EE764 : GNURadio Project Progress Report

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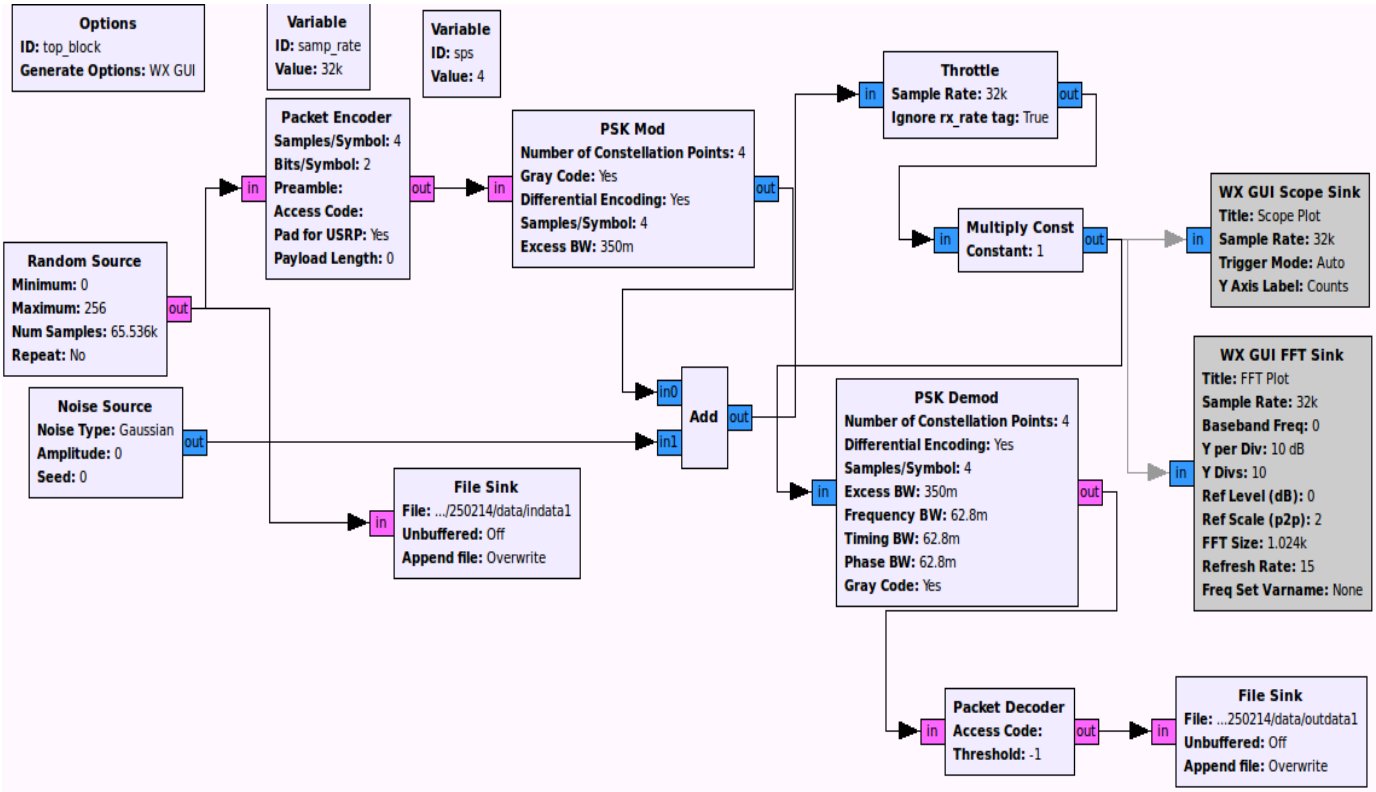
Progress : We have managed to create and test a general flow-graph that can be used for various modulation schemes just by replacing the modulation & demodulation block. We first achieved this for simulation on local machines and then for lab machines to run the program on the USRP hardware.

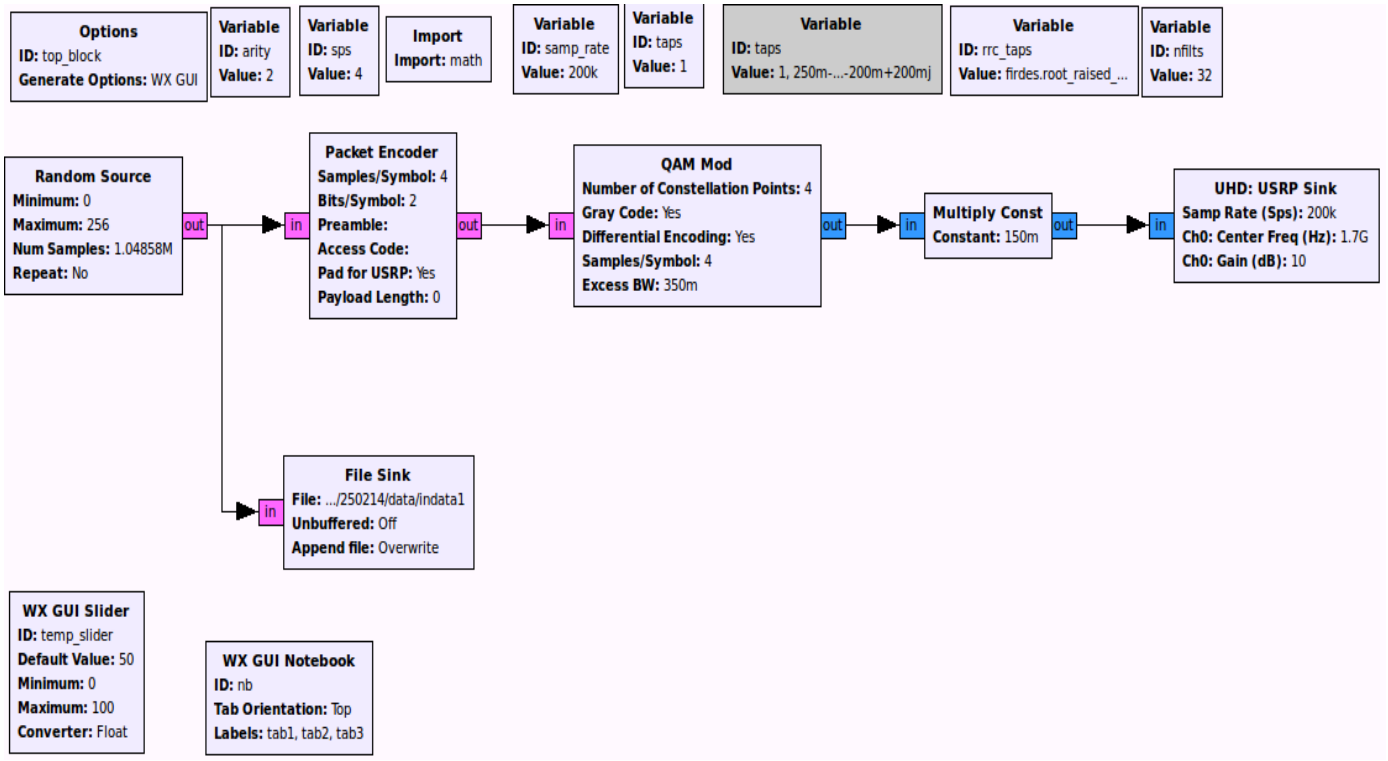
Files :
1. tx_rx_simulation.grc : This file runs the tx-rx simulation on a local machine. A flat channel has been assumed for this part.
2. tx.grc : This runs the transmitter for the actual USRP hardware.
3. rx.grc : This runs the receiver for the actual USRP hardware.
4. read_bin.py : Python script used to compare transmitted and received data.

Roadblock : The main problem that we are facing currently is that while transmitting more than 64kB data, the received data is less than transmitted. We and Vignesh sat together in the lab to discuss this with Manu. Manu said the way he has been able to do this successfully is using a benchmark code that compares bits on the fly and not after dumping them into the file. We could not catch him in the lab after that, so we look forward to meeting him soon to resolve this issue. Once this issue is resolved, we can start playing with different permutations of schemes and parameters. We also have some doubts with the understanding of some parameters and some other like how USRP converts & transmits digital complex samples into medium which we will raise before this weekend.

Flow graphs :
1. Tx-Rx for simulation on local machine :



2. Tx for running on USRP hardware



3. Rx for running on USRP hardware