# NSS – RADAR Signal Emulator Core

Version 1.5

## Targeted Applications

- ELINT algorithm development & testing
- MIMO RADAR system designs
- VHF band LPI RADARs
- FPGA based BITE for RADAR signals

## Product overview

The NSS Radar signal emulator (NSSRSE) product is FPGA based core for generating the digital RADAR signal both in baseband or IF band type. The core allows the user to select various parameters on the PC controlled GUI and changes the signal in FPGA dynamically. The NSSRSE is capable of generating various types of LPI signals including linear FM chirp, nonlinear FM chirp, and phase coding types.

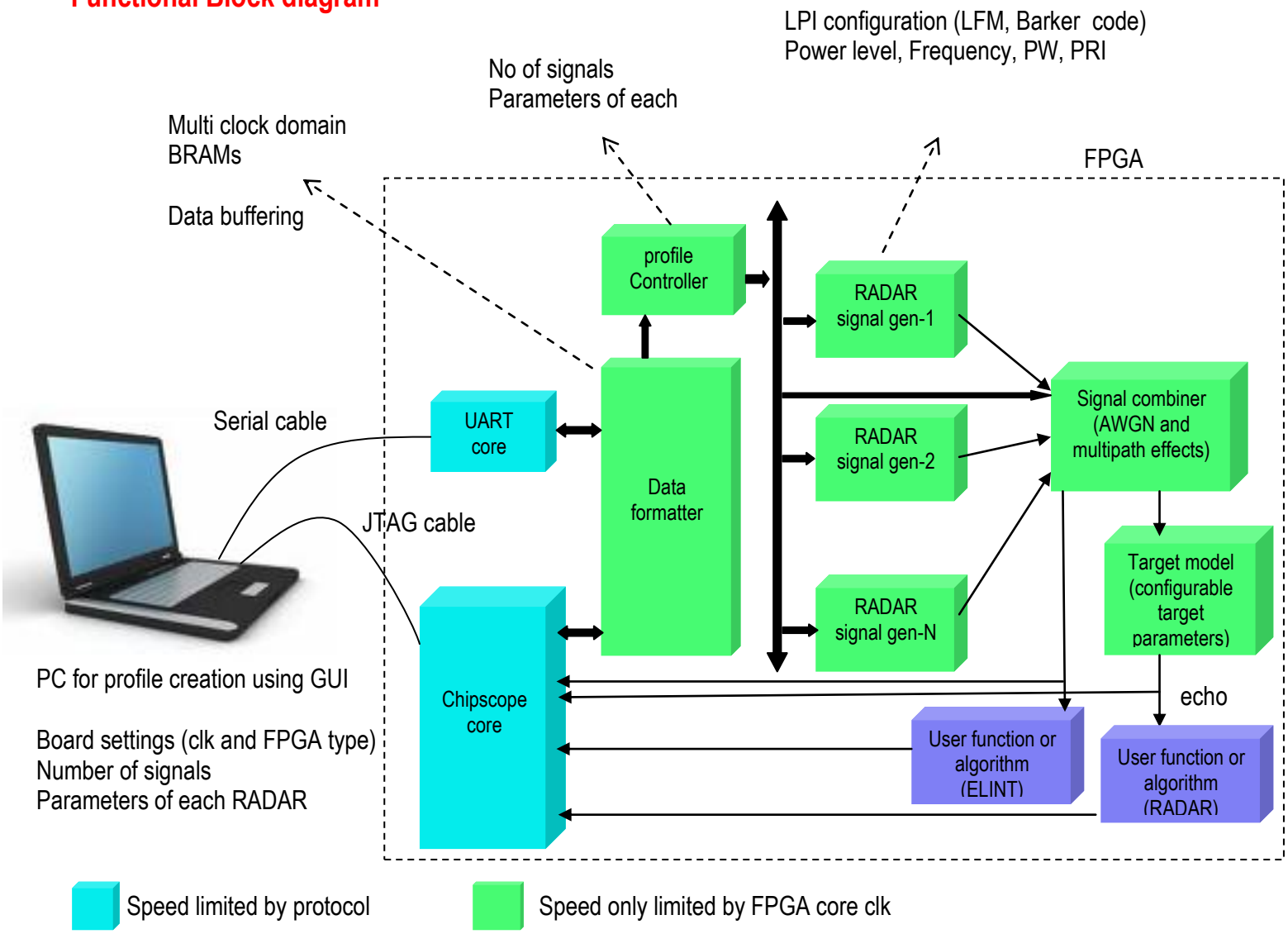
The core is capable of generating multiple RADAR scenario signals with several parameters controllable through PC GUI. The PC can communicate with FPGA core by UART serial communication. The core can emulate all practical signal conditions such as AWGN and effective RADAR cross-section of the target with user selectable parameters. The product is shipped with optional hardware unit by which any FPGA board can be used for instantiating this core and testing the user function.

This core is ideal choice for RADAR related algorithm developer on FPGA platform, due its low cost and low area foot print on FPGA. The core is capable of running on any FPGA type occupying fewer resources.

## Core Features

- Linear FM or Non Linear FM selection
- Upward or Downward chirp selection
- barker codes (2,3,4,5,7,11 and 13 bit length)
- Polyphase Frank code generation
- Poly phase P1, P2, P3 and P4 code generation
- Poly time T1,T2,T3 and T4 code generation
- FSK based LPI signal generation
- Mixed FSK and PSK based LPI signal generation
- Base band or IF level signal generation
- Programmable signal bandwidth up to 200 MHz
- Simulated target based echo generation
- Adjustable AWGN noise level
- Programmable RADAR cross section of the target
- Pipelined architecture for high speed
- Optimized for FPGA implementation using block RAMs
- Supports all Xilinx FPGA types – Spartan 3, 3E, 3A, 6, Virtex – 4, 5 , 6
- Synthesized netlist and wrapper VHDL files
- Functionally equivalent MATLAB codes
- Chipscope drivers to further debug the results at different stages
- User friendly GUI on PC
- One year warranty
- 6 months technical support over mail/web after product installation

## Functional Block diagram




## Ordering information

Part number:
NSSRSE_1.5

# CONTACT

**For Global sales pricing and more information**

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## Other relevant links

Other IP related information
http://nsscomm.com/ip_solutions.html

Wideband DDC
http://nsscomm.com/wideband.html

DSP data compressor on FPGA
http://www.nsscomm.com/dspdata.html

For FPGA design services
http://nsscomm.com/design_solutions.html