V3 Technology Ltd

www.v3t.com.cn

SNOWLeoSDR Quick Start Manual

Website:www.v3t.com.cn
Rev:1.0
Last modified:26/05/2014

Revision History

The following table shows the revision history for this document.Change bars indicate the latest revisions.

Date	Version	Revision
26/05/2014	1.0	Initial release

Contents

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1. Introduction

The SNOWLeoSDR developed by V3 Technology（Beijing）Ltd is a high-performance, scalable software defined radio (SDR) platform designing for next generation wireless communication system.

The hardware architecture combines myriadrf LMS6002D module covering 300MHz – 3.8 GHz with up to 20MHz of baseband bandwidth, a high-speed interface GigE,a large user-programmable SOC with HDMI display port and USB OTG port in a handheld case. Xilinx All Programmable SoC named ZYNQ is processor-centric platform (Dual-Core 800MHz Cortex A9)that offers software, hardware and I/O programmability in a single chip.

Besides an open source software architecture, The SNOWLeoSDR provides transparent data path and control channel , which supports cross-platform GNU-Radio and MATLAB interface and makes it compatible with a large number of supported development frameworks, reference architectures, and open source projects.

This document provides instructions on how to setup the hardware system of SNOWLeoSDR and how to run it quickly.

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2. Development System Contents

To run and test the SNOWLeoSDR demonstration, the following items are required.

- The SNOWLeoSDR Board.
- Matlab application running on a PC platform.
- USB Type-A to USB Micro-B cable for UART communication and power supply .
- USB-UART driver from Silicon Labs:
  http://www.silabs.com/Support%20Documents/Software/CP210x_VCP_Win_XP_S2K3_Vista_7.exe
- The Putty.exe or similar terminal program is necessary to show messages from UART printing and is helpful for debug.
- Gigabit Ethernet cable for communication between PC and SNOWLeoSDR board.
- TF card with 4GB capacity ,the following files should be contained in the TF card:

  boot.bin: Binary image containing the FSBL,Bitstream and U-Boot images produced by bootgen.

  devicetree.dtb: Device tree binary large object (blob) used by Linux, loaded into memory by U-Boot.

  uImage: Linux kernel image,loaded into memory by U-Boot.

  uramdisk.image.gz: Ramdisk image used by Linux, loaded into memory by U-Boot.

  init.sh: A customized user script which will be executed after the system boot up.

  snowleosdr.elf: Application file for SNOWLeoSDR configuration.

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3. Getting Started

- Select TF card as the boot mode. Figure 1 shows how to configure it.

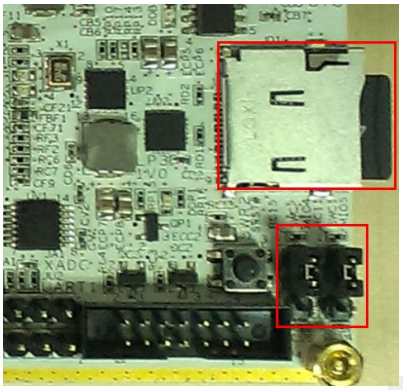

Figure 1 TF card boot mode

- Configure Internet TCP/IPv4 property as following and then click OK to finish it.

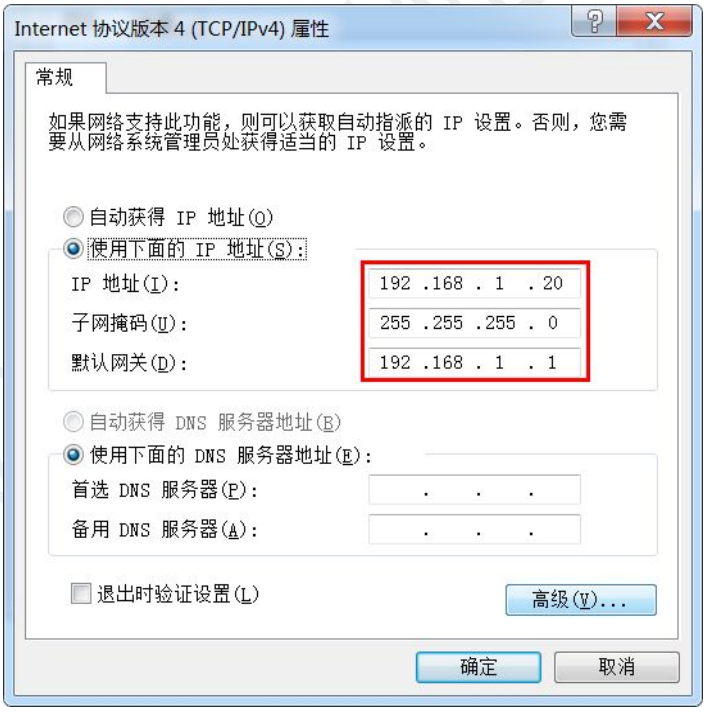

Figure 2 Configuration of Internet TCP/IPv4 property

- Connect SNOWLeoSDR with PC through the Giga cable.

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- Power on the SNOWLeoSDR through serial cable.Click the Putty.exe terminal, configure options controlling the local serial lines of your PC and open it.

Figure 3 Putty.exe terminal

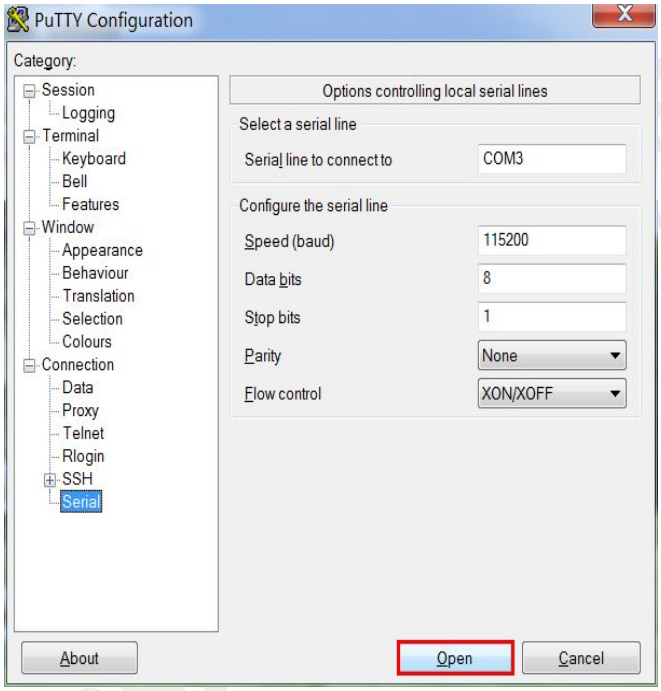

Figure 4 Configure and open the Putty.exe terminal

- You can see the information of linux booting process.

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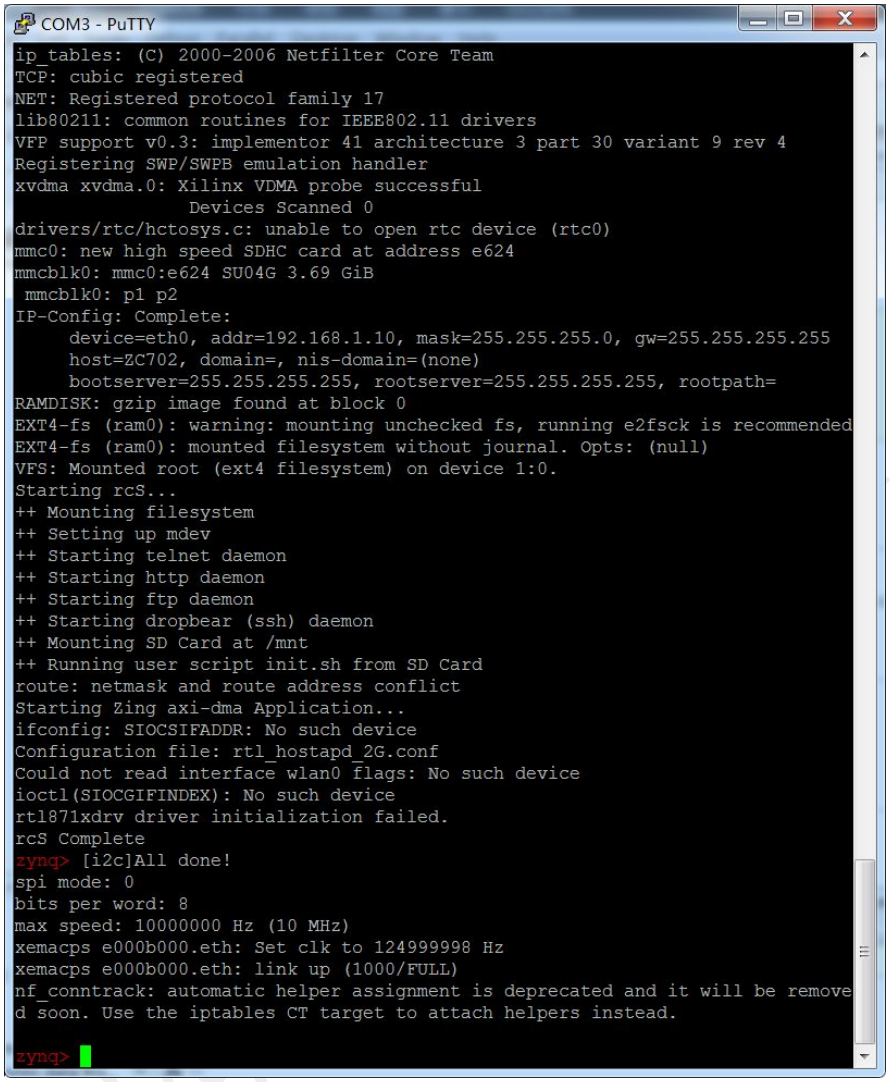

Figure 5 Linux booting process

- After linux booting done, open MATLAB and run the tx_tcpip_test_dac.m.

Figure 6 Matlab application

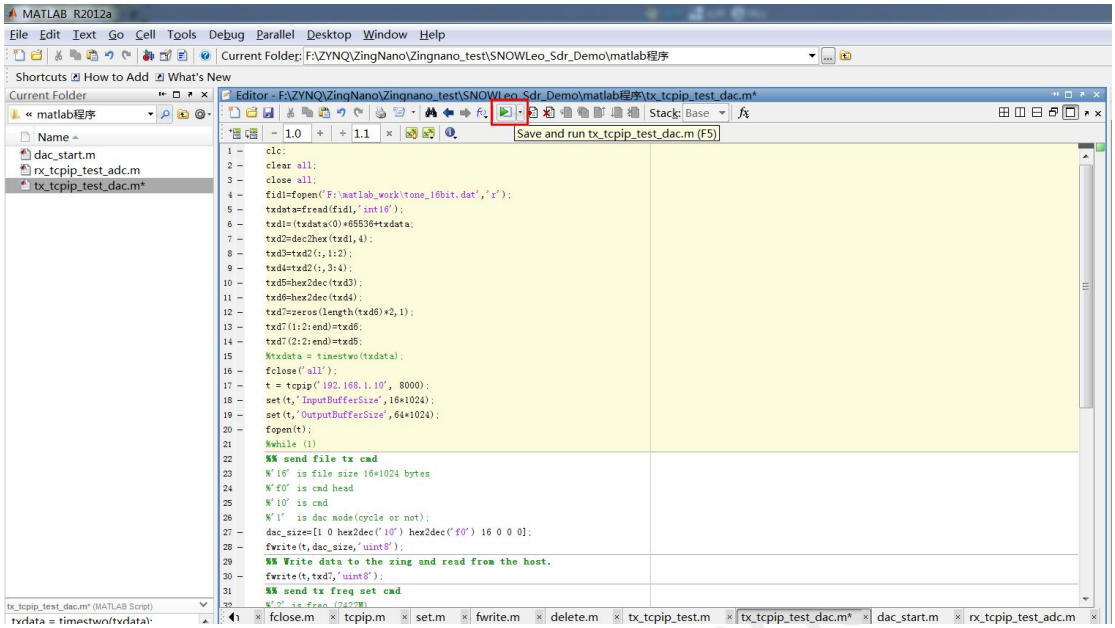

Figure 7 Running tx_tcpip_test_dac.m

- Switch to rx_tcpip_test_adc.m and run it.

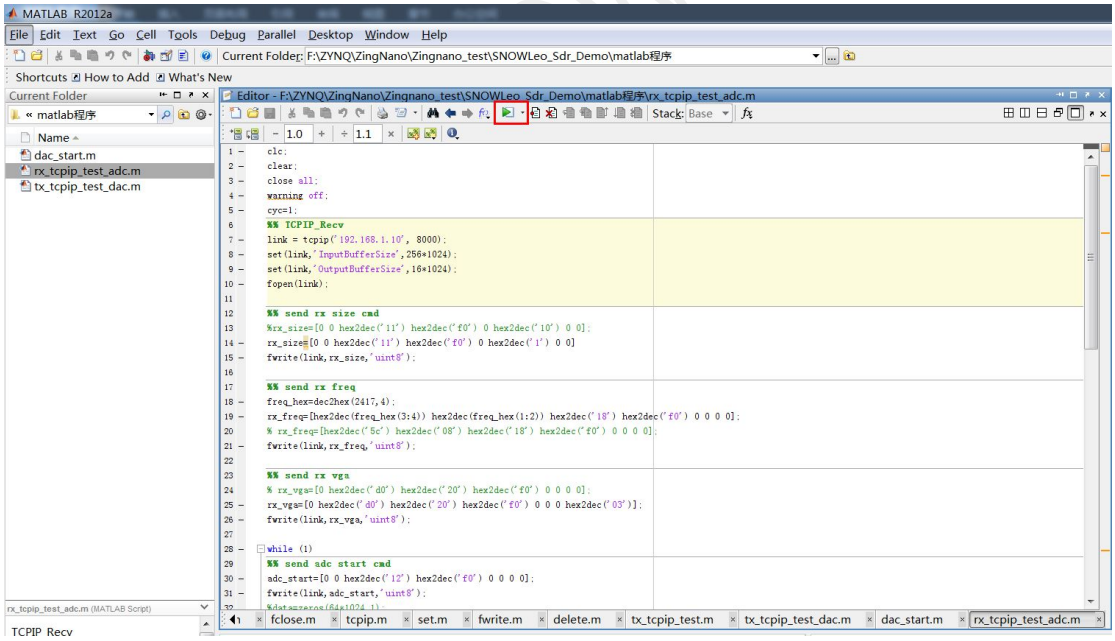

Figure 8 Running rx_tcpip_test_adc.m

- The following figures show the running result of SNOWLeoSDR demo.

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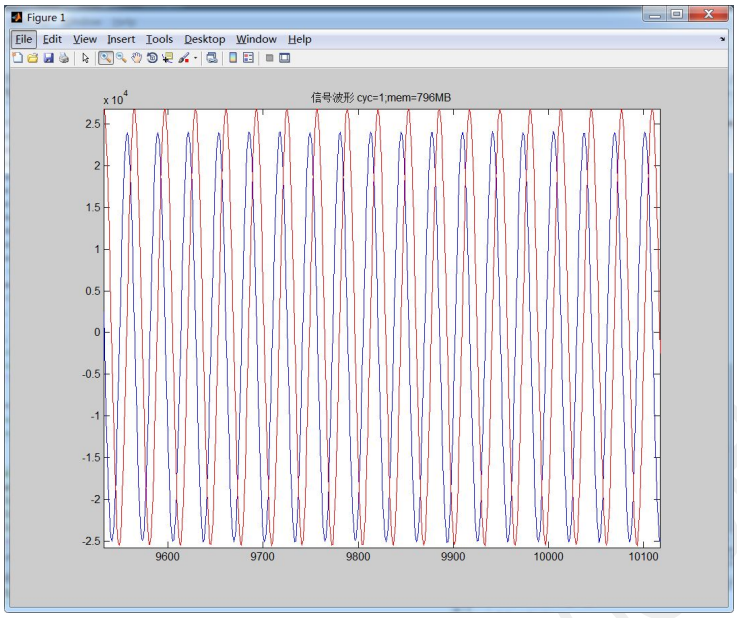

Figure 9 IQ data vs time

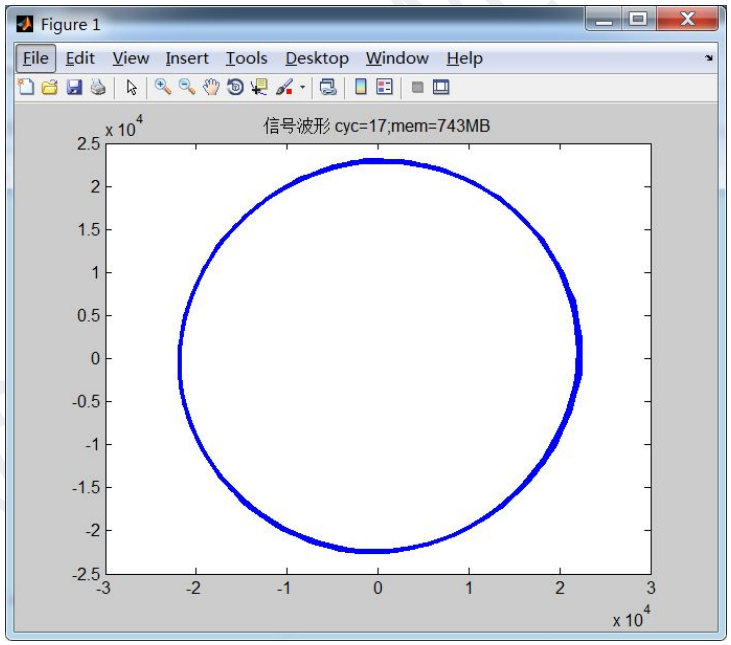

Figure 10 data vs data

As soon as you see the above result, it proves that you have successfully run this demo.Congratulations on you!