S32R45 RADAR PROCESSOR
High-performance, safe and secure processing for long-range radar imaging

OVERVIEW
The S32R45 is a 32-bit automotive radar application MPU based on Arm® Cortex®-A53 and Cortex-M7 cores. This MPU is designed primarily for the civil automotive ADAS radar market and is well suited for a variety of industrial and consumer applications.

For the automotive ADAS radar market, the S32R45 MPU addresses the segment of high-end long-range front and rear radar and advanced radar imaging and serves as the advanced domain controller for the New Car Assessment Program (NCAP). It delivers high-performance radar processing in scalable, safe, secure and power-efficient fashion.

BENEFITS
Superior performance per power
• SPT 3.1 Radar processing sub-system provides 10x performance increase over SPT 2.0
• LAX 1.0 linear algebra accelerator for environmental modelling and fusion processing acceleration

Multifaceted Scalability
• Scalable memory support for significantly increased radar data and algorithm software
• Support up to four cascaded transceivers for advanced LRR RADAR
• Unique PCIe® scalability support for combining multiple S32R45 devices and serving as high-performance domain controllers

Functional Safety
• Strong ASIL D processing support for domain controller applications

Software Enablement
• Extensive Radar SDK with enablement for advanced radar and fusion processing algorithms

KEY FEATURES
• Quad Arm Cortex-A53 @ 800 MHz, flexible lockstep
• Triple Arm Cortex-M7 lockstep pairs @ 400 MHz
• LAX 1.0: >300 GFLOPS
• SPT 3.1 @ 600 MHz with integrated DSP and multi-threading
• 8 MB SRAM with ECC
• DDR3L-1600 with 16-/32-bit support and LP-DDR4-1600/3200 with 16-/32-bit support
• HSE High
• 2 x SAR ADC 16-ch.
• 4x MIPI CSI2
• PCIe 2 x Gen2/3, 2 lanes
• 2 x Gbe 10/100/1000 Mbit/s
• 8 x FlexCAN with FD
• ISO26262 SEooC ASIL B(D)
• -40 ºC to 150 °C (Tj) AEC-Q100 Grade-1

SOFTWARE AND TOOLS
• DIAG Tool
• AUTOSAR® MCAL4.4
• HSE firmware
• Safety SDK
• Inter-process communication framework
• Linux® BSP
• Platform SDK M7
• RADAR SDK
• S32 Design Studio
• S32 Compilers (GCC, Windriver)
• S32 RADAR QKIT RTM
• Debuggers (Lauterbach, NXP and GHS)