NXP 60-MHz, 32-bit microcontrollers with ARM7TDMI-S™ core LPC2104/5/6

Small, ultra-low-cost ARM7-based microcontrollers with up to 64 KB SRAM

These powerful yet cost-effective microcontrollers have 128 KB of zero wait-state, security-enabled Flash and up to 64 KB of SRAM. Each has multiple serial interfaces and is available in a package that measures only 7 x 7 mm.

Key features

- 60-MHz, 32-bit ARM7TDMI-S with AHB/APB interfaces
- Code Read Protection mechanism to safeguard user code
- 128 KB of zero wait-state, security-enabled Flash
- Up to 64 KB of SRAM
- Very fast Flash programming via on-chip boot loader
- Multiple serial interfaces: I²C, two UART, SPI/SSP
- Two 32-bit timers
- Six-channel PWM unit
- Real-time clock with 32-kHz crystal and battery back-up pins
- Watchdog timer
- 32 fast GPIO
- LQFP48 and HVQFN48 package options

Applications

- Point of sales
- Low-power, high-performance industrial control
- Data acquisition products
- Security systems / access control
- Serial protocol converters

The NXP microcontrollers LPC2104, LPC2105, and LPC2106 use a high-performance 32-bit ARM7 core that operates at up to 60 MHz. Each device has 128 KB of zero wait-state, security-enabled Flash and up to 64 KB of SRAM memory.

In-System Programming (ISP) and In-Application Programming (IAP) software minimize programming time — each 256-byte line takes only 1 ms to program, and a single-sector or full-chip erase takes only 400 ms. Code Read Protection, also known as Flash security, is available to protect the user code.

Multiple serial communications interfaces increase design flexibility, provide larger buffer size, and deliver higher processing power. There are two 16C550 UARTs (one with modem control), a Fast I²C-bus (400 kbps) interface, an SPI serial interface (up to 7.5 Mbps), and an SSP serial interface (up to 25 Mbps in master mode).

There are two 32-bit timers with four combined capture/match channels for pulse measurements and PWM. Each device also has a Watchdog timer and a real-time clock with a dedicated 32-kHz oscillator and battery back-up pins.

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For debugging, each device supports real-time emulation and has an integrated vectored interrupt controller (VIC). Also, for compatibility with existing tools, each device uses the standard ARM test/debug JTAG interface.

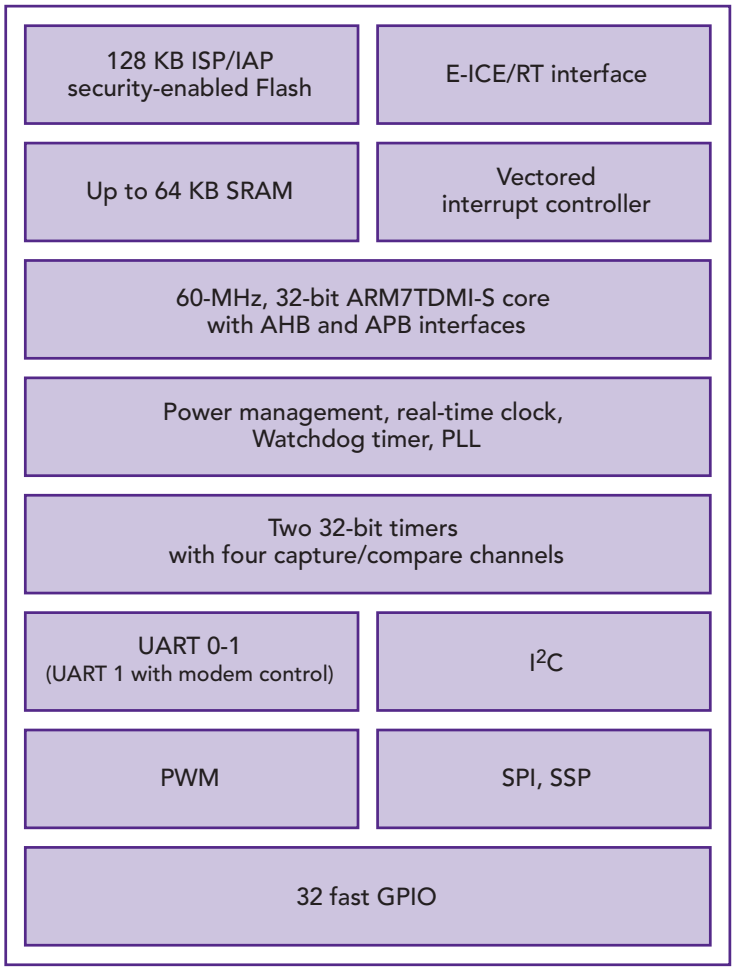
To save power, each microcontroller features several power-down modes. Power consumption with the real-time clock running and the core powering down is typically 7 µA.

Other features include up to thirty-two fast GPIO pins that are tolerant to 5 V, and an operating temperature range of -40 to 85 °C.

There are two package options: a 48-pin LQFP that measures 7 x 7 x 1.4 mm or a 48-pin HVQFN that measures 7 x 7 x 0.85 mm.

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.



LPC2104/5/6 block diagram

LPC2104/5/6 selection guide

Part Number	Memory		Serial interfaces				Package
	Flash	SRAM	I²C	UART	SPI	SSP	
LPC2104FBD64/01	128 KB	16 KB	1	2	1	1	LQFP48
LPC2105FBD64/01	128 KB	32 KB	1	2	1	1	LQFP48
LPC2106FBD64/01	128 KB	64 KB	1	2	1	1	LQFP48
LPC2106FHN64/01	128 KB	64 KB	1	2	1	1	HVQFN48

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