



NXP 50-MHz
ARM® Cortex™-M0+
MCU with USB
LPC11U6x

Low-cost Cortex-M0+ USB solutions with 256 kB Flash & more connectivity

Building on the ease-of-use and design flexibility of the award-winning LPC11Uxx portfolio, these MCUs offer a more energy-efficient core, larger memories, more serial communications, a new high-speed ADC, more versatile timers, and more.

KEY FEATURES

- ▶ Low-power, 50-MHz ARM Cortex-M0+
- ▶ Up to 256 kB Flash
- ▶ Up to 36 kB SRAM
- ▶ 4 kB EEPROM
- ▶ Serial interfaces
 - USB 2.0 device controller with on-chip USB PHY
 - Up to five USART, two I²C, two SSP
- ▶ 4 standard timers, 2 configurable SCTimer/PWMs
- ▶ Analog features
 - 12-bit ADC with 8/10/12 channels and 2 MHz conversion rate
 - Integrated temp sensor for precise readings over entire range
- ▶ 16-channel DMA engine with programmable input triggers
- ▶ Low-power features: RTC, low-power modes, power profiles
- ▶ Up to 80 GPIO with configurable ports
- ▶ Extended temp range of -40 to +105 °C
- ▶ Packages: LQFP48, LQFP64, LQFP100

TARGET APPLICATIONS

- ▶ Metering & data collection
- ▶ Wired & wireless routing
- ▶ Handheld medical equipment
- ▶ PC/gaming accessories
- ▶ Other portable systems

USB MADE EASY

The NXP LPC11U6x family includes a USB device controller certified by the USB Implementers Forum (USB-IF) and an on-chip PHY. Designers have access to all the USB software, tools, and shortcuts they need to simplify development and shrink time-to-market. ROM-based USB support includes USB drivers and stacks for HID, MS, CDC, and DFU classes. Other USB benefits include NXP's royalty-free USB device driver stack, extensive example code for popular device classes, and free PID/VID program.

ENERGY-EFFICIENT OPERATION

Operating at CPU frequencies up to 50 MHz, NXP's 32-bit LPC11U6x microcontrollers employ the ARM Cortex-M0+, the most energy efficient ARM processor available. The LPC11U6x supports four low-power modes and API-driven Power Profiles, providing developers with easy-to-use dynamic current management at runtime. The USART peripherals are designed to wake up from low-power modes.



SERIAL INTERFACES

In addition to the USB 2.0 device controller with on-chip USB PHY, there are up to five USART interfaces, all with DMA, synchronous mode, and RS-485 mode support. Four USARTs use a shared fractional baud generator. There are two SSP controllers, with DMA support, and two I²C-bus interfaces, one with specialized open-drain pins to support I²C Fast-mode plus (Fm+). All these serial interfaces are supported by ROM-based drivers.

TIMERS/PWMS

Four standard timers, plus two NXP-developed state-configurable timers (SCTimers/PWMs) can be combined to create multiple PWM outputs, using the match outputs and the match registers for each timer. Each timer can also create multiple PWM outputs with its own time base.

ADC & TEMP SENSOR

The on-chip ADC has 8, 10, or 12 channels, supports a resolution of 12 bits, and performs conversion rates at up to 2 Msps. The on-chip temperature sensor provides an absolute accuracy of better than ±3 °C over the full temperature range of -40 to +105 °C.

SIMPLE DMA ENGINE

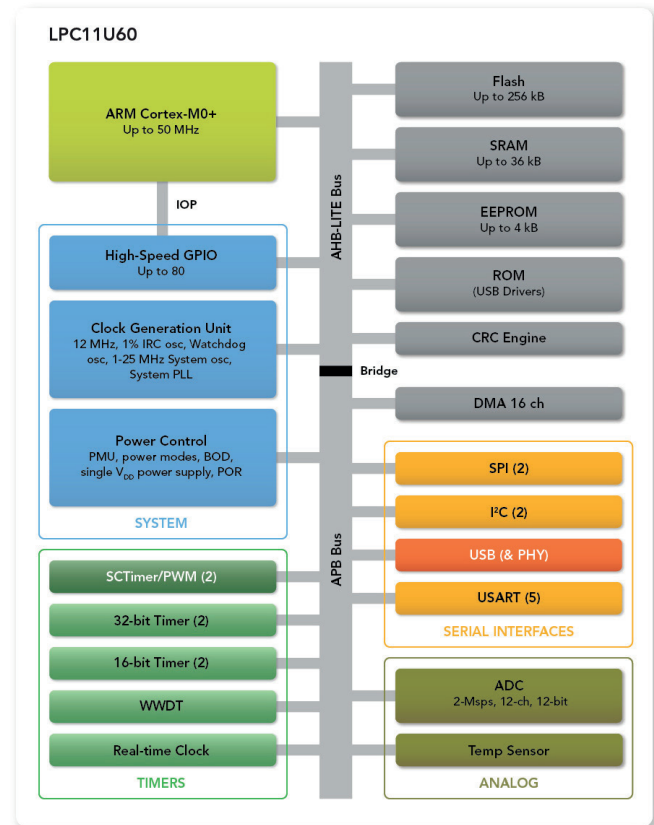
The DMA controller, which has 16 channels and programmable input triggers, can access all memories, plus the USART and SSP peripherals, using DMA requests. There is also a CRC engine.

Selection guide

Part number	Flash (kB)	SRAM (kB)	EEPROM (kB)	Packages
LPC11U67	128	16	4	LQFP48
LPC11U68	256	32	4	LQFP48, LQFP64, LQFP100

GETTING STARTED

For faster development, LPC11U6x devices are available with libraries for popular toolchains, including Keil MDK, IAR EWARM, and the NXP LPCXpresso IDE v6, a cross-platform C/C++ development suite that supports all of NXP's LPC microcontrollers. The LPC11U6x are also available with an LPCXpresso V2 board for rapid prototyping and evaluation.



LPC11U6x block diagram

LPCware: www.lpcware.com

LPCXpresso: www.nxp.com/lpcxpresso/home

www.nxp.com

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