This Quick Start Card provides step-by-step instructions to assemble the kit and run a simple TX-RX loopback with data transfer over Ethernet. You will capture and display the received data in the frequency domain using the Analog Devices IIO Oscilloscope application on your PC.

**Hardware Setup**

1. Attach a PicoZed SDR 1x1 or 2x2 SOM (not included) to the Breakout Carrier as shown to the right.
2. Provide an internet connection by attaching an Ethernet cable to the carrier and a DHCP switch/router where your PC is networked.
3. Connect the 5V power supply.
4. Connect the USB-UART to your computer with the included cable.
5. Attach the U.FL-to-U.FL loopback cable as shown below.
6. Configure the SOM switches SW1, SW3, and SW4 as shown.
**Demo Setup**

1. Go to [www.picozed.org](http://www.picozed.org) to download and install the drivers referenced in Avnet’s Silicon Labs CP210x USB-to UART Setup Guide.

2. Use your PC’s Device Manager to determine the COM Port, then open a terminal program and configure to 115200/8/n/1/n.

3. Go to [wiki.analog.com/resources/tools-software/linux-software/iio_oscilloscope](http://wiki.analog.com/resources/tools-software/linux-software/iio_oscilloscope) to download and install the IIO Oscilloscope application.

4. Insert the included micro SD Card into a laptop or PC.

5. Open the folder named `zynq-picozed-sdr2-brk` (for SDR 1x1 open `zynq-picozed-sdr1-brk`).

6. Copy files `BOOT.BIN` and `devicetree.dtb` into the SD card root directory.

7. Safely eject the micro SD card and insert into the SOM.

   **NOTE:** the included SD card contains an HDL and Linux image from Analog Devices. For data streaming to MATLAB and Simulink you must re-image a fresh SD card [http://www.mathworks.com/help/supportpkg/xilinxzynqbasedradio/index.html](http://www.mathworks.com/help/supportpkg/xilinxzynqbasedradio/index.html)

**Running The Demo**

1. Turn the carrier power switch (S5) to ON.

2. Wait ~45 seconds for Linux to boot and display a terminal prompt.

3. Enter the following command twice to update the Linux applications:
   ```
   sudo adi_update_tools.sh
   ```

4. Enter the following command once to update the Zynq boot:
   ```
   sudo adi_update_boot.sh
   ```

5. Enter the following command and wait for the system to reboot:
   ```
   sudo reboot
   ```

6. Discover the SOM IP address by typing:
   ```
   ifconfig eth0
   ```

7. Launch IIO Oscilloscope on your PC.

8. Select **Settings > Connect**. Enter the IP address of the SOM and click **OK**.

9. The IIO Oscilloscope will open. Select **File > New Plot**.

10. Configure the following parameters:
    a. Capture tab
       - **Activate channel:** ‘in_voltage0’, de-select the other channels
       - **Plot type:** ‘Frequency Domain’
       - **FFT Average:** 5
    b. FMComms2 tab
       - **Set RX and TX LO Frequency = 2400 MHz**
       - Check that TX and RX LO frequencies match
       - Save settings
    c. Capture tab, click ‘capture’ (triangle icon) to start data acquisition.

11. Observe the frequency spectrum of the received AD9361 ADC data.

Please visit [www.picozed.org/sdr-breakout-carrier](http://www.picozed.org/sdr-breakout-carrier) for the complete user’s guide, schematic, and other documentation.
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