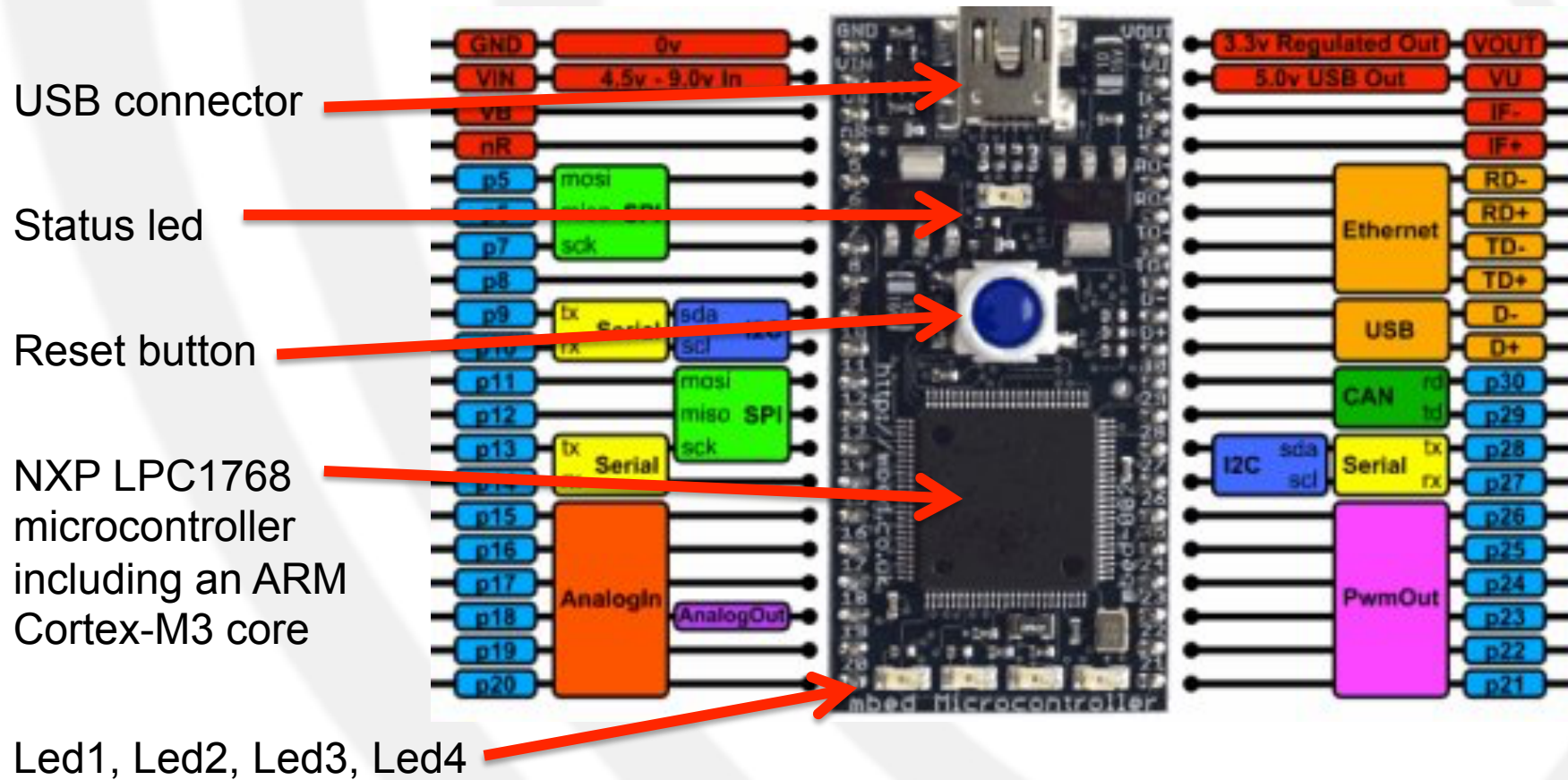# mbed platform

Introduction

Provided by the mbed platform

- Free software libraries, hardware designs and online tools for rapid prototyping of products based on ARM microcontrollers
  - standards-based C/C++ SDK
  - a microcontroller HDK and supported development boards
  - an online compiler and online developer collaboration tools
- http://developer.mbed.org/explore/

Mbed LPC1768 (main components)

USB connector

Status led

Reset button

NXP LPC1768 microcontroller including an ARM Cortex-M3 core

Led1, Led2, Led3, Led4

NXP LPC1768 microcontroller

- ARM Cortex-M3 @96MHz
- 512KB flash memory for program storage
- 32KB static RAM: for holding temporary data
- Peripherals (USB, Ethernet, CAN, …)
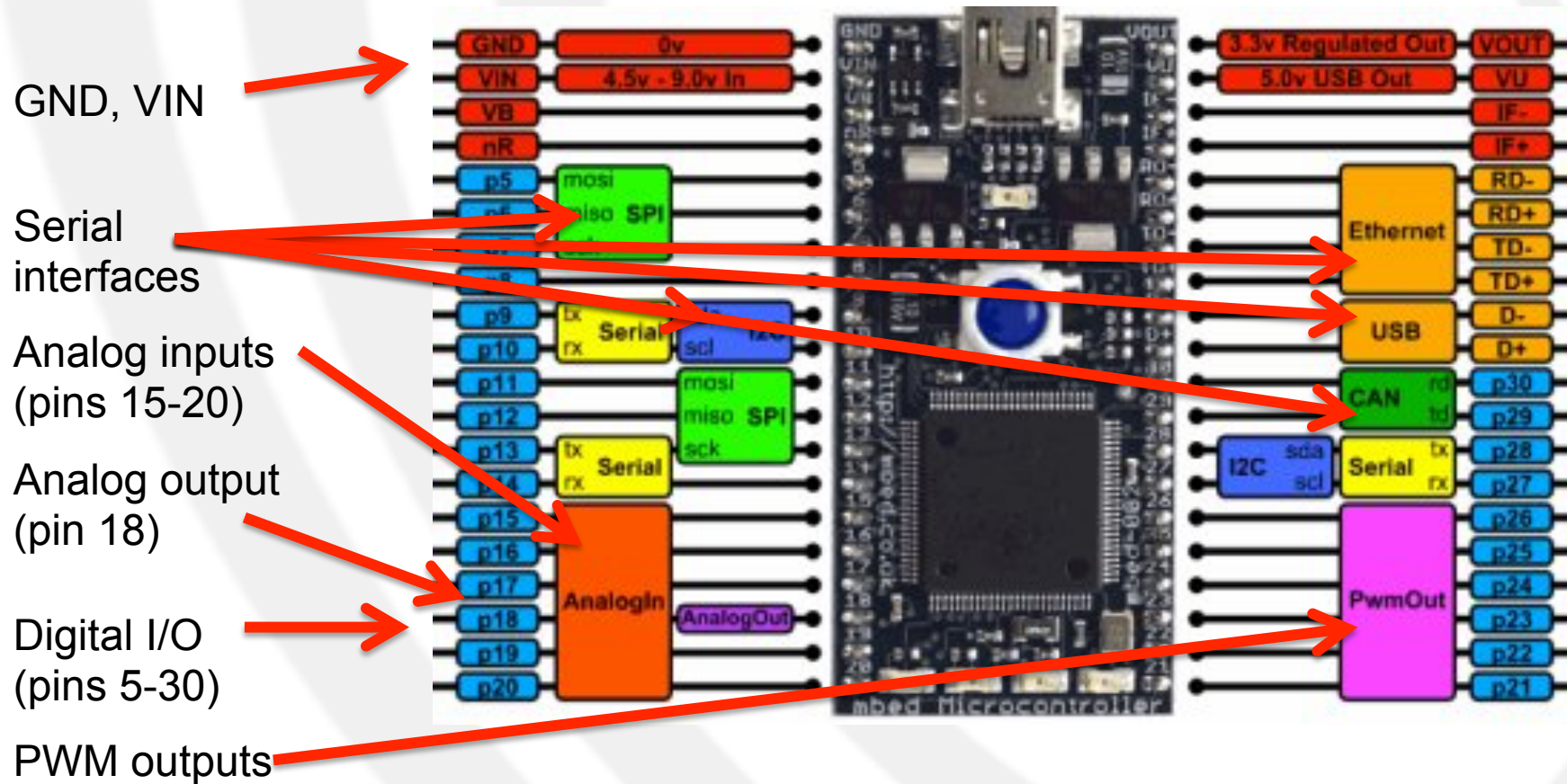- Address and data busses

ARM Cortex-M3 microprocessor

- 32-bit RISC (reduced instruction set architecture) architecture
  - Simple fixed-length instruction set
  - Low power consumption
    - Suited for battery powered systems (e.g., mobile phones)

USB microcontroller

- It interfaces with USB
- It receives binary code, which is stored in a 16Mbit memory that acts as USB disk
- When reset button is pressed, the program with the latest timestamp is transferred to the flash memory of LPC1768 and execution starts

Mbed LPC1768 (pins)

GND, VIN

Serial interfaces

Analog inputs (pins 15-20)

Analog output (pin 18)

Digital I/O (pins 5-30)

PWM outputs

Ready to start

- Connect the mbed to the USB port

- Visit https://developer.mbed.org
  - Log in or create a new account
  - Open the compiler (top rightmost button)
    - New program…
    - Edit and compile
    - Download the binary program in the mbed (copy)
    - Press the reset button on LPC1768 and see your program running