

Inside an MCU

Electrical Engineering

What a microcontroller contains beyond the processor core, block by block.

A CPU surrounded by the peripherals that make it worth using.

Core and memory

A CPU core, often an ARM Cortex-M

Flash holds code and constants

SRAM holds variables and the stack

A clock tree, internal or crystal fed

Reset and brown-out supervision

Peripherals

GPIO ports with alternate functions

Timers for counting, capture and PWM

An ADC, and sometimes a DAC

UART, SPI and I2C serial blocks

Interrupt controller and DMA engine

Peripherals run independently of the core, and most low-power design is about letting them work while the CPU sleeps.