freescale™
S32 Automotive Processors

32-Bit Microcontrollers

Freescale S32K Microcontrollers

The most scalable ARM® Cortex®-M based product series for automotive applications

Scalability – Broad portfolio of S32K Microcontrollers with peripheral and package compatibility allows complete software reuse and reduction of design cost.

Security – Built in hardware security enables secure communication and integrity of the system.

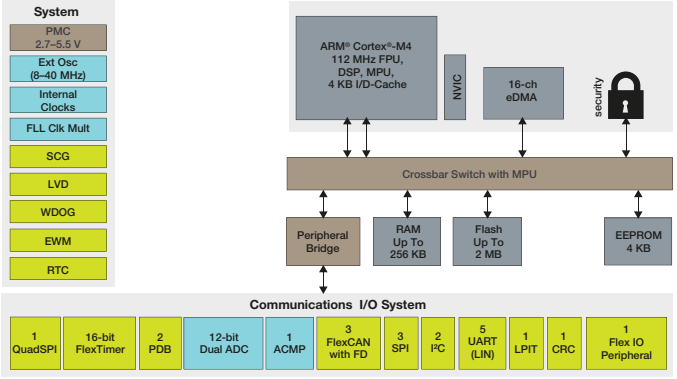
Efficiency – Low leakage technology coupled with energy saving modes minimize the power consumption.

Ecosystem – ARM ecosystem plus Freescale tools boost the development and shorten time to market.

Packages

- 64 LQFP
- 144 LQFP
- 100 LQFP
- 176 LQFP

S32K Microcontrollers Block Diagram



S32K Microcontrollers Specifications

Flash/ EEPROM	Up to 2 MB Flash with ECC/ 4 KB EEPROM	**Safety according to ISO26262 ASIL-B**	Voltage monitoring (LVD), External Watchdog Monitor (EWM), Memory Protection Unit (MPU)
RAM	Up to 256 KB with ECC	**Timer/PWM**	Up to 8 x 8 channel 16-bit, motor control enabled
Core	ARM Cortex-M4 with IEEE-754 SPFPU	**CAN**	Up to 2 of 6 with full CAN-FD
Speed	Up to 112 MHz	**Low Power**	RTC, LPIT, SCG, ACMP
ADC	Up to 2 x 32 channel 12-bit with Programmable Delay Block (PDB) as hardware trigger	**FlexIO**	Communication protocol emmulation for more LIN, SPI, etc.
Security	Hardware security engine 128-bit unique identifier	**Voltage Range**	2.7 V to 5.5 V
Internal Clocks	128 kHz low power oscillator 8 MHz slow oscillator 3% 48 MHz fast oscillator 1%	**Op Range**	–40 °C to +125 °C Ta

Target Applications

- Body and Chassis Control
- Infotainment connection module
- Climate control (HVAC)
- Windows/door/sun roof
- Powertrain companion chip
- PMSM/BLDC motor control
- Passive safety
- Park assistance
- Immobilizer
- Touch sensing
- Security
- Motorcycle CDI/EFI
- Battery Management
- Pump/fan controller
- Airbag
- Exhaust gas aftertreatment
- Gateway
- General Purpose

Enablement Tools

- Freescale Freedom+ evaluation board with OpenSDA
- No cost S32 Design Studio (S32 DS) with IDE, compiler, debugger and plugins
- Software Development Kit (SDK)
- Automotive Math and Motor Control Library
- Core Self Test Library

For more information, visit freescale.com/S32K

Document Number: S32K_FS REV 1

Product Longevity

SAFE ASSURE™ by Freescale