PRODUCT BRIEF

XENSIV™ CARKIT - 77GHz radar module

For rapid prototyping and radar data collection: accelerating radar module development

Infineon's XENSIV™ CARKIT V1.0 is a complete 77GHz radar module featuring all components required for 4D radar operation – from RF to signal processing to interfacing to application software – and ready for mounting on vehicles. It enables rapid prototyping, software optimization, and radar data collection accelerating time-to-market.

CARKIT V1.0 is designed to detect cars in distances beyond 250m while offering wide Field-of-Views (FoV) in both azimuth (140°) and elevation (30°).

CARKIT V1.0 is flexible to support various E/E architectures by delivering either processed data up to point clouds or pre-processed data up to FFT1 over 1Gbps Ethernet.
The radar module is IPX4 protected, and the housing offers protrusions ready for vehicle mounting.

The CARKIT SDK includes signal processing of range, doppler and angle. The Radar GUI eases configuration and data visualization of the radar module.

- CARKIT V1.0 enables applications in
  - Front radar, e.g. adaptive cruise control (ACC), automatic emergency braking (AEB)
  - Corner radar, e.g. blind spot detection (BSD), front / rear cross-traffic alert (xCTA), lane change assist (LCA), parking assist

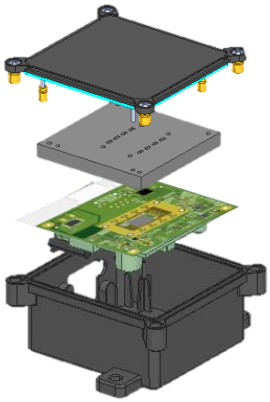
For more details, please contact your local Infineon sales.

Key features

CARKIT V1.0 enables state-of-the-art front and corner radars.

CARKIT V1.0 features
- Long range detection of >250 m for cars
- 4D radar with Field-of-Views for azimuth (140°) & elevation (30°)
- Supports various E/E architectures
  - Full-processing up to point cloud or Direction-of-Arrival (DoA)
  - Pre-processing with FFT1 over 1Gbps Ethernet
- Radar GUI for simple setup and real-time visualization
- Ready for synchronization with camera sensors
- IPX4 protection
- Small form factor: 65x69x34 mm^3
- Ready for vehicle mounting





Key benefits

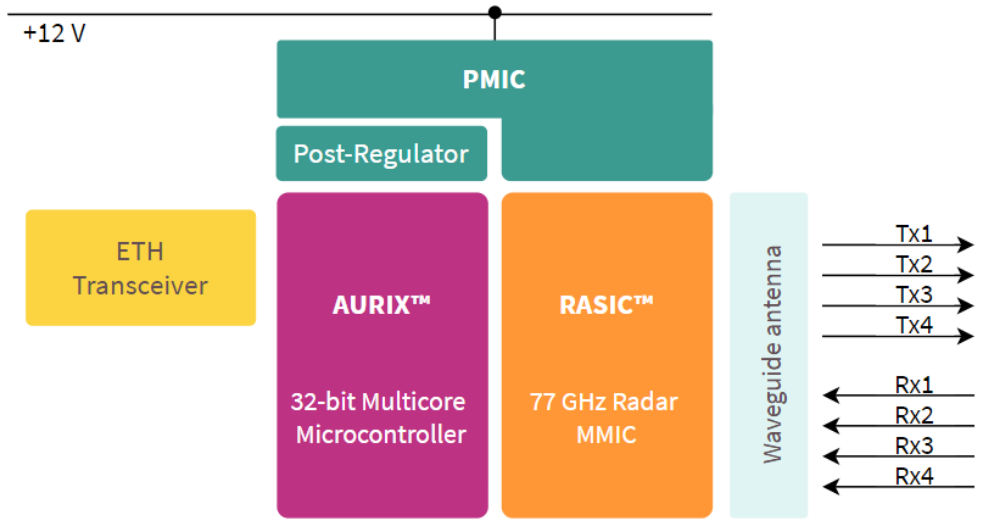
- Easy to use full radar module
- Ready for drive tests
- Enables rapid prototyping and radar data collection

PRODUCT BRIEF

CARKIT V1.0 is driven by Infineon's RASIC™ CTRX radar MMIC and AURIX™ radar microcontroller.
CTRX is the latest generation radar MMIC featuring 4 transmitters, 4 receivers, and excellent RF performance including signal-to-noise ratio (SNR) and linearity.
CTRX' RF signals are transmitted and received via a state-of-the-art waveguide antenna.

AURIX™ radar microcontrollers feature a radar signal processing unit (SPU), Gbit ethernet interfaces, security (EVITA), and integrated non-volatile memory for on-chip program code storage.
The CARKIT software stack is running on AURIX™ for configuring CTRX and processing the radar data delivering range, doppler, and angle information.

CARKIT block diagram



Key products for CARKIT V1.0

Products	Function	Key features
RASIC™ CTRX	77GHz radar MMIC	4T4R, excellent RF performance (SNR, linearity)
AURIX™ TC356	Radar microcontroller	SPU, Gbit Ethernet, security (EVITA)
CARKIT SDK	Full-processing software stack	Radar GUI, point cloud, target clustering

Published by
Infineon Technologies AG
Am Campeon 1-15, 85579 Neubiberg
Germany

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Public

Date: 05/2024

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