http://gnuradio.org

GNU Radio

Welcome to GNU Radio! ¶

« History

Introduction

GNU Radio is a free & open-source software development toolkit that provides signal processing blocks to implement software radios. It can be used with readily-available low-cost external RF hardware to create software-defined radios, or without hardware in a simulation-like environment. It is widely used in hobbyist, academic and commercial environments to support both wireless communications research and real-world radio systems.

GNU Radio applications are primarily written using the Python programming language, while the supplied performance-critical signal processing path is implemented in C++ using processor floating-point extensions, where available. Thus, the developer is able to implement real-time, high-throughput radio systems in a simple-to-use, rapid-application-development environment.

While not primarily a simulation tool, GNU Radio does support development of signal processing algorithms using pre-recorded or generated data, avoiding the need for actual RF hardware.

GNU Radio is licensed under the GNU General Public License (GPL) version 3. All of the code is copyright of the Free Software Foundation.

Content

http://www.cgran.org

The Comprehensive GNU Radio Archive Network

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Funcube dongle integration – Alexandru Csete **OZ9AEC**
RTL2832 based DVB-T dongles – Balint Seeber **VK2FUNK**

Available Projects

- Development Tools - Tools, scripts and stuff that helps develop GNU Radio applications.
- Architecture Latency Measurements - measuring various latencies between GNU Radio and the USRP.
- SPAN 802.11b Receiver - a full-bandwidth 802.11b receiver.
- UCLA ZigBee PHY - implementing 802.15.4 to inter-operate with Mica2, MicaZ, and Telos B motes.
- Radio Data System - receiving the RDS signal of European FM broadcasters
- DttSP - sdr-core (low-latency full duplex SDR transceiver), vr (virtual radio control and application environment)
- USRP Fading Simulator - introduces a simulated Raleigh fading channel model
- Dect Receiver - Dect Receiver implementing PHY, MAC and limited subset of upper layers
- BBN 802.11 - 802.11 code from BBN and the ADROIT project
- GMSK Spacecraft Groundstation - S/C groundstation transceiver using IP encapsulated in MPoFR.
- gcellized FFTW - Extend ↦FFTW to use ↦gcell on the ↦Cell processor
- Channel Coding Toolbox - Provides several codes & tools for dealing with channelcoding-issues
- Spectral Estimation Toolbox - Adds routines for spectral estimation to GNU Radio
- Compressed Sensing Toolbox - Adds compressive sensing features to GNU Radio
- mediatools - Adds a collection of audio and video processing blocks to GNU Radio
- AIS - Automatic Identification System receiver for VHF shipborne position reporting
- Gen 2 RFID - A Gen 2 RFID monitoring system and reader, along with USB subsystem modifications that reduce system latency
- FTW IEEE802.11 OFDM frame encoder - Transmit standard compliant IEEE802.11a/g/p frames using the USRP2

GNURadio Software Stack

Friendly 'flow graph' construction tool

GNURadio Companion (.grc)

Builds

General purpose python 'glue' scripts

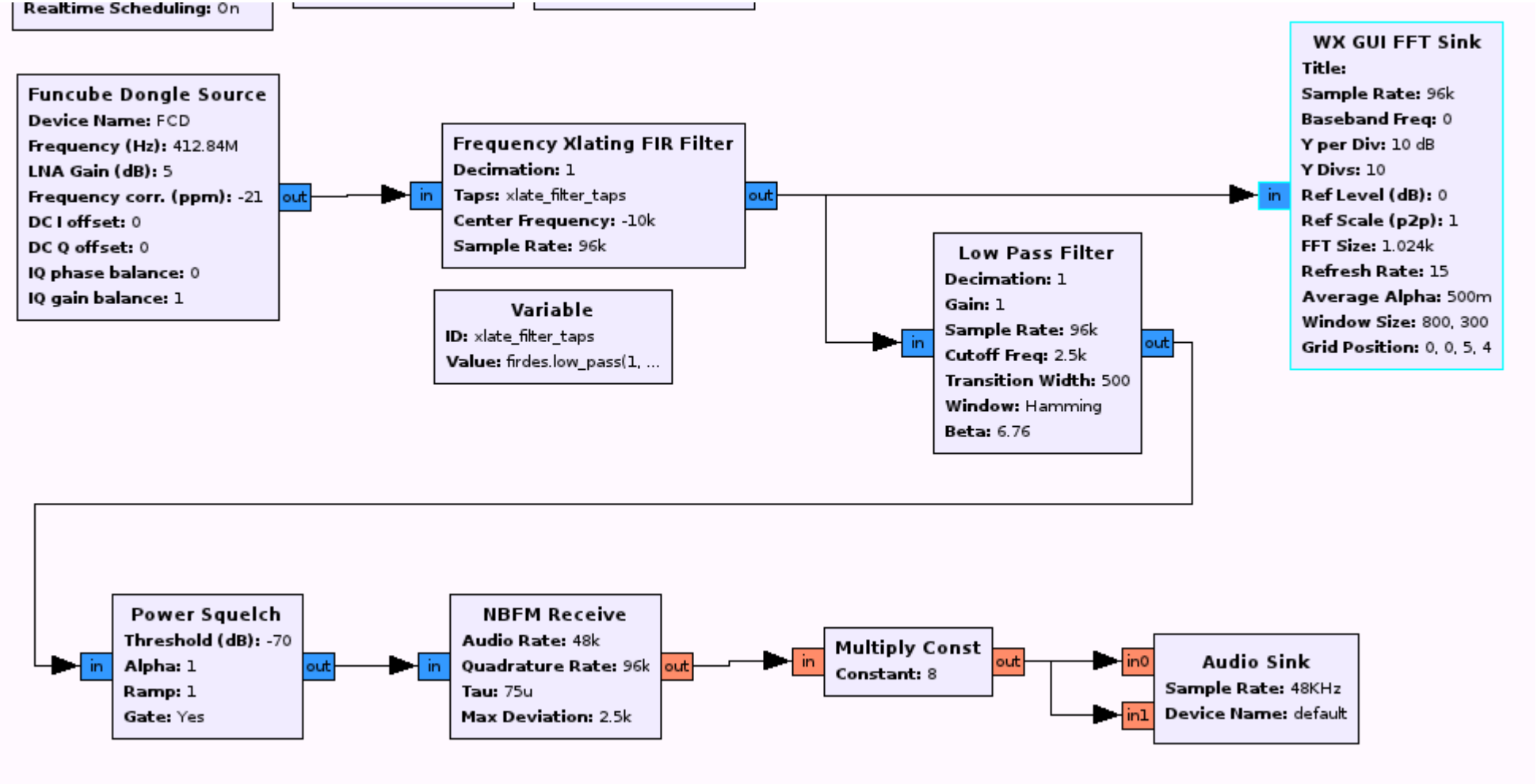
Python Scripts (.py)

Load and Execute

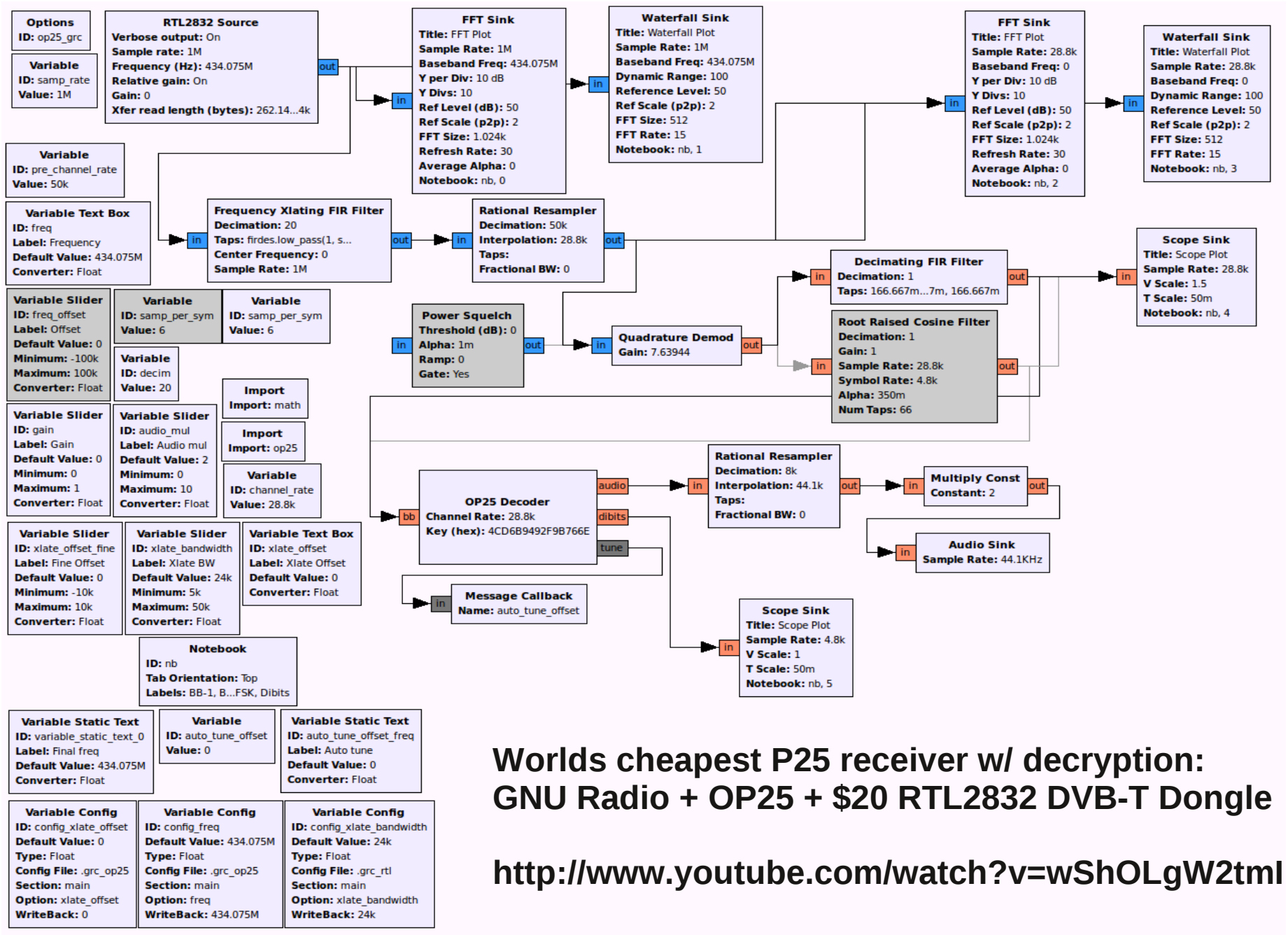
High Performance Libraries

GNURadio 'C' libraries (.so)

NBFM Receiver



P25 Receiver



Worlds cheapest P25 receiver w/ decryption:
GNU Radio + OP25 + $20 RTL2832 DVB-T Dongle

http://www.youtube.com/watch?v=wShOLgW2tml