Simplifying the development of automotive radar applications

RDK-S32R274
Automotive Radar Reference Platform

Targeted for Adaptive Cruise Control (ACC) and automatic emergency breaking (AEB) applications, the RDK-S32R274 Radar Reference Platform offers a complete automotive radar solution including a high-performance MCU, a 77 GHz radar transceiver and automotive-qualified radar software.

OVERVIEW

Built in partnership with Colorado Engineering Inc., the RDK-S32R274 radar reference platform allows rapid prototyping of high-performance radar applications. The solution combines a robust hardware design and automotive-grade radar software to enable customers to rapidly develop products optimized to meet specific requirements. Utilizing a modular architecture, the different modules in the RDK-S32R274 can be optimized to create a customizable development platform. Developed to support high-performance capabilities such as MIMO (Multiple input, multiple output), steerable beams and digital beam forming, this platform provides enough performance headroom for tasks such as radar cross section (RCS) measurements, target tracking, collision avoidance and occupancy sensing.

Shown without housing

FEATURES

▸ Occupancy detection

▸ NXP S32R274 automotive radar microcontroller

▸ NXP TEF8102 77 GHz radar transceiver

▸ NXP FS841x functional safety PMIC

▸ Robust antenna design enabling customer optimization

▸ Max range: 180 m with range accuracy: 0.175 m

▸ Angle resolution: 4.25° with angle accuracy; +/-0.25°

▸ Application software provided using NXP automotive-qualified radar software development kit (rSDK)

▸ Automotive-grade hardware design

TARGET APPLICATIONS

▸ Adaptive cruise control

▸ Emergency braking

▸ Collision avoidance

WHAT'S IN THE BOX

RDK-S32R274 Reference Platform Contents:

- ▸ Enclosure for radar module
- ▸ iScan Edge 3 Processor (S32R274 MCU) Module
- ▸ iScan Prizm 2 77GHz (TEF8102) Antenna Module
- ▸ Power Adapter
- ▸ Ethernet Cable
- ▸ rSDK Sample Application pre flashed
- ▸ Chirp & Processing Configuration GUI

OUT OF THE BOX

The RDK comes pre-flashed and ready to be used out of the box, simply power on and connect to your host PC via ethernet. The pre flashed sample application integrates the NXP radar SDK (rSDK) including the S32R274 Signal Processing Toolbox (SPT) Driver, SPT Kernels and RFE abstraction, providing a meaningful radar processing flow using the TEF8102 radar front-end.
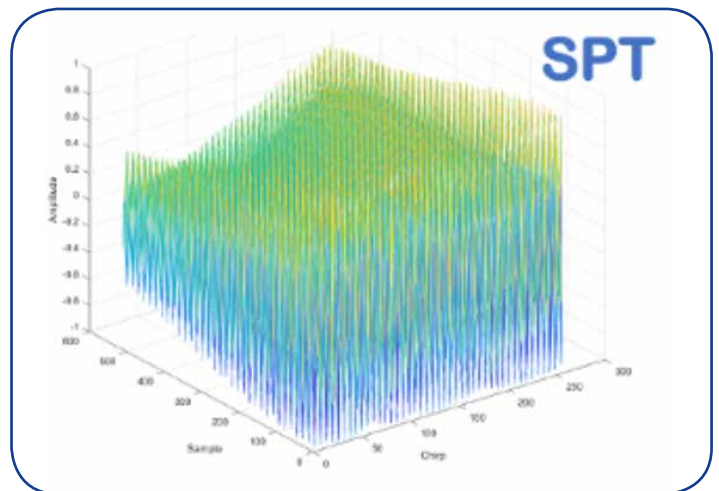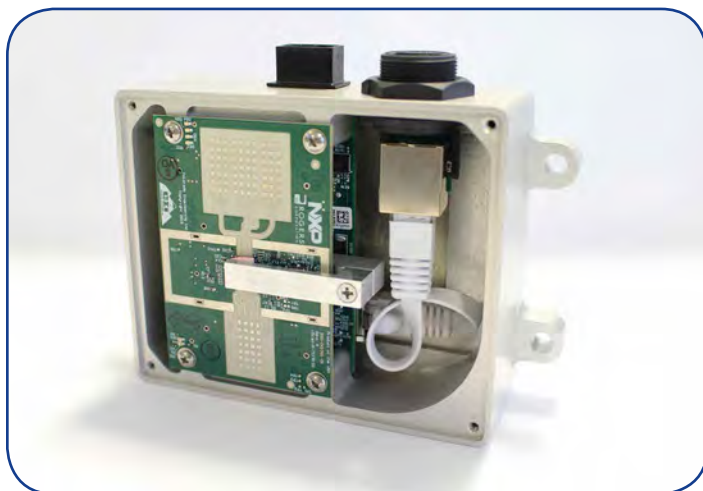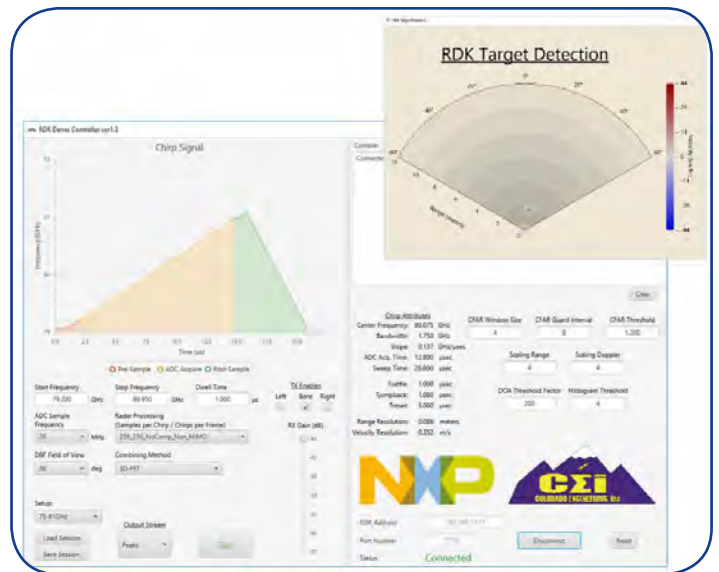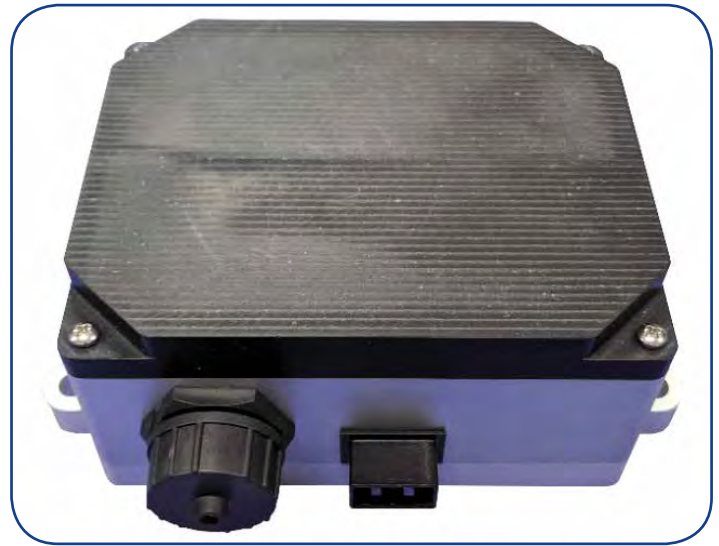
The included GUI provides easy configuration of the radar chirp profiles, processing flow plus more, and allows real time visualization of the processed target data.

TAKE YOUR DEVELOPMENT FURTHER

Delve deeper into your radar application by using the GUI to stream raw ADC sample data from the TEF8102 RF MMIC over ethernet to a host PC, and make use of the **MATLAB Toolbox for S32R*** to develop your own radar processing flow using the rSDK and the S32R274 SPT.

*MATLAB is not included with the RDK purchase

Develop your full radar processing application with the full system solution from NXP.