

SDR2Lib -Software Defined Radar Receiver Library

Radar systems are using in varying fields from military to civilian applications. Software Defined Radar (SDR) is the latest trend in radar development. In Software Defined Radar, most signal detection and radar processing are performed by FPGA and/or DSP. Since the radar platform is completely software defined, it can adaptively switch between different modes of operation for radar by modifying both transmit waveforms and receive signal-processing tasks on the fly. Software defined system lends itself for broad range of radar applications as it allows to perform to update of radar parameters for various different applications.

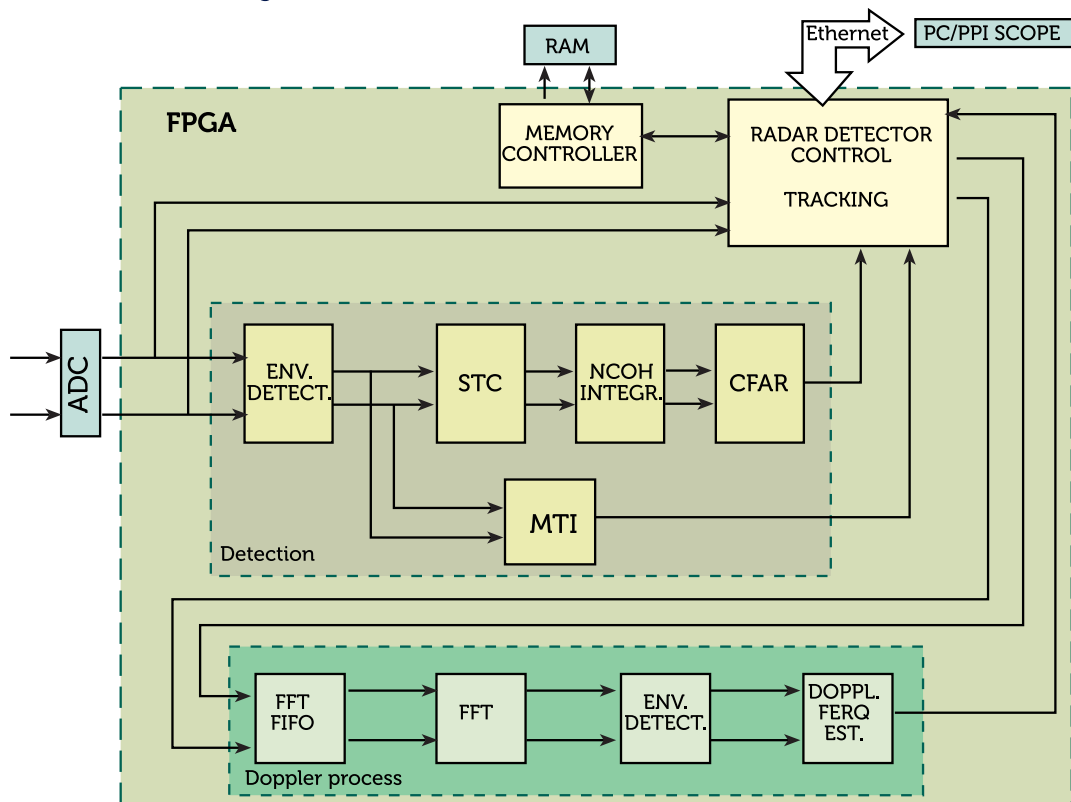
C2Tech's embedded team developed a SDR receiver library. Based on our comprehensive radar signal processing library and RF capabilities this radar receiver system is an embedded design with all the flexibility and modularity of state-of-the art software component technology.

Architecture

The Software Radar (SR) architecture is customized to efficient implementation of all traditional radar algorithms with maximum flexibility. SR architecture;

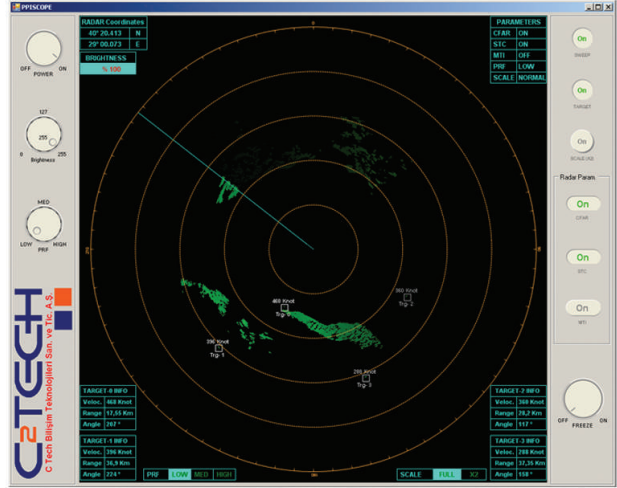
- means not only digital, but also programmable, reconfigurable and currently upgradeable
- reduces the content of analog components to a sufficient minimum and emphasizes programmable digital signal processing to enhance overall radar flexibility

Great achievements in SR implementation became after appearance of high performance DSP and FPGA. C2Tech has capability to design hardware blocks including Analog, Digital (DSP, MCU, FPGA's and etc.) and IF/RF design.



»»» System Features:

- All type of filtering
- Variable point FFT
- Detection module compose
 - »» fix level threshold
 - »» constant False Alarm Rate (CFAR)
 - »» adaptive threshold
- MTI Filter
- Sensitivity Time Control (STC)
- Fast Time Constant (FTC)
- Doppler processing
- Plot extraction
- Target Tracking
 - »» Alfa-Beta
 - »» Kalman
 - »» Extended Kalman
 - »» IMM
- PPI and A scope
- Furthermore, implementation of new adaptive detection algorithms is in progress for non-homogeneous and non-stationary environments



»»» Development Environment:

- 3U cPCI chassis with 6 PCI slots
- Intel based Single Board Computer
- cPCI Virtex-6
- Ethernet interface for PPI scope

