



NXP 50-MHz, 32-bit Cortex-M0™ MCUs LPC11C00

Cortex-M0 MCUs for a total CAN solution with on-chip CANopen drivers

Offering a low-cost entry point for CAN-based applications, the LPC11C00 series reduce product development risk, lower total system cost, and speed time-to-market for high-performance embedded designs.

Key features

- ▶ ARM Cortex-M0 processor
 - 50 MHz operation
 - Nested Vectored Interrupt Controller
 - Three reduced-power modes: Sleep, Deep-sleep, and Deep power-down
 - Serial Wire Debug (4 breakpoints)
- ▶ Memories
 - 16/32 KB Flash memory
 - 8 KB SRAM
- ▶ Serial peripherals
 - CAN 2.0 B C_CAN controller with on-chip CANopen drivers
 - UART with fractional baud rate generation
 - 2 SPI controllers with FIFO and multi-protocol capabilities
 - I²C-bus interface supporting Fast mode plus
- ▶ Analog peripheral
 - 10-bit analog-to-digital converter with 8 channels and conversion rates up to 400 K samples per second with ±1LSB DNL
- ▶ Timers
 - 4 general-purpose counter/timers - Two 32-bit counter/timers & Two 16-bit counter/timers - with a total of four capture inputs and 13 match outputs
 - Programmable Watchdog Timer (WDT) with lock-out feature
 - 24-bit System timer
- ▶ I/O
 - 42 general-purpose I/O (GPIO) pins
- ▶ Clock generation unit
 - 12 MHz Internal RC Oscillator trimmed to 1% accuracy
 - Crystal oscillator with an operating range of 1 to 25 MHz
 - Programmable watchdog oscillator
 - Clock output function
- ▶ Other
 - Unique device serial number for identification
 - Integrated PMU (Power Management Unit) to minimize
 - Brownout detect
 - Power-On Reset (POR)
 - Single 3.3 V power supply (1.8 to 3.6 V)

Applications

- ▶ Remote sensors
- ▶ Industrial networking
- ▶ White goods
- ▶ Elevator systems
- ▶ Consumer peripherals
- ▶ System supervisors
- ▶ e-Metering
- ▶ 8/16-bit applications



CAN has long been considered one of the best choices for robust real-time communication, but has been price-prohibitive for low-cost embedded applications. Built around the Cortex-M0 architecture, the smallest, lowest power, and most energy-efficient ARM core ever developed, the LPC11C00 series with 16/32 KB Flash and 8 KB SRAM are ideal for CAN-based applications

On-chip CAN and CANopen drivers

On-chip CAN and CANopen drivers provide design engineers with easy-to-use API commands to the CANopen protocol, enabling rapid integration of the LPC11C00 series into CAN-based networks and thereby greatly simplifying the plug-and-play integration process. Furthermore, these drivers are incorporated in low-power ROM, freeing up as much as 8 KB of user code space. This reduces operating power and enables safe, secure bootloading via CAN and other on-chip serial channels. In System Programming updates the Flash memory using secure, reliable ROM-based drivers and the CAN bus. The whole range of functionality is supported, from programming blank parts in production to changing system parameters and full in-field re-programmability.

Enabling Higher Code Density and Superior Performance

The LPC11C00 requires 40-50 percent smaller code size than typical 8/16-bit microcontrollers for common tasks. This is enabled by the powerful Cortex-M0 v6-M instruction set, which is built on a fundamental base of 16-bit Thumb instructions unique to 32-bit microcontrollers today. With over 45 DMIPS of performance, the LPC11C00 series provides powerful message and data handling for CAN device nodes, in a power-optimized solution unavailable with today's 8/16-bit microcontrollers.

Development tools

The LPC1100 family is supported by the LPCXpresso, an easy-to-use, comprehensive development tool platform for under USD30. It's also supported by development tools from IAR, Keil, Hitex, Code Red, and many others.

For more information, please visit www.nxp.com/microcontrollers.

Selector guide

Type number	Flash	Total SRAM	UART RS-485	I2C/ Fast+	SPI	C_CAN	ADC channels	Package
LPC11C12FBD48/301	16 KB	8 KB	1	1	2	1	8	LQFP48
LPC11C14FBD48/301	32 KB	8 KB	1	1	2	1	8	LQFP48

Block diagram LPC11C00

