



60-MHz, 32-bit
microcontroller with
ARM7TDMI-S™ core
LPC215x

ARM7-based microcontrollers with LCD driver and USB 2.0

By combining a high-performance ARM7-based microcontroller with a flexible LCD driver, this multi-chip module makes it easy to integrate advanced technology into everyday applications.

Key features

- ▶ 60-MHz, 32-bit ARM7TDMI-S with AHB/APB interfaces
- ▶ 512 KB of ISP/IAP Flash
- ▶ Up to 40 KB of SRAM
- ▶ Very fast Flash programming via on-chip boot loader
- ▶ USB 2.0 full-speed (12 Mbps) device (LPC2158)
- ▶ 32 segments x 4 backplanes LCD controller
- ▶ Up to two 10-bit A/D converters
- ▶ 10-bit D/A converter
- ▶ Multiple serial interfaces: one I²C, two UARTs, one SPI, and one SSP
- ▶ Two 32-bit timers
- ▶ Real-time clock and Watchdog timer
- ▶ 36 I/O pins (5-V tolerant)
- ▶ Single 3.3-V supply
- ▶ LQFP100 package (14 x 14 x 1.4 mm)

Applications

- ▶ Automotive entertainment
- ▶ Connectivity
- ▶ Display
- ▶ Low-end imaging

The NXP microcontroller series LPC215x uses a high-performance 32-bit ARM7 core that operates at up to 60 MHz. Each device has 512 KB of on-chip Flash and up to 40 KB of on-chip SRAM memory.

A 128-bit-wide memory interface and a patented memory accelerator enable 32-bit code execution from Flash with zero wait-states.

The LCD driver provides 32 segments and supports up to four backplanes. It delivers low-power operation and minimizes display overhead by using an on-chip display RAM with auto-increment addressing. It is manufactured in a silicon-gate CMOS process, requires no external components, and is compatible with TTL/CMOS components and chip-on-glass technology.

The LPC215x includes a USB 2.0 full-speed (12 Mbps) device that supports 32 endpoints with 2 KB of endpoint RAM. The USB function supports Control, Interrupt, Bulk, and Isochronous data-transfer modes. Designers can choose between GoodLink™ and SoftConnect™ functionality.

Each microcontroller is also equipped with up to two 10-bit A/D converters and a 10-bit D/A converter.

Multiple serial communications interfaces increase design flexibility, provide larger buffer size, and deliver higher processing power. There are two 16C550 UARTs, one Fast I²C-bus (400 kbps) interfaces, and two SPI interfaces (one with capabilities for buffering and variable data length).

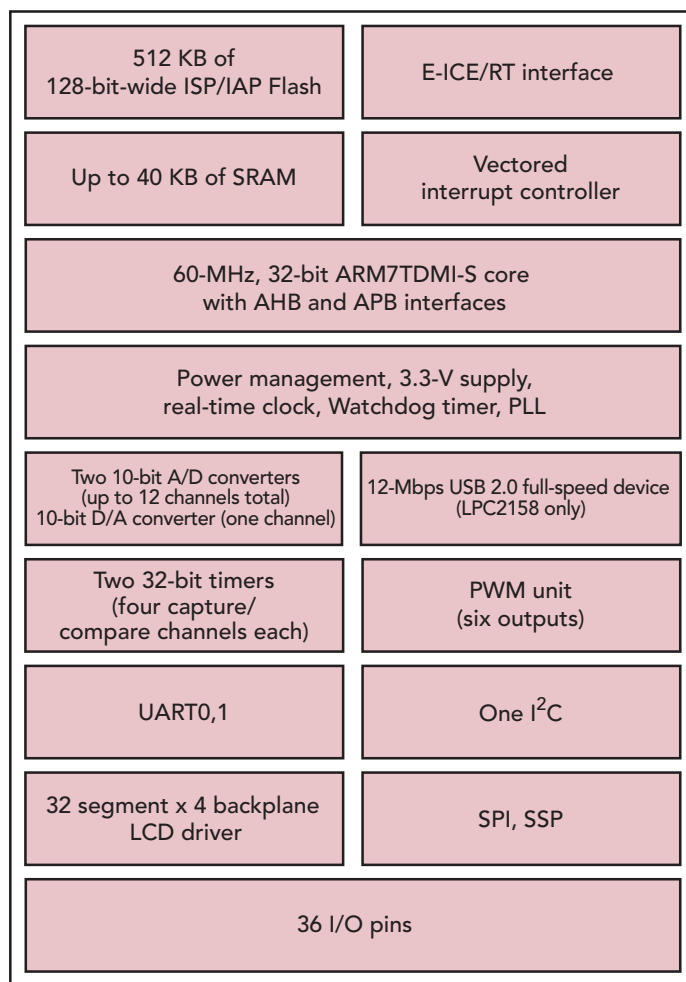
There are two 32-bit timers (each with four capture and compare channels), a PWM unit with six outputs, a real-time clock, and a Watchdog timer.

For debugging, each device supports real-time emulation support. Also, for compatibility with existing tools, each device uses the standard ARM test/debug JTAG interface.

Other features include 36 I/O pins (5-V tolerant), and an operating temperature range of -40 to 85 °C.

Third-Party Development Tools

Through third-party suppliers, we offer a range of development tools for our microcontrollers. For the most current listing, please visit www.nxp.com/microcontrollers.



LPC215x block diagram

LPC215x selection guide

Type	Memory		Serial interfaces					ADC/DAC options		Package
	Flash (KB)	SRAM (KB)	USB 2.0 (12 Mbps)	USB DMA	I ² C	UART	SPI/SSP	ADC channels (10-bit)	DAC channels (10-bit)	
LPC2157	512	32			1	2	2	12	1	LQFP100
LPC2158	512	40	1	1	1	2	2	10	1	LQFP100



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