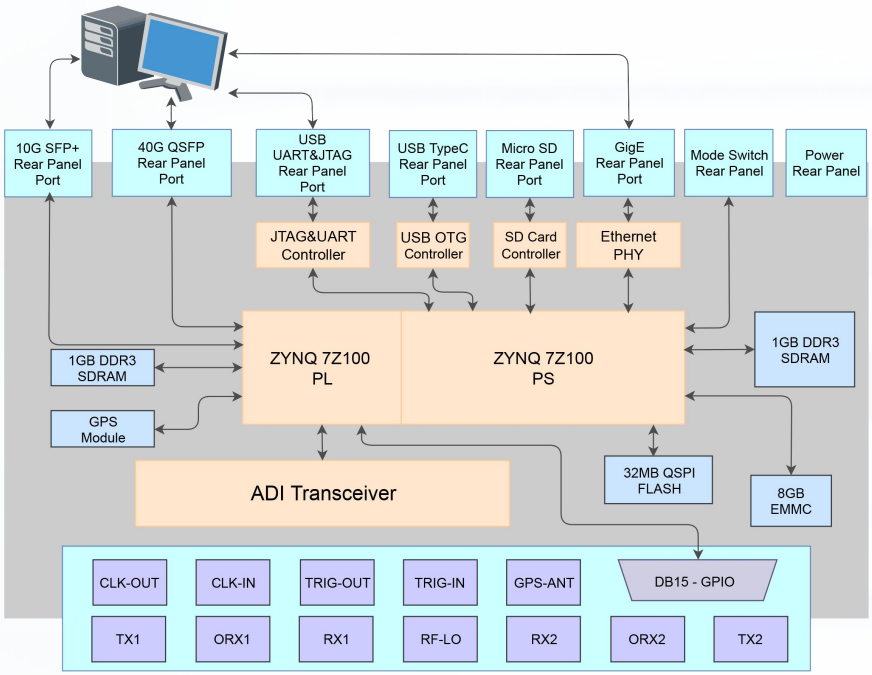
Support various mainstream development tools and customize FPGA underlying logic according to customer needs, greatly accelerating development progress and allowing customers to focus on implementing differentiated algorithms and systems.

Low power embedded baseband

Equipped with Xilinx ZYNQ 7000 SoC series 7Z035 chip, it has high-performance FPGA and ARM processor, balancing big data bandwidth and flexible user interface.

1GB+1GB 32-bit PL+PS DDR3	444K LCs FPGA logic resources	2020 DSPs signal processing unit	Dual core 1GHz Cortex-A9 ARM

System block diagram



Y390 development kit

1 Software defined radio platform Y390 1



2 2.4G frequency band antenna ANT-2400 4



6 TF card 32G 1



8 Fiber to RJ45 module 1



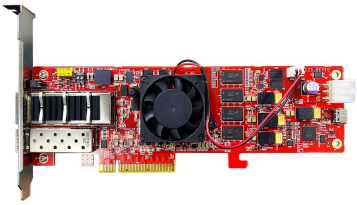
7 USB 3.0 data cable 1



9 Ethernet cable 1



3 PCIE data transmission card FX125 1



4 40G photoelectric cable 1



5 Data USB flash drive 1



10 power adapter 12V5A 1



11 SMA direct cable 2



Comparison of YunSDR 3 Series Models

Order model number	Y380	Y390
RF chip	AD9371	ADRV9009
RF channel	2T&2R	2T&2R
Frequency band bandwidth	300MHz~6GHz，100MHz bandwidth	75MHz~6GHz，200MHz bandwidth
Baseband chip	ZYNQ 7035	ZYNQ 7100
hardware interface	Gigabit Ethernet，40G SFP+，10G SFP+	Gigabit Ethernet，40G SFP+，10G SFP+

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