

## NXP 80C51-based microcontrollers LPC7xx

# Accelerated 8-bit MCUs in 14, 16 and 20-pin packages offer high integration

Operating at twice the rate of standard 80C51 devices, these microcontrollers are ideal for use in systems that require low voltage, high integration, and low cost. They deliver high performance, low power consumption, and a wide range of advanced peripherals.

### Key features

- ▶ Accelerated 80C51 CPU
- ▶ Up to 8 KB OTP memory
- ▶ 128 bytes of Data RAM
- ▶ 2.7 to 5.5 V operating range
- ▶ Up to two 4-channel, 8-bit A/D converters (LPC767/768/769 and LPC778/779 only)
- ▶ Up to two 2-channel, 8-bit D/A converters (LPC769 and LPC779 only)
- ▶ I<sup>2</sup>C-bus interface and full-duplex UART
- ▶ Internal RC oscillator with  $\pm 2.5\%$  accuracy
- ▶ System supervisory functions (POR, brownout reset)
- ▶ Two 16-bit timers and Watchdog timer
- ▶ Up to 2 Analog comparators
- ▶ 4-channel, 10-bit PWM (LPC768 and LPC778 only)
- ▶ Up to 18 GPIO
- ▶ Temperature range: 0 to 70 °C, -40 to +85 °C and -40 to +125 °C options
- ▶ Low-profile, 14, 16 and 20-pin SO, DIP and TSSOP packages

### Applications

- ▶ Systems that require low voltage, high integration, and low cost

Designed for applications that demand low voltage, high integration, and low cost, these 8-bit microcontrollers use a high-performance, 6-clock 80C51 that executes instructions at twice the rate of the standard 80C51.

To reduce component count, board space, and system cost, the devices combine a number of system supervisory functions, serial interfaces, and analog options in low-profile SO, DIP and TSSOP packages.

Each LPC7xx microcontroller operates over a wide voltage range (2.7 to 5.5 V) for digital functions, and integrates up to 8 KB of one-time programmable (OTP) memory and 128 bytes of Data RAM.

Each device integrates a Watchdog timer with a separate oscillator that requires no external components. The on-chip programmable oscillator supports high- and low-speed

external crystals or internal RC oscillator with an accuracy of  $\pm 2.5\%$ .

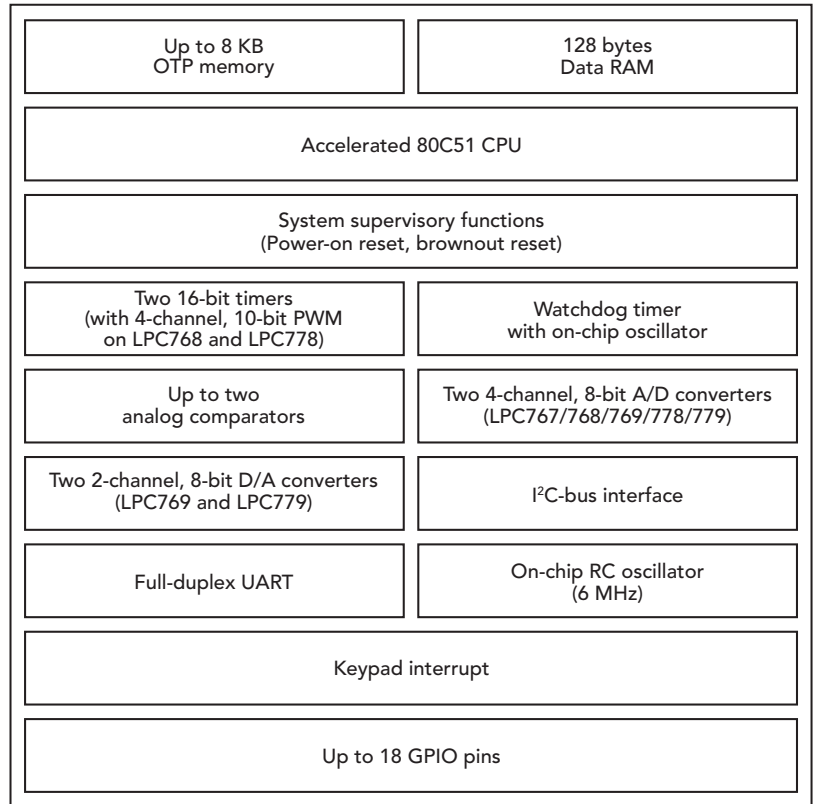
The LPC767, LPC768, LPC769, LPC778, and LPC779 devices include two 4-channel, 8-bit A/D converters, and the LPC769 and LPC779 devices have two 2-channel, 8-bit D/A converters. The LPC768 and LPC778 devices offer a 4-channel, 10-bit pulse width modulator (PWM).

In each LPC7xx device, the port output configurations are programmable on all devices, and there is support for LED drive outputs and selectable Schmitt-trigger inputs. There are eight keypad interrupt pins, plus two additional external interrupt pins.

There are up to 18 general-purpose I/O (GPIO), and the operating temperature range has options of 0 to 70 °C, -40 to +85 °C and -40 to +125 °C.

### Third-Party Development Tools

Through third-party suppliers, we offer a range of development and evaluation tools for our microcontrollers. For the most current listing, please visit [www.nxp.com/microcontrollers](http://www.nxp.com/microcontrollers).



LPC7xx block diagram

### LPC700 selection guide

Type	Memory		Timers			Serial interfaces		Analog		I/O pins	Freq. range (MHz) at 3V	Freq. range (MHz) at 5V	Temp. range options*	Package
	OTP / ROM	RAM	No. of timers	PWM	WD	UART	I <sup>2</sup> C	ADC ch. / bits	DAC ch. / bits					
LPC76x / LPC77x devices														
P87LPC779	8K	128 B	2		•	1	1 (bit)	4/8	2/8	18	0-10	0-20	F	TSSOP20
P87LPC778	8K	128 B	2	•	•	1	1 (bit)	4/8		18	0-10	0-20	F	TSSOP20
P87LPC769	4K	128 B	2		•	1	1 (bit)	4/8	2/8	18	0-10	0-20	B, H	SO20
P87LPC768	4K	128 B	2	•	•	1	1 (bit)	4/8		18	0-10	0-20	B, F	DIP20, SO20
P87LPC767	4K	128 B	2		•	1	1 (bit)	4/8		18	0-10	0-20	B, F	DIP20, SO20
P87LPC764	4K	128 B	2		•	1	1 (bit)			18	0-10	0-20	B, F, H	TSSOP20, DIP20, SO20
P87LPC762	2K	128 B	2		•	1	1 (bit)			18	0-10	0-20	B, F	TSSOP20, DIP20, SO20
P87LPC761	2K	128 B	2		•	1	1 (bit)			14	0-10	0-20	B	TSSOP16, DIP16
P87LPC760	1K	128 B	2		•	1	1 (bit)			12	0-10	0-20	B	TSSOP14, DIP14

\* B = 0 to 70 °C, F = -40 to +85 °C, H = -40 to +125 °C

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