



S32K39/37/36 Microcontrollers for Electrification Applications

S32K39-37-36

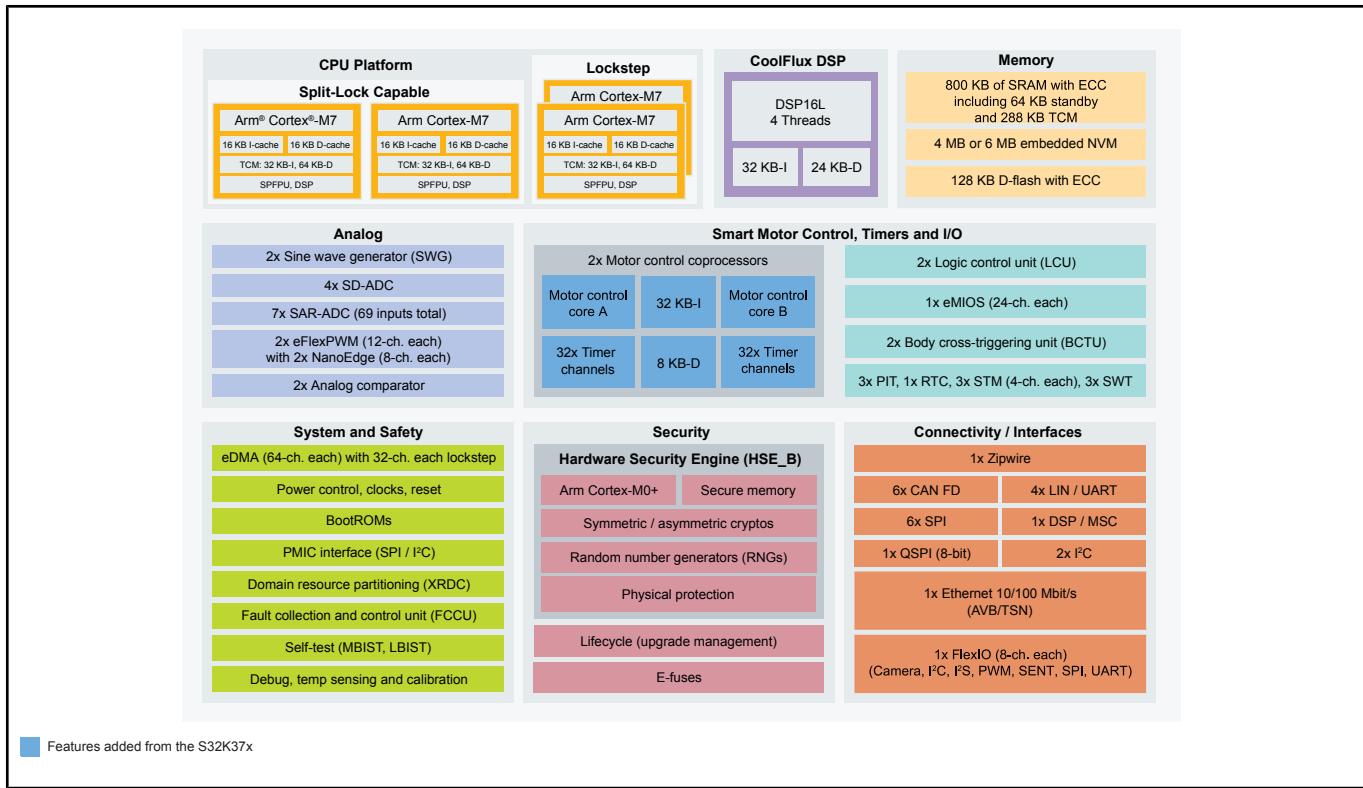
Last Updated: Sep 8, 2025

S32K39-37-36 is a purpose-built device addressing the new electric vehicle (EV) needs with a compelling combination of performance, integration, networking, security and functional safety capabilities.

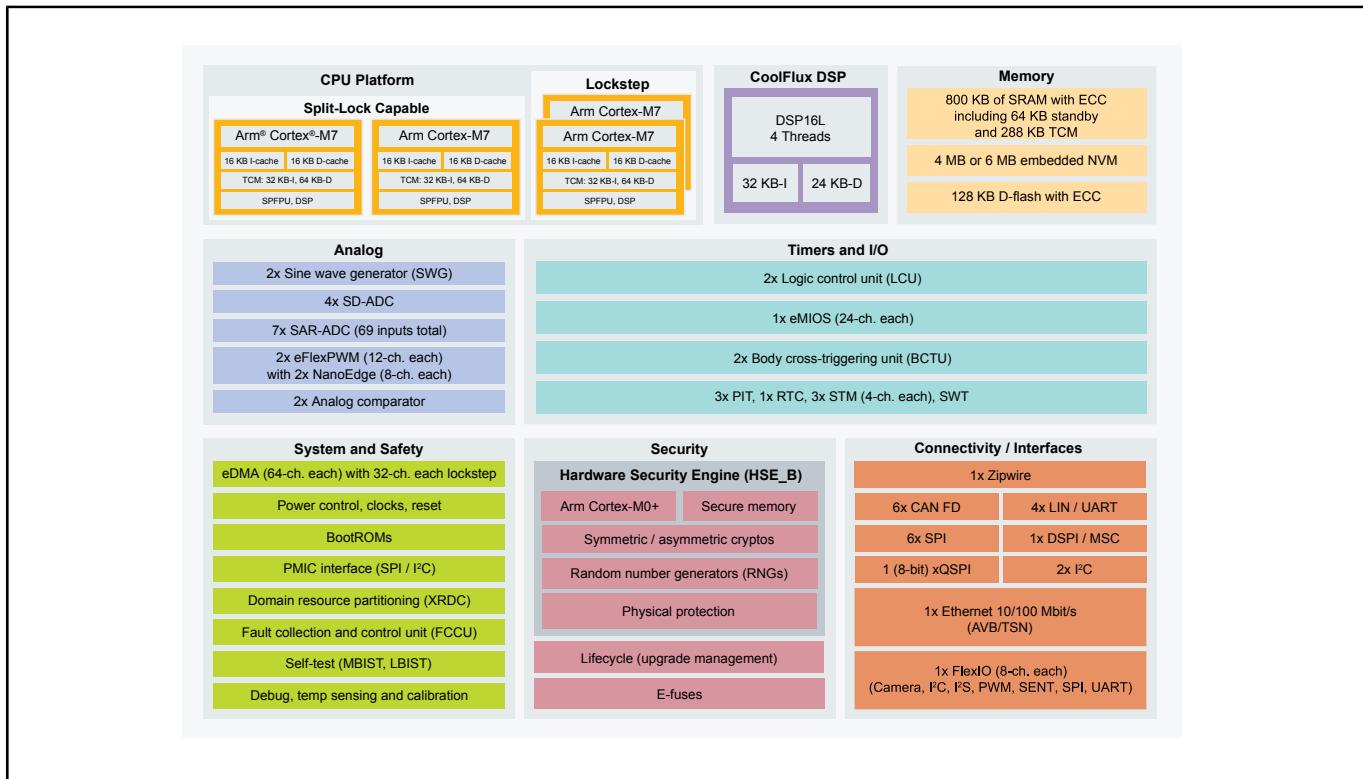
S32K39-36 has enough compute power to support up to one six-phase or two three-phase motors controlled by over 200 kHz control loops, while hosting AI/ML algorithms or other monitoring applications. It supports remote smart actuation applications using Time-Sensitive Networking (TSN) Ethernet for new zonal vehicle architectures. It also reduces system cost with ASIL D software resolver and analog integration.

The S32K37 high-compute capabilities are ideal for high-end [battery management systems \(BMS\)](#) applications.

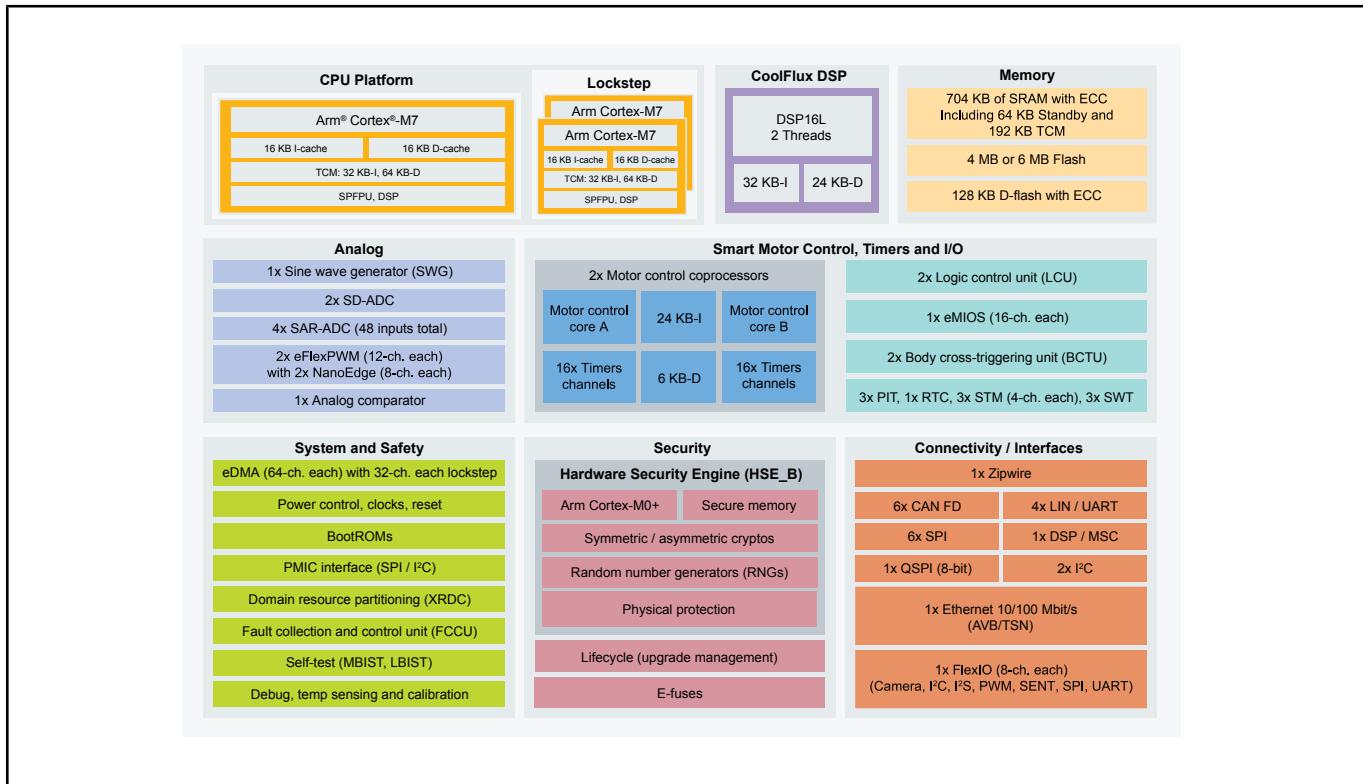
S32K39 Microcontrollers Block Diagram



S32K37 Microcontrollers Block Diagram



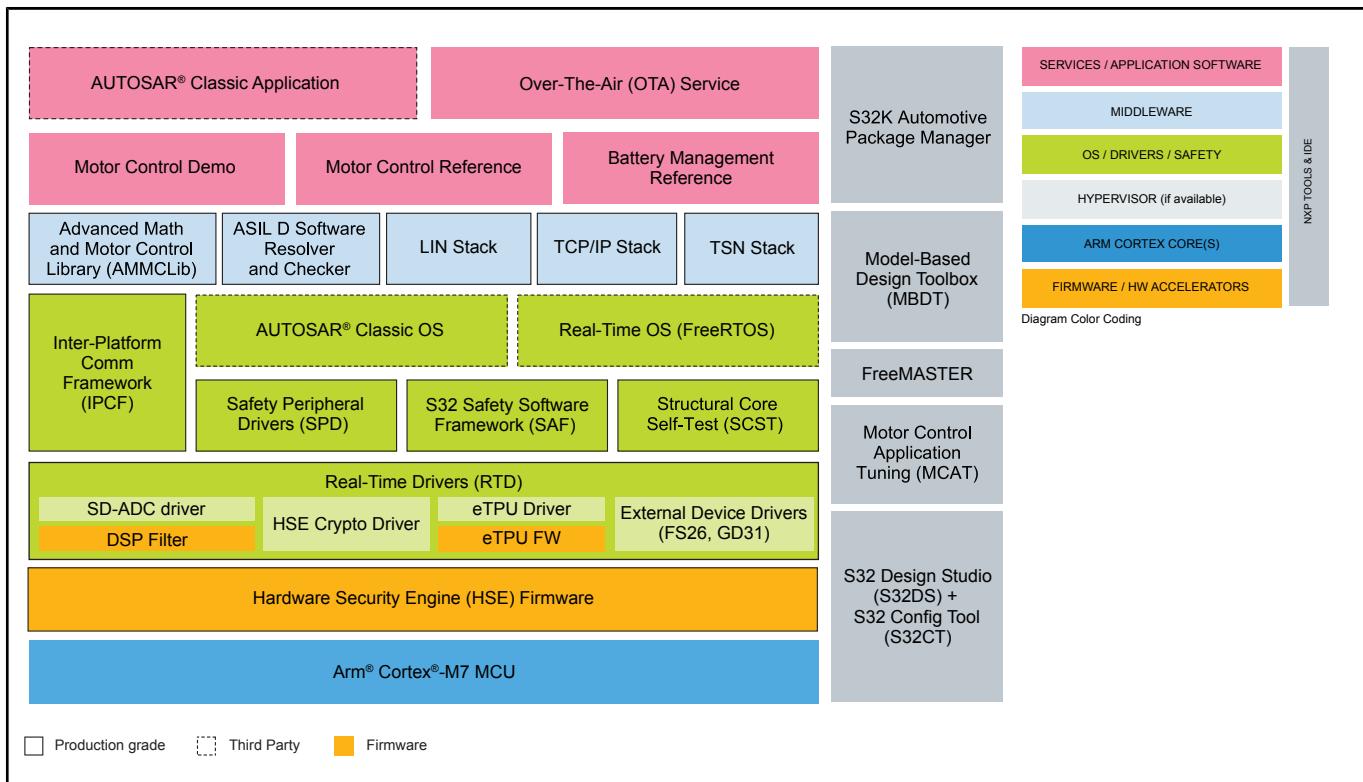
S32K36 Microcontrollers Block Diagram



S32K39 Family Features Block Diagram

Common Features	K364	K366	K374	K376	K394	K396
AEC-Q100, 125 °C, 3.3/5 V	1 x LockStep + 1 Arm® Cortex®-M7 @ 320 MHz		1 x LockStep + 2 x Split-Lock Arm® Cortex®-M7 @ 320 MHz			
HSE_B Crypto Security Engine	2 x motor control coprocessor (2x 16ch)			2 x motor control coprocessor (2x 32ch)		
FOTA (Firmware Over-the-Air)	4 MB Flash	6 MB Flash	4 MB Flash	6 MB Flash	4 MB Flash	6 MB Flash
Low-Power Operating Modes and Peripherals (LPUART, FlexIO)	704 KB SRAM (incl. 192 KB TCM)		800 KB SRAM (incl. 288 KB TCM)			
ASIL D Safety: (ECC Memories, MPU, CRC, Watchdogs)		127/ 209+8LVDS I/Os	64-ch eDMA with 32ch LockStep			
eMIOS Timers Logic Control Unit Body Cross Triggering Unit Trigger Mux		6 x CAN (FD)	100 Mbit/s Ethernet (AVB/TSN)			
Debug/Trace (SWD/JTAG/ETB)		ZipWire				
S32 Design Studio IDE S32 Configuration Tool	2 x sigma-delta ADC with programmable DSP		4 x sigma-delta ADC with programmable DSP			
Real-Time Drivers (AUTOSAR® and Non-AUTOSAR)	4 x 12-bit SAR-ADC (48 inputs)		7 x 12-bit SAR-ADC (69 inputs)			
Security F/W Safety Software Framework Communication Stacks Application Software		2x Sine Wave Generator, 2 x Analog Comparator	Quad SPI (8-bit data width, SDR and DDR mode)			
ASIL-D SW Resolver, IPCF, MBDT			LQFP-EP-176			
			MAPBGA-289			

S32K39/37/36 Software Enablement Block Diagram



View additional information for [S32K39/37/36 Microcontrollers for Electrification Applications](#).

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