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Evaluation Board for the Ultrasound Transmit Solution **Status: ACTIVE**

TX-SDK-V1



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Description

The TX-SDK-V1 Ultrasound Transmit Solution Evaluation Board demonstrates a comprehensive transmit-side signal path featuring:

- LM96530 Octal T/R Switch
- LM96551 Octal High Voltage Pulser
- LM96570 Octal Digital Beamformer

The digital beamformer serves as the onboard signal generator by outputting programmable digital pulse patterns (an external 40MHz VCXO is included to drive the internal PLL of the beamformer). These output pulse patterns then drive the inputs of the high voltage pulser. The pulser outputs drive both the inputs of the T/R switch, as well as SMA connectors for measuring the high voltage pulsers performance. The outputs of the T/R switches also drive SMA connector output ports for measuring their performance, such as cross-talk. The board can also be configured for individual device evaluation of the LM96530 T/R Switch and LM96551 Pulser.

The LM96530 T/R Switch, LM96551 Pulser and LM96570 Digital Beamformer are controlled by a PC driven software GUI using an Opal Kelly FPGA module.

- 8 RF connector output ports for:
 - measuring the outputs of the LM96551 HV Pulser
 - directly driving an ultrasound transducer probe
 - driving the inputs of the LM96530 T/R Switch
- 8 RF connector output ports for:
 - measuring the outputs of the LM96530 T/R Switch
 - directly driving an ultrasound Rx analog front end
- Graphical user interface (GUI) software provided to control the LM96570 Digital Beamformer and LM96530 T/R Switch.

Features

Contents:

- The NSC Ultrasound Tx V1 Evaluation Kit consists of the following components:
- 1 Ultrasound Transmit V1 Solution Evaluation Board
 - 1 Set of 8 SAMTEC RF Connector-to-SMA bulkhead cables
 - 1 Supply Voltage Cable with Phoenix Connector and 10 labeled Banana Plugs for:
 - +1.8V
 - +3.3V
 - 5V
 - 10V
 - 50V
 - VSUB
 - 1 Opal Kelly XEM3001 FPGA Module
 - 1 Opal Kelly-to-Evaluation Board Adapter & Ribbon Cable
 - 1 USB Cable
 - 1 CD-ROM containing:
 - Installation package for the ?NSC Ultrasound Tools GUI Software?
 - Evaluation Board Users Guide (this document)
 - Ultrasound Tx Evaluation Board Schematic & BOM
 - Documentation which includes:



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| Part Number | Texas Instruments | Status | |
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TI Devices

| Part Number Name | Product Family |
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|-------------------------|---|------------------------|
| LM96511 | Ultrasound Receive Analog Front End (AFE) | Analog Front End (AFE) |
| LM96530 | Ultrasound Transmit/Receive Switch | Analog Front End (AFE) |
| LM96551 | Ultrasound Transmit Pulser | Analog Front End (AFE) |
| LM96570 | Ultrasound Configurable Transmit Beamformer | Analog Front End (AFE) |

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