Power-Efficient Microcontrollers (MCUs) with Advanced Peripherals Based on Arm® Cortex®-M4 Core
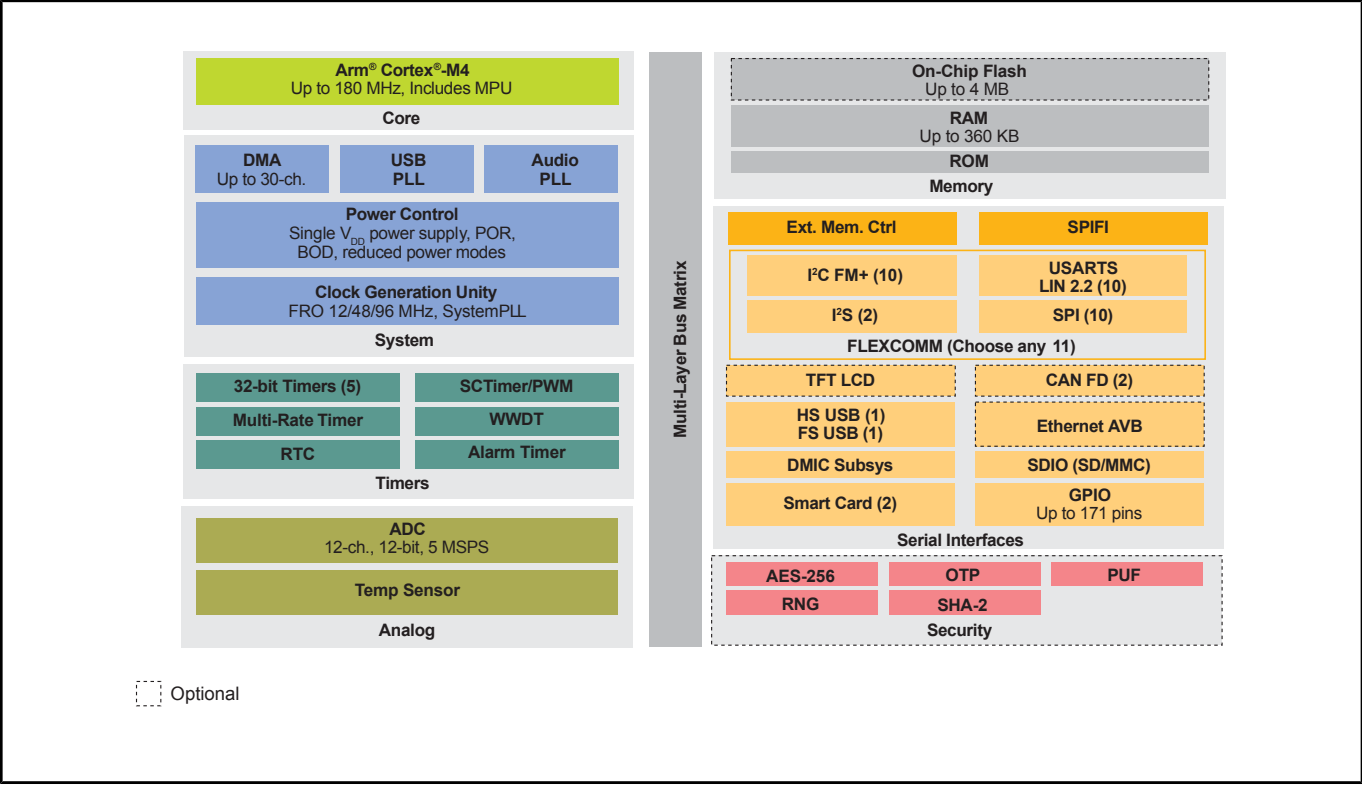
LPC540XX

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Offering flashless design and security integration, the LPC540xx family of MCUs combines a 180 MHz Arm® Cortex®-M4 core with a power-efficient and unique architecture, advanced HMI and flexible communication peripherals for real-time performance in the next-generation IoT. Featuring flexibility with a quad SPI flash interface, CAN, graphic LCD and up to 11 channels for FlexComm, the LPC540xx family provides the ability to adapt as requirements change. Compatibility within the LPC54000 series enables the LPC540xx MCU family to provide a seamless migration path for increasing processing power and adding the flexibility of additionally advanced peripherals.

For added security, the new LPC54S0xx MCU devices in this family provide Physical Unclonable Function (PUF) root key using dedicated SRAM for silicon fingerprint making it possible to generate, store, and reconstruct keys. In addition, the LPC54S0xx devices feature an on-chip hardware AES engine to protect the image content and accelerate processing for data integrity and proof of origin. Data can be encrypted or decrypted by the AES engine using the encrypted key stored in the OTP, SRAM PUF-based or a software supplied key.

This device is fully supported by NXP's MCUXpresso Software and Tools, a comprehensive and cohesive set of free software development tools for Kinetis, LPC and i.MX RT microcontrollers. MCUXpresso SDK also includes project files for Keil MDK and IAR EWARM.

LPC540xx MCU Block Diagram

Arm® Cortex®-M4
Up to 180 MHz, Includes MPU
Core

DMA Up to 30-ch.	USB PLL	Audio PLL

Power Control
Single V_{DD} power supply, POR, BOD, reduced power modes

Clock Generation Unity
FRO 12/48/96 MHz, SystemPLL

System

32-bit Timers (5)	SCTimer/PWM
Multi-Rate Timer	WWDT
RTC	Alarm Timer

Timers

ADC
12-ch., 12-bit, 5 MSPS

Temp Sensor

Analog

Multi-Layer Bus Matrix

On-Chip Flash
Up to 4 MB

RAM
Up to 360 KB

ROM

Memory

Ext. Mem. Ctrl	SPIFI

I²C FM+ (10)	USARTS LIN 2.2 (10)
I²S (2)	SPI (10)

FLEXCOMM (Choose any 11)

TFT LCD	CAN FD (2)
HS USB (1) FS USB (1)	Ethernet AVB
DMIC Subsys	SDIO (SD/MMC)
Smart Card (2)	GPIO Up to 171 pins

Serial Interfaces

AES-256	OTP	PUF
RNG	SHA-2	

Security

⬚ Optional

View additional information for Power-Efficient Microcontrollers (MCUs) with Advanced Peripherals Based on Arm® Cortex®-M4 Core.

Note: The information on this document is subject to change without notice.