

Objective:

1. Development of processor code is to be in a bare-metal framework.
2. Development will be on the ADRV9364-Z7020 target board.
3. The system should be able to transfer raw data from the transmitter board to the receiver board at a speed up to 4mbps continuously.
4. Data interface with the board will be RS422-based serial communication.
5. It should be possible to configure the parameters such as data rate, RS422 baud rate, and RF frequency over the RS422 channel.

Introduction

The project includes the development of software for a communication module. The communication module is ADRV9364-Z7020 from Analog devices, mounted on ADRV1CRR-BOB carrier board as shown in Figure 1.

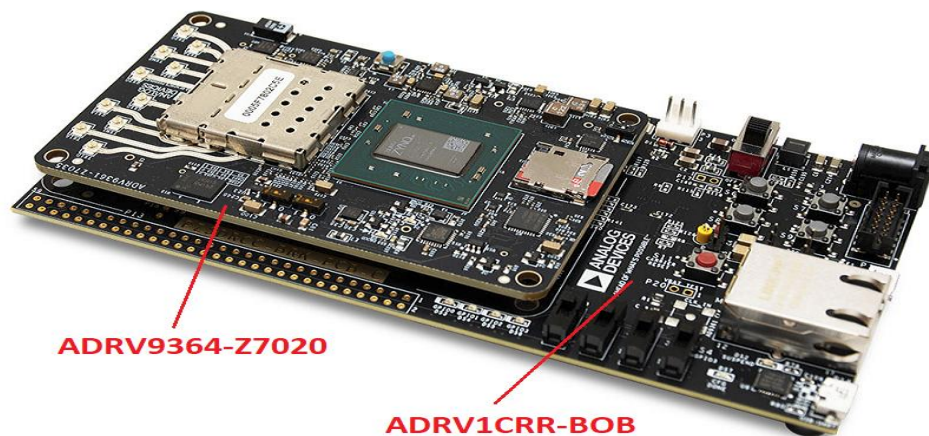


Figure 1: ADRV9364-Z7020 on carrier board

The ADRV9364-Z7020 is an integrated system-on-module (SoM) developed by Analog Devices, integrating the AD9364 RF transceiver with the Xilinx Zynq Z-7020 SoC (System on Chip). This module is a powerful, compact, and versatile platform designed for wireless communication applications and software-defined radio (SDR) systems.

The ADRV1CRR-BOB is the carrier board for ADRV9364 providing connectors and input power.

The project tasks include the development of real-time software for simultaneous transmission and reception of RF signals on ADRV9364. The data interface to ADRV9364 is RS422, connected to a PC. The data sent from PC to ADRV934 over RS422 has to be modulated using GMSK and then transmitted over air. Another ADRV9364 board in the vicinity receives the RF signal, demodulates it, and sends the data to the PC over RS422. This is depicted in Figure 2.

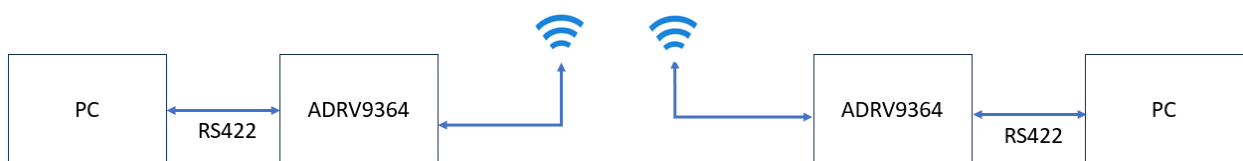


Figure 2: System overview

