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What is "Embedded - Microcontrollers"?

"Embedded - Microcontrollers" refer to small, integrated circuits designed to perform specific tasks within larger systems. These microcontrollers are essentially compact computers on a single chip, containing a processor core, memory, and programmable input/output peripherals. They are called "embedded" because they are embedded within electronic devices to control various functions, rather than serving as standalone computers. Microcontrollers are crucial in modern electronics, providing the intelligence and control needed for a wide range of applications.

Applications of "Embedded - Microcontrollers"

Details	
Product Status	Active
Core Processor	ARM® Cortex®-M4
Core Size	32-Bit Single-Core
Speed	180MHz
Connectivity	EBI/EMI, I²C, MMC/SD/SDIO, SmartCard, SPI, SPIFI, UART/USART, USB
Peripherals	Brown-out Detect/Reset, DMA, I²S, POR, PWM, WDT
Number of I/O	64
Program Memory Size	-
Program Memory Type	ROMless
EEPROM Size	-
RAM Size	360K x 8
Voltage - Supply (Vcc/Vdd)	1.71V ~ 3.6V
Data Converters	A/D 12x12b
Oscillator Type	Internal
Operating Temperature	-40°C ~ 105°C (TA)
Mounting Type	Surface Mount
Package / Case	100-LQFP
Supplier Device Package	100-LQFP (14x14)
Purchase URL	https://www.e-xfl.com/product-detail/nxp-semiconductors/lpc54s005jbd100e

Scalable and power-efficient broad-market MCUs

LPC540xx MCU Family

Offering flashless design and security integration, the LPC540xx MCU family provides up to 180 MHz performance while retaining outstanding power efficiency as low as 100 µA/MHz. Its flexible communication interfaces make it ideal for HMI and the connectivity needs of next-generation IoT applications.

TARGET APPLICATIONS

- Building control and automation
- Diagnostic equipment
- Multi-node/multi-protocol communication hubs
- HMI/GUI applications
- Data collectors, infotainment/navigation
- Telematics/fleet management

OVERVIEW

The LPC540xx MCU family builds on the industry-leading power efficiency introduced with the LPC54000 series. This new family enables continued growth in the connected smart world through new feature integration and advanced security capabilities.

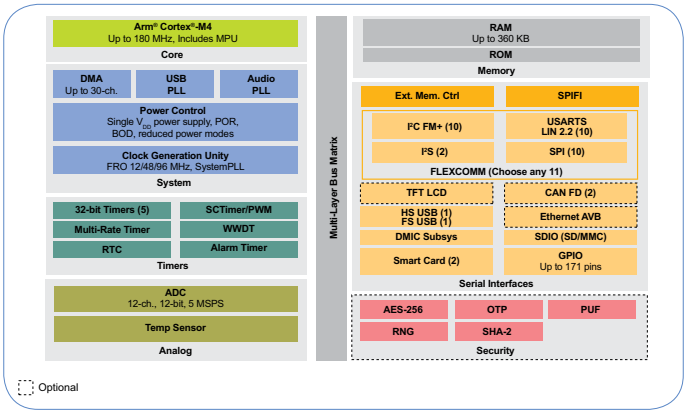
The LPC540xx MCU family, powered by the Arm® Cortex®-M4 core, offers a larger SRAM with up to 360 KB, a quad SPI flash interface, Ethernet support, a TFT LCD controller and two CAN FD modules, while striking the right balance between feature integration and power efficiency with the Cortex-M4 achieving an active mode current of 100 µA/MHz.

For added security, the LPC54S0xx MCU devices in this family provide 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 in the OTP or a software supplied key.

ENABLING NEXT-GENERATION CONNECTED DEVICES

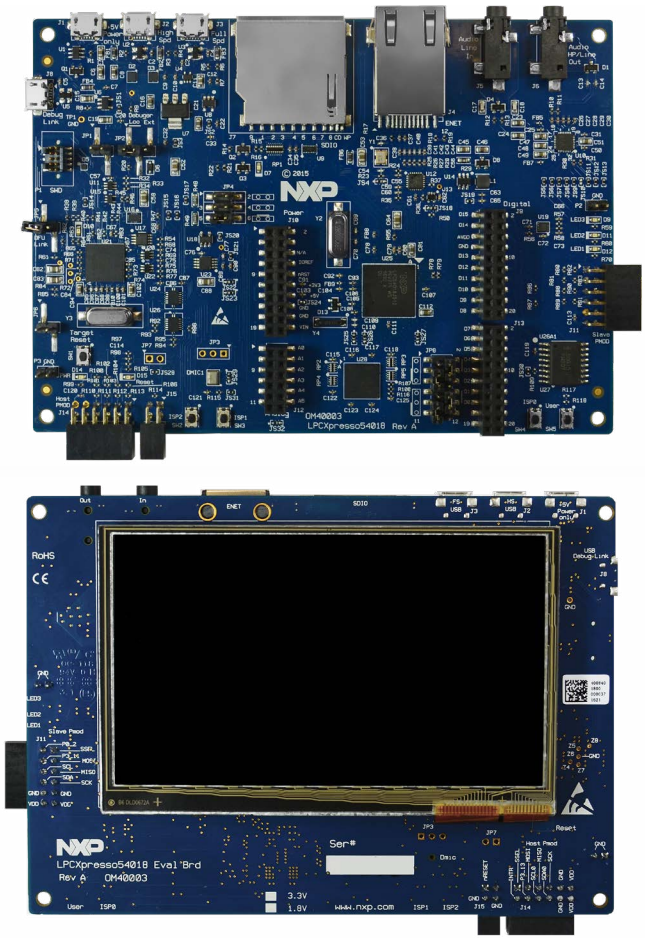
The LPC540xx MCU family is architected to be power efficient for applications that require data aggregation from several different inputs. This MCU family provides a variety of wake-up sources including the FlexComm peripherals. Once the MCU becomes active, application use cases are endless with 11 FlexComm interfaces for sensors and HMI, options for cloud connectivity, and a graphics display to interact with the information.

LPC540XX MCU FAMILY BLOCK DIAGRAM



COMPREHENSIVE ENABLEMENT SOLUTIONS

- MCUXpresso SDK*
  - Extensive suite of robust peripheral drivers, stacks, and middleware
  - Software examples demonstrating use of peripheral drivers and middleware
- Integrated development environments (IDE)
  - MCUXpresso IDE*
  - IAR Embedded Workbench®
  - Arm Keil® Microcontroller Development Kit
- ROM
  - Dedicated bootloader for the LPC540xx/LPC54S0xx
  - In-system flash programming over serial connection: erase, program, verify
  - ROM or flash-based bootloader with open-source software and host-side programming utilities
- Development hardware
  - LPCXpresso54018 (OM40003)** development board for low-cost evaluation
    - Two Pmod™ expansion headers
    - Arduino™ R3 compatible shields



LPCXpresso54018 (OM40003) Development Board

LPC540XX MCU FAMILY OPTIONS

Family	SRAM (KB)	FS USB	HS USB	Ethernet AVB	Classic CAN	CAN FD	LCD	SHA	PUF	Security (AES, RSA, Secure Boot)	Package
LPC54005	360	X	X					X			BGA100, LQFP100
LPC54016	360	X	X	X	X	X		X			BGA180, LQFP208, LQFP100
LPC54018	360	X	X	X	X	X	X	X			BGA180, LQFP208
LPC54S005***	360	X	X					X	X	X	BGA100, LQFP100
LPC54S016***	360	X	X	X	X	X		X	X	X	BGA180, LQFP208, LQFP100
LPC54S018***	360	X	X	X	X	X	X	X	X	X	BGA180, LQFP208

*MCUXpresso SDK and IDE supported as of January 2018
**LPCXpresso54018 launched in January 2018
***LPC54S0xx MCU devices will be available Q4 2018

www.nxp.com/LPC540xx

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