

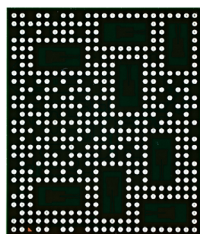
# SAF86xx RFCMOS AUTOMOTIVE RADAR SoC

High performance single-chip for automotive FMCW radar applications

The SAF86xx is a highly integrated single-chip RFCMOS radar SoC supporting future distributed automotive radar architectures. It provides raw data, e.g. compressed or uncompressed Range-FFT over Gigabit Ethernet to a radar processing unit. The SAF86xx addresses short-, medium- and long-range automotive radar applications, covering the entire radar frequency band from 76 to 81 GHz. It integrates a radar transceiver with a BBE32EP vector DSP and an Arm® Cortex® - M7 core in lockstep for real-time processing and the hardware security engine (HSE). SAF86xx is developed in accordance to ISO 26262 Safety Element out of Context (SEooC) methodology supporting ASIL Level B and is meeting latest security requirements through its HSE security and MACsec engine.

## TARGET APPLICATIONS

- Adaptive cruise control
- Autonomous emergency braking
- Lane change assist
- Blind spot detection
- Front cross-traffic alert
- Rear cross-traffic alert
- Park assist



## KEY FEATURES

- Highly integrated 4Tx4R transceiver for the 76 to 81 GHz band
- High-performance RF transceiver with high link budget and low phase noise. Effective chirp bandwidth up to 4 GHz
- Range-FFT processing and variable compression
- Arm Cortex-M7 lockstep core for control and AUTOSAR
- Software compatible with S32R and SAF85xx family
- 2 MB SRAM for radar data with ECC and memory protection
- Launcher-in-Package (LiP) available
- Flexible interfaces (Gbit Ethernet, CAN-FD, CSI-2)
- Hardware security engine (HSE)
- Embedded MACsec accelerator (IEEE standard 802.1AE)
- ~2.35 W average power dissipation
- -40 °C to 150 °C junction temperature
- AEC-Q100 automotive qualified

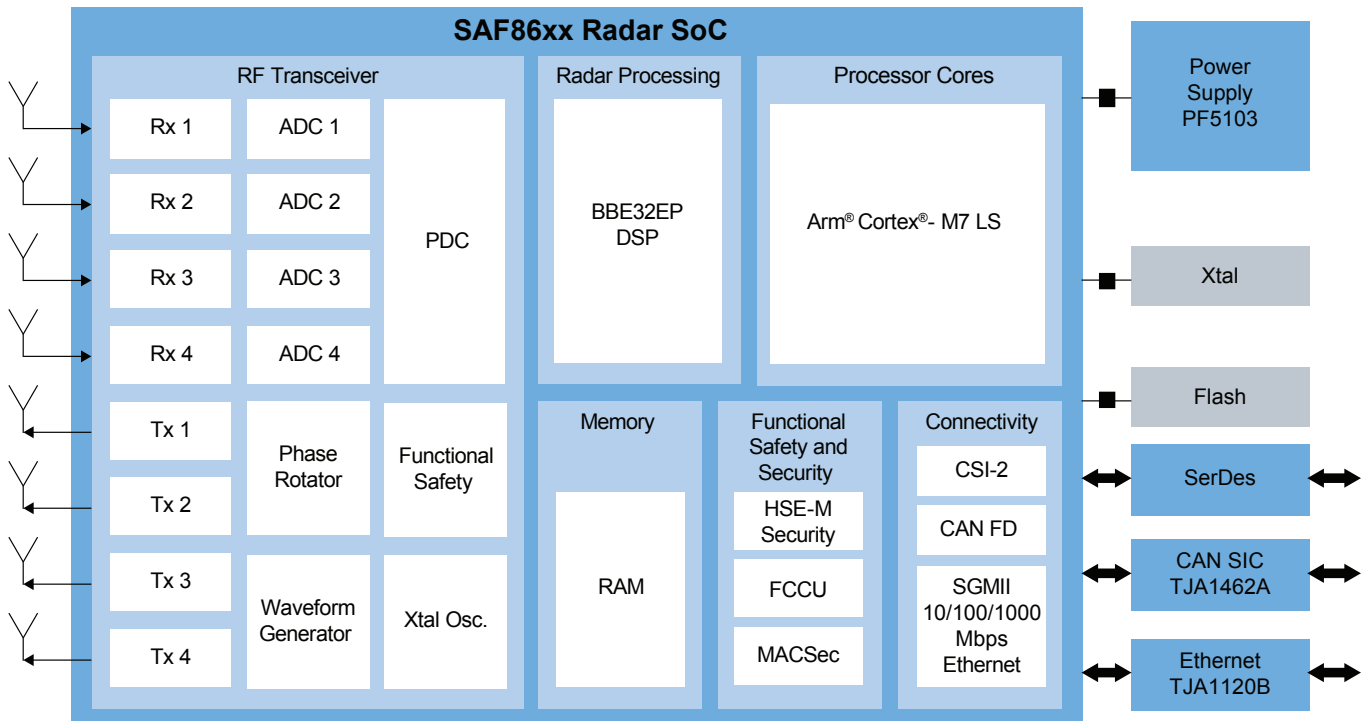
## SOFTWARE AND TOOLS

- RFE firmware
- Radar SDK
- Inter-process communication framework (IPCF)
- S32 Flash tool
- Radar Xplorer GUI
- S32 Design Studio
- HSE firmware
- AUTOSAR MCAL
- Compilers and debuggers

## BENEFITS

- Single-chip radar supporting distributed architectures
- Supports streaming low-level pre-processed data (compressed range cube)
- Flexible solution supporting raw ADC and Range-FFT based data output
- Meeting latest security requirements with integrated MACsec and HSE hardware
- Package solutions supporting waveguide antennas
- Enhanced resolutions supported by cascading several SAF86xx

## SAF86xx BLOCK DIAGRAM



■ NXP Technology

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Document Number: SAF86XXFS Rev 1