
# NXP 80-MHz, 32-bit ARM968 microcontroller LPC291x with CAN and LIN

## High performance ARM968-based microcontroller with CAN and LIN

Built around an ARM968 core, this 32-bit microcontroller is optimized for automotive and industrial applications and fills the performance gap between ARM7TDMI and ARM926EJ technologies. It offers high performance and very low power consumption, integrates CAN 2.0B and LIN 2.0 controllers, and is available in two package variants.

### Key features

- 80-MHz, 32-bit ARM968E-S with AHB/APB interfaces
- Two TCM memories: 16-KB instruction, 16-KB data
- Up to 48 KB of SRAM
- Up to 768 KB Flash program memory
- Two CAN 2.0B controllers
- Two dedicated LIN 2.0 master controllers (LPC2917 and LPC2919)
- Two 3V 10-bit ADC with 8 channels each
- Two 16C550 UARTs with 16-byte Tx and Rx FIFO depths
- Three full-duplex Q-SPI interfaces with four slave-select lines
- Four 32-bit timers, four 6-channel 32-bit PWM units, Watchdog timer
- 32-bit external memory controllers (LPC2917 and LPC2919)
- Up to 108 GPIO (tolerant to 5 V)
- Temperature range: -40 to +85 °C
- LQFP100 or LQFP144 packages

### Applications

- Automotive
- Industrial
- Motor control
- Medical

The NXP microcontrollers LPC2915, LPC2917, and LPC2919 use a high-performance, 32-bit ARM968 core that operates at up to 80 MHz. On-chip memory resources include two tightly coupled memories (TCMs), a 16-KB instruction TCM (ITCM) and a 16-KB data TCM (DTCM). The LPC2915 has 32 KB of SRAM, while the LPC2917 and LPC2919 have 48 KB. The LPC2915 and LPC2917 have 512 KB of Flash memory and the LPC2919 has 768 KB.

To simplify design, the three devices offer consistent peripherals and code compatibility. Integrated CAN 2.0B controllers offer full CAN mode for message reception, triple transmit buffers with automatic priority scheduling, and extensive global CAN-acceptance filtering for high-performance gateway functionality.

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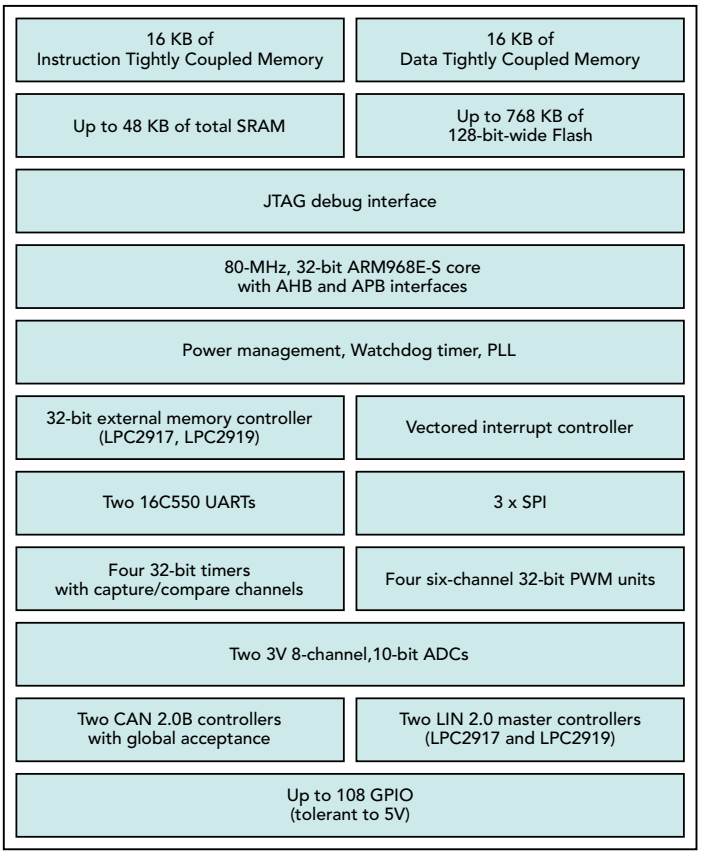
The LPC2917 and LPC2919 are also equipped with dual LIN 2.0 master controllers.

The two 3V 8-channel, 10-bit ADCs can be synchronized with the PWMs, making them ideal for Motor Control.

Multiple serial communications interfaces increase design flexibility, provide larger buffer size, and deliver higher processing power. There are two 16C550 UARTs with 16-byte transmit and receive FIFO depths, and three full-duplex Q-SPI interfaces with four slave-select lines.

There are four 32-bit timers with capture/match channels for pulse measurements, four six-channel, 32-bit PWMs, and a Watchdog timer. A CPU clock, operating at a maximum of 80 MHz, is available from the on-chip phase-locked loop (PLL).

The LPC2917 and LPC2919 have 32-bit external memory controllers that support static memory-mapped devices, including RAM, ROM, Flash, burst ROM, and external I/O devices. For fast interrupt response, an integrated vectored interrupt controller (VIC) is included on each microcontroller. Also, for compatibility with existing tools, each device uses the standard ARM test/debug JTAG interface. The family is available in 100- and 144-pin LQFP packages. There are up to 108 GPIO, each tolerant to 5 V. The operating temperature range is -40 to +85 °C.



LPC291x block diagram

## 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.

## LPC291x selection guide

| Type | Memory | | | | Serial interfaces | | | | ADCs | External memory | Package |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Flash (KB) | SRAM (KB) | ITCM (KB) | DTCM (KB) | CAN 2.0B | LIN 2.0 | 16C UART | SPI | | | |
| LPC2915 | 512 | 32 | 16 | 16 | 2 | 0 | 2 | 3 | 2 | • | LQFP100 |
| LPC2917 | 512 | 48 | 16 | 16 | 2 | 2 | 2 | 3 | 2 | • | LQFP144 |
| LPC2919 | 768 | 48 | 16 | 16 | 2 | 2 | 2 | 3 | 2 | • | LQFP144 |

* LPC2915 has a 8-bit MiniBus for external peripherals or memory





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