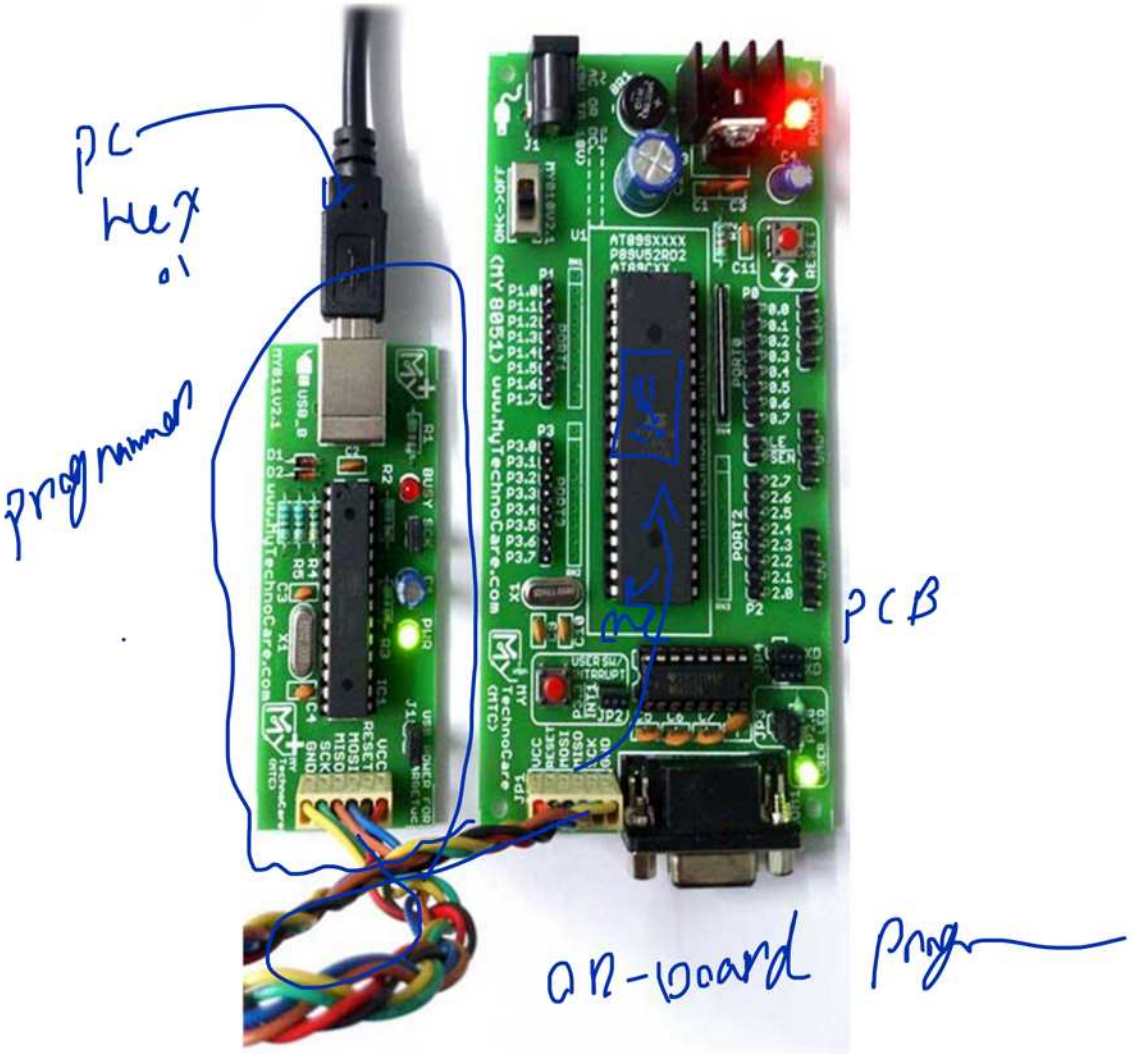
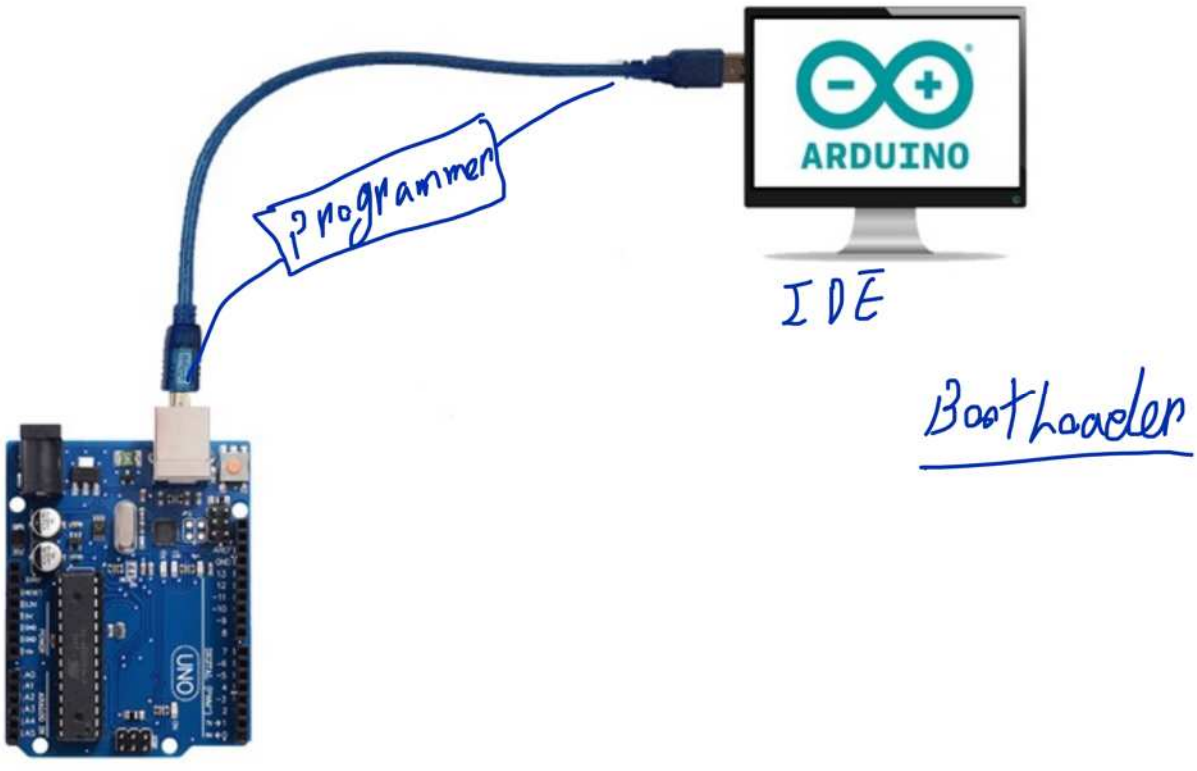
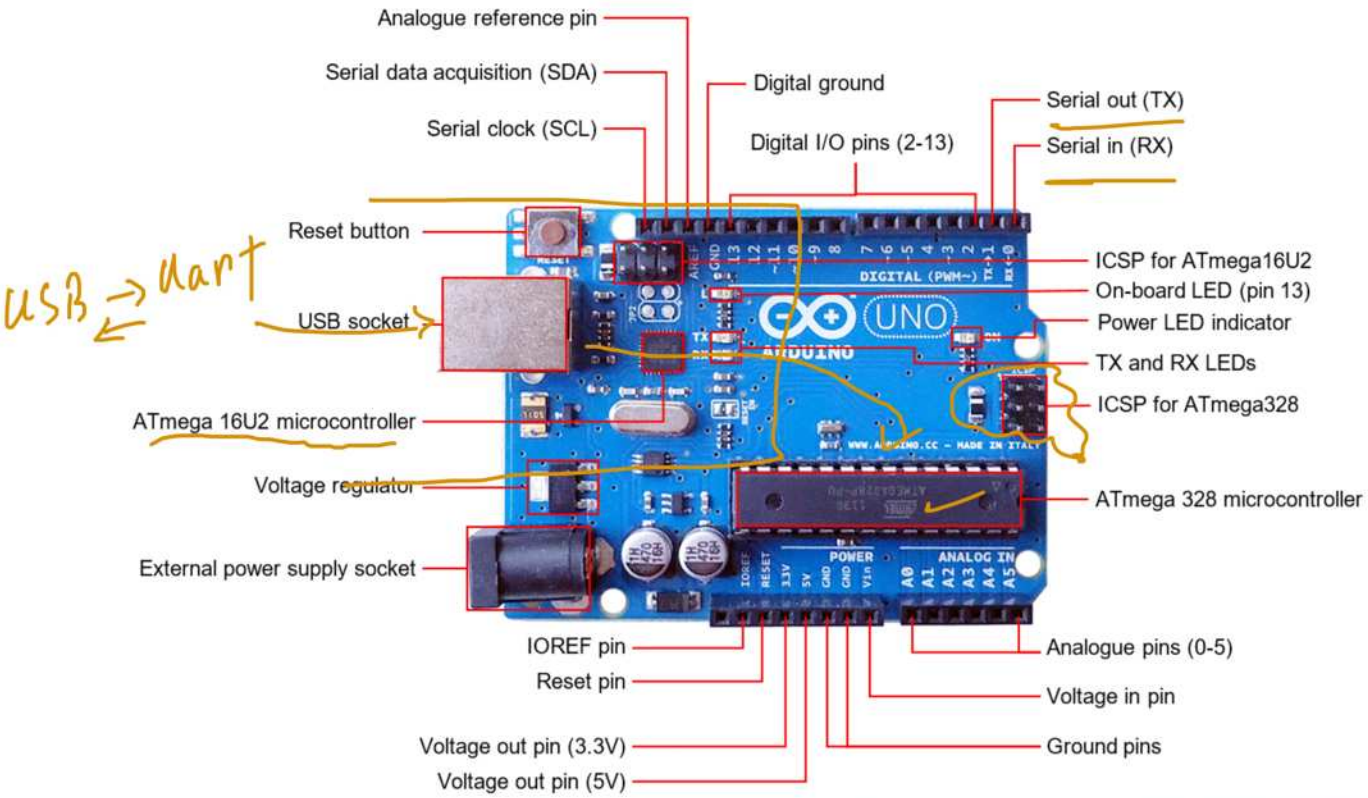
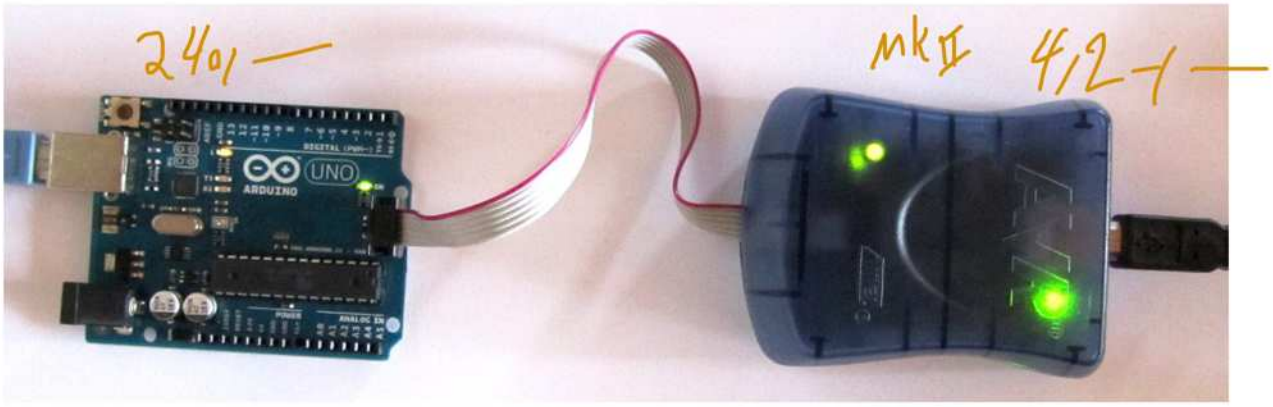
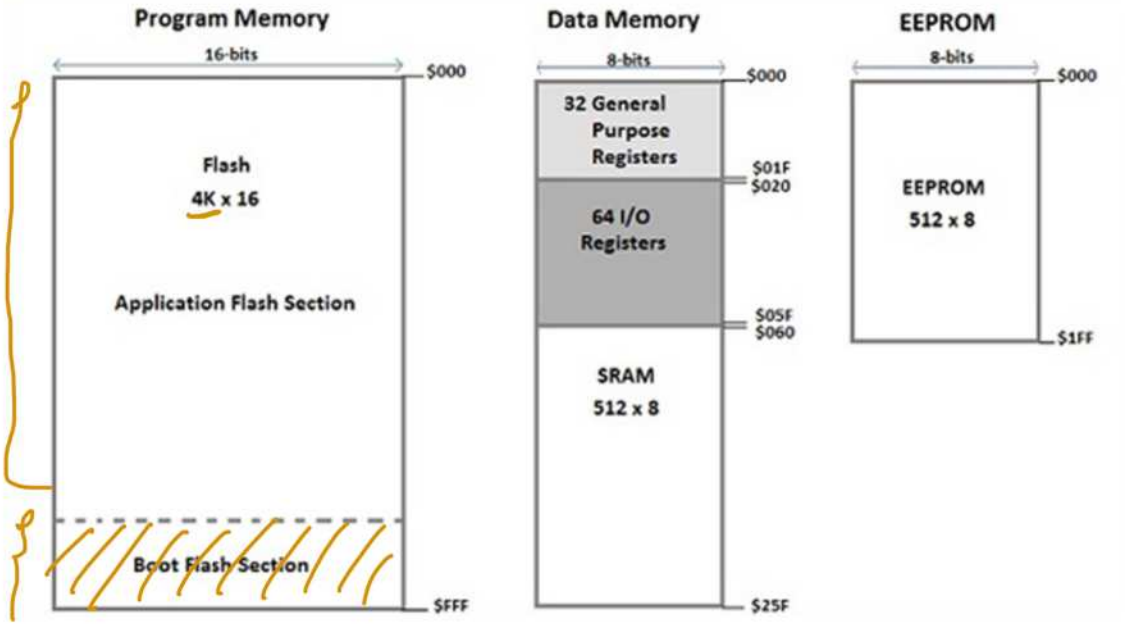
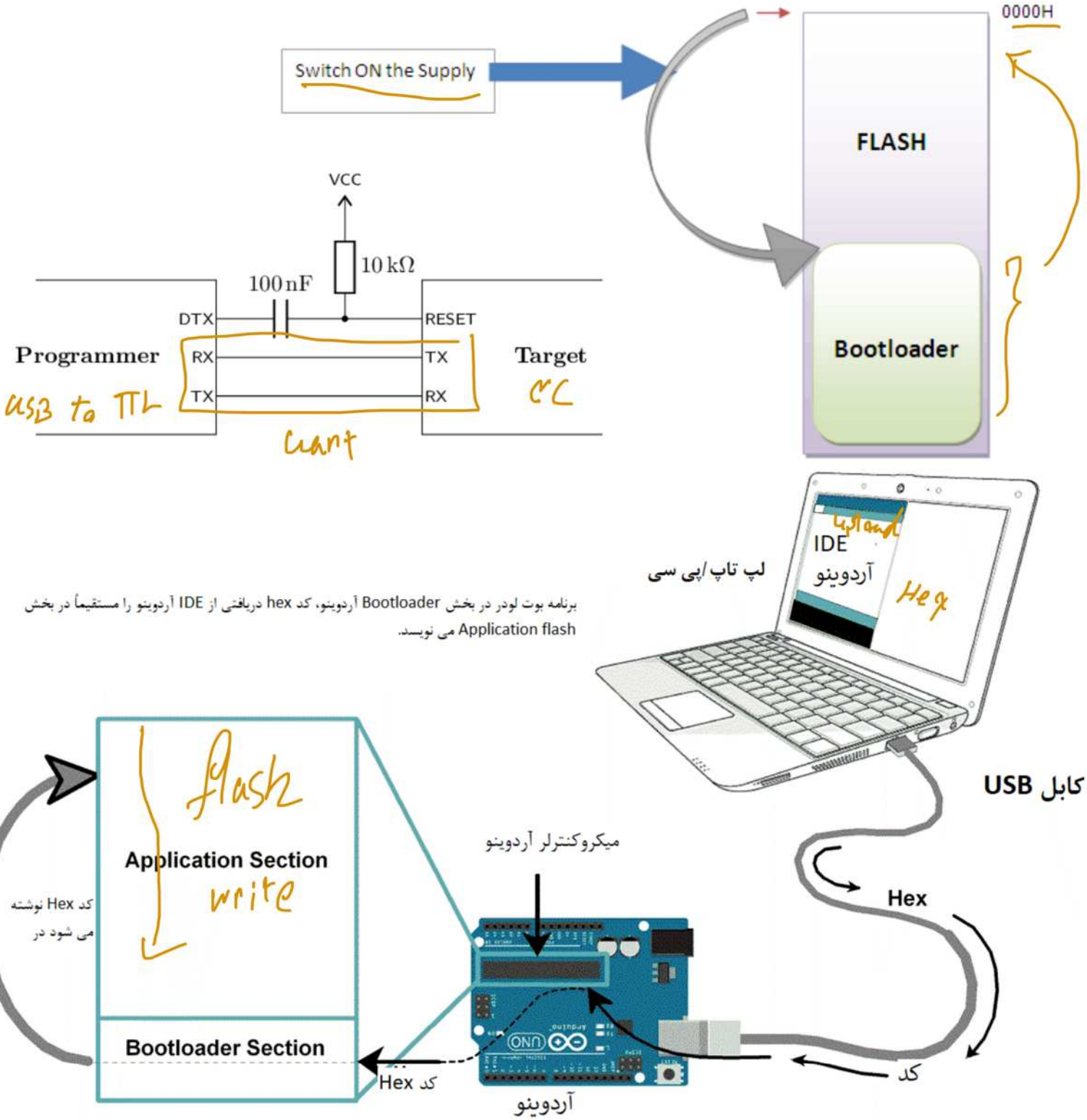

PC
Hex
01
Programmer
PCB
ISP
On-board Prog

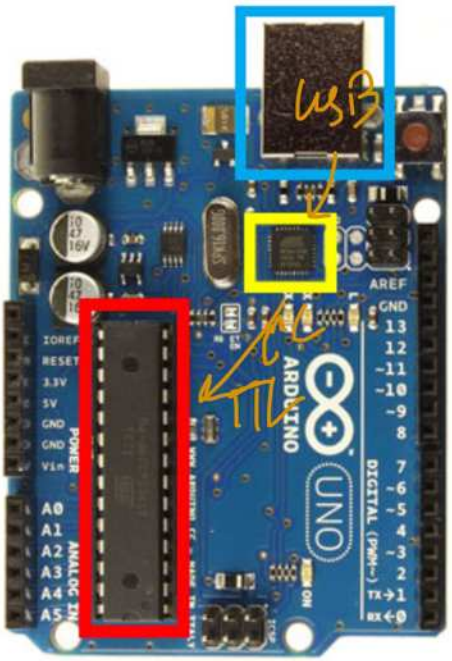

ARDUINO
Programmer
IDE
Bootloader

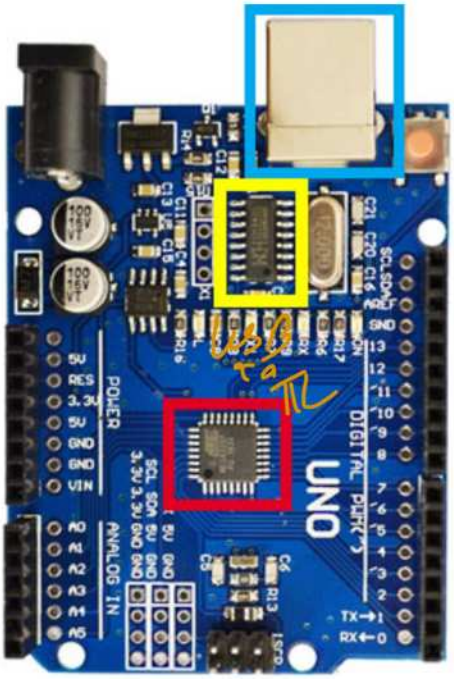

Analogue reference pin
Serial data acquisition (SDA)
Serial clock (SCL)
Digital ground
Digital I/O pins (2-13)
Serial out (TX)
Serial in (RX)
Reset button
USB socket
ICSP for ATmega16U2
On-board LED (pin 13)
Power LED indicator
TX and RX LEDs
ICSP for ATmega328
ATmega 16U2 microcontroller
Voltage regulator
ATmega 328 microcontroller
External power supply socket
IOREF pin
Reset pin
Voltage out pin (3.3V)
Voltage out pin (5V)
Analogue pins (0-5)
Voltage in pin
Ground pins

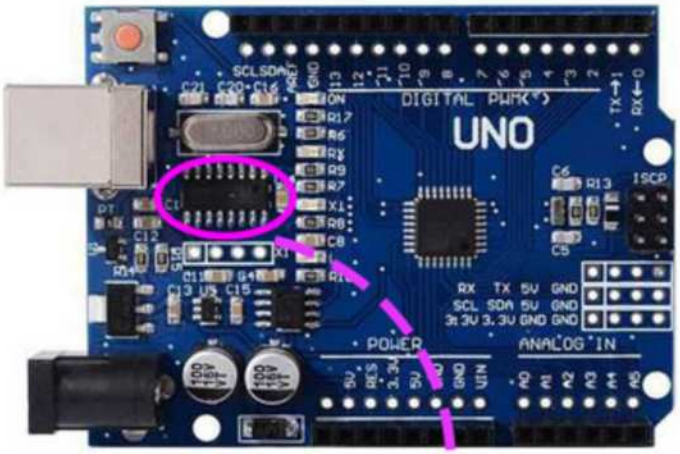



Program Memory
16-bits
$000
Flash
4K x 16
Application Flash Section
Boot Flash Section
$FFF
Data Memory
8-bits
$000
32 General Purpose Registers
$01F
$020
64 I/O Registers
$05F
$060
SRAM
512 x 8
$25F
EEPROM
8-bits
$000
EEPROM
512 x 8
$1FF

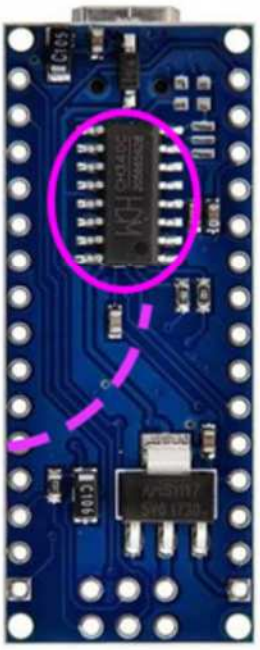

Switch ON the Supply
0000H
FLASH
Bootloader
VCC
10 kΩ
100 nF
DTX
RX
TX
RESET
TX
RX
Programmer
Target
usb to TTL
uart
IDE
آردوینو
Hex
لپ تاپ/پی سی
برنامه بوت لودر در بخش Bootloader آردوینو، کد hex دریافتی از IDE آردوینو را مستقیماً در بخش Application flash می نویسد.
کابل USB
Hex
میکروکنترلر آردوینو
کد Hex نوشته می شود در
flash
Application Section
write
Bootloader Section
Hex کد
کد
آردوینو



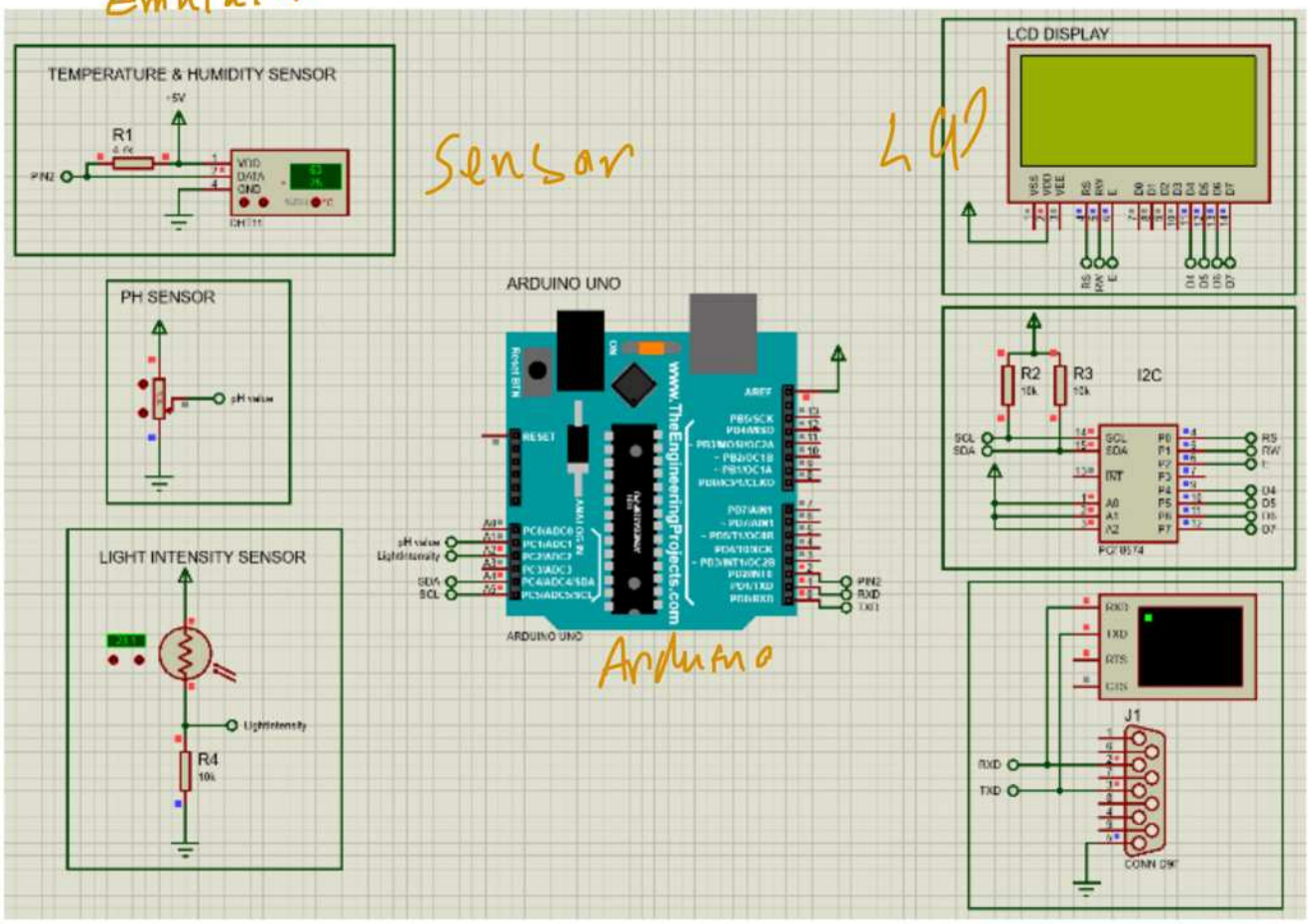




CH340



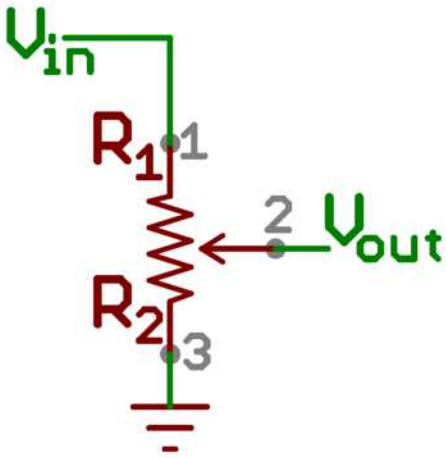
Simulator
Emulator

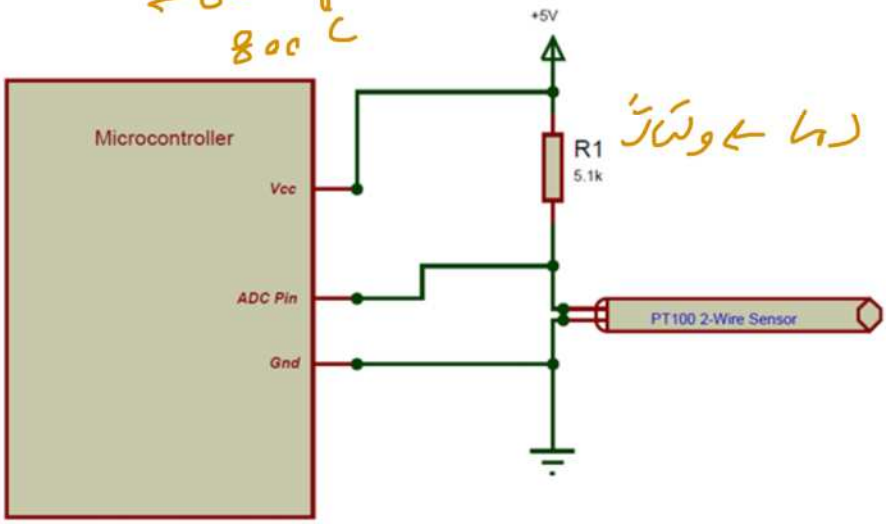


پلاٹینیو میٹر

Pt100 سنسر

-80°C
800°C



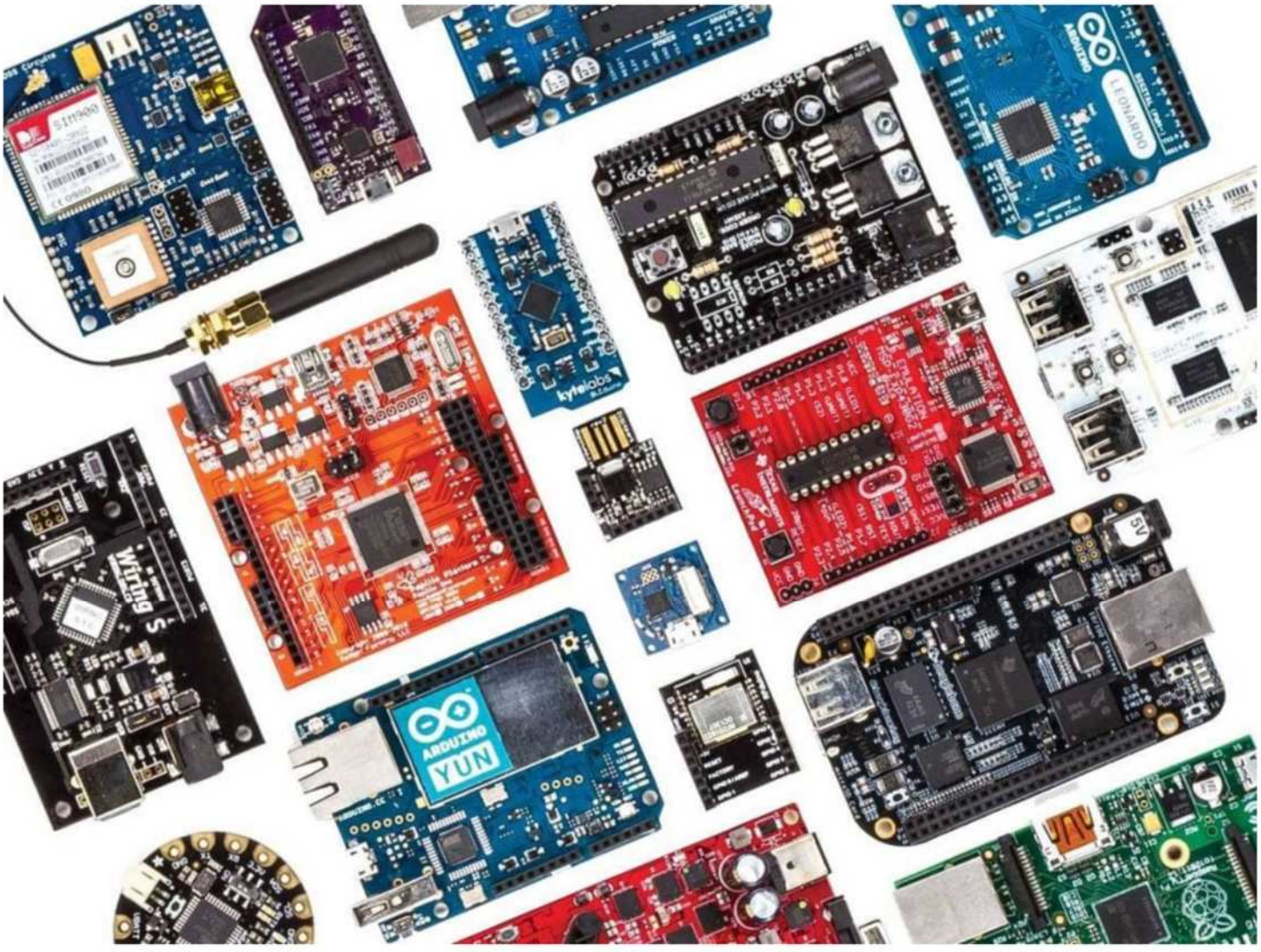


وولٹیج ڈیوائڈر

Emulator
ECU

Reduced Instruction Set Computer RISC

Complex Instruction Set Computer CISC



1

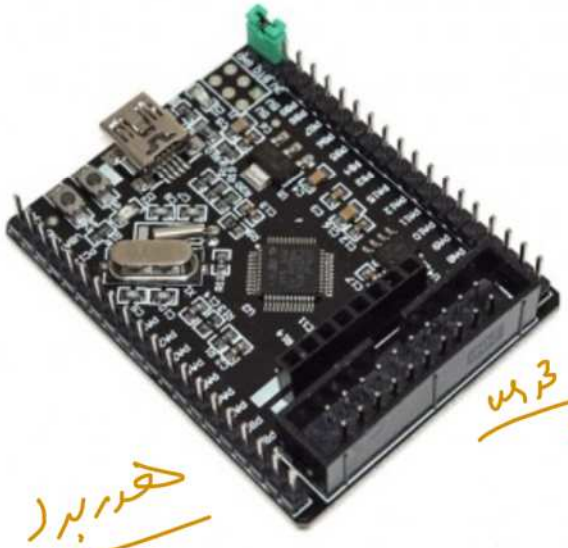
2

3

Header board هدر بورد

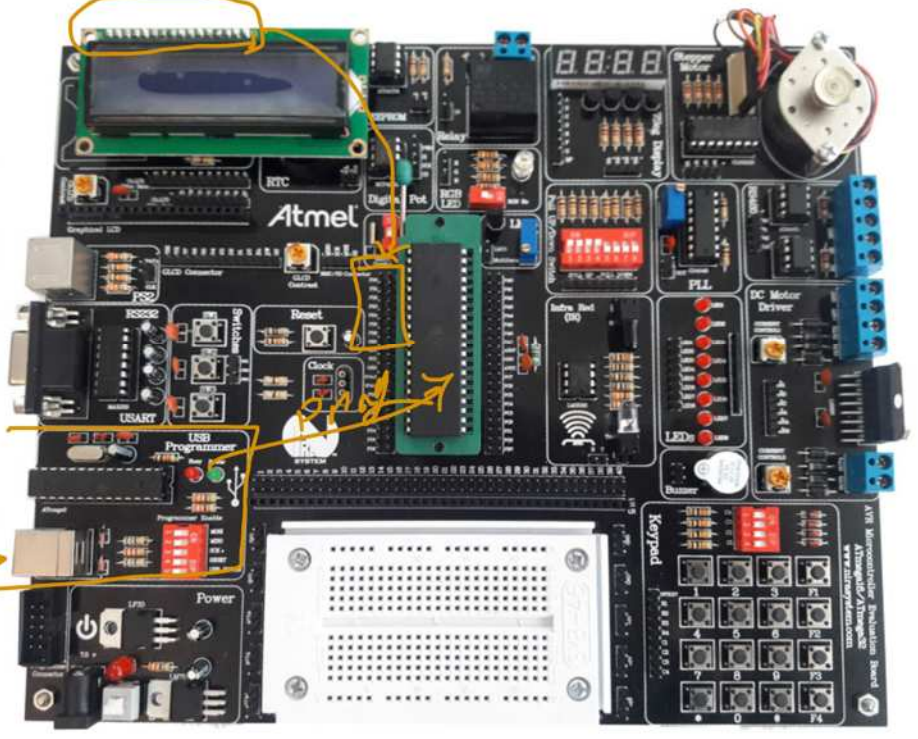
dev kit برد توسعه

Edu Board برد آموزشی



هدر برد

usb



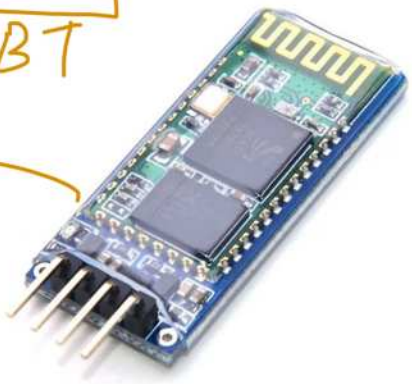
SoC System on Chip

WiFi

IO

WiFi IO BT

BT



flash

IoT

Power

ESP32

platform client

DataSheet User manual Application note
Refrence manual

Bookmarks

Table 1. Device summary
1 Introduction
2 Description
3 Pinouts and pin description
4 Memory mapping
5 Electrical characteristics
6 Package information
7 Ordering information scheme
8 Revision history

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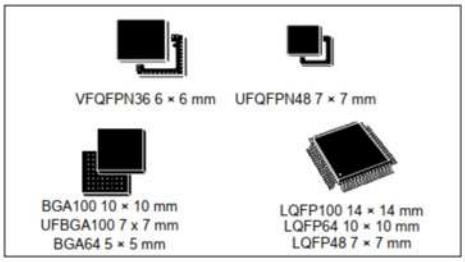
STM32F103x8
STM32F103xB

Medium-density performance line Arm®-based 32-bit MCU with 64 or 128 KB Flash, USB, CAN, 7 timers, 2 ADCs, 9 com. interfaces

Datasheet - production data

Features

- Arm® 32-bit Cortex®-M3 CPU core
  - 72 MHz maximum frequency, 1.25 DMIPS / MHz (Dhrystone 2.1) performance at 0 wait state memory access
  - Single-cycle multiplication and hardware division
- Memories
  - 64 or 128 Kbytes of Flash memory
  - 20 Kbytes of SRAM



- Debug mode
  - Serial wire debug (SWD) and JTAG interfaces

1 / 116 + 139.97%

1 Overview of the manual
2 Documentation conventions
3 Memory and bus architecture
4 CRC calculation unit
5 Power control (PWR)
6 Backup registers (BKP)
7 Low-, medium-, high- and XL-density reset and clock control (RCC)
8 Connectivity line devices: reset and clock control (RCC)
9 General-purpose and alternate-function I/Os (GPIOs and AFIOs)
10 Interrupts and events
11 Analog-to-digital converter (ADC)
12 Digital-to-analog converter (DAC)
13 Direct memory access controller (DMA)
14 Advanced-control timers (TIM1 and TIM8)
15 General-purpose timers (TIM2 to TIM5)
16 General-purpose timers (TIM9 to TIM14)
17 Basic timers (TIM6 and TIM7)
18 Real-time clock (RTC)
19 Independent watchdog (IWDG)
20 Window watchdog (WWDG)
21 Flexible static memory controller (FSMC)
22 Secure digital input/output interface (SDIO)
23 Universal serial bus full-speed device interface (USB)
24 Controller area network (bxCAN)
25 Serial peripheral interface (SPI)
26 Inter-integrated circuit (I2C) interface
27 Universal synchronous asynchronous receiver transmitter (USART)
28 USB on-the-go full-speed (OTG_FS)
29 Ethernet (ETH): media access control (MAC) with DMA controller
30 Device electronic signature
31 Debug support (DBG)
32 Revision history

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RM0008
Reference manual

STM32F101xx, STM32F102xx, STM32F103xx, STM32F105xx and STM32F107xx advanced Arm®-based 32-bit MCUs

Introduction

This reference manual is addressed to application developers.

It provides complete information on how to use the STM32F101xx, STM32F102xx, STM32F103xx and STM32F105xx/STM32F107xx microcontroller memory and peripherals. These devices, featuring different memory sizes, packages and peripherals, are referred to as STM32F10xxx throughout the document, unless otherwise specified.

For ordering information, mechanical and electrical device characteristics refer to the low-, medium-, high- and XL-density STM32F101xx and STM32F103xx datasheets, to the low- and medium-density STM32F102xx datasheets and to the STM32F105xx/STM32F107xx connectivity line datasheet.

For information on programming, erasing and protection of the internal Flash memory refer to:

- PM0075 for low-, medium- high-density and connectivity line STM32F10xxx devices
- PM0068 for XL-density STM32F10xxx devices.

For information on the Arm® Cortex®-M3 core, refer to PM0056, *STM32F10xxx Cortex®-M3 programming manual*.

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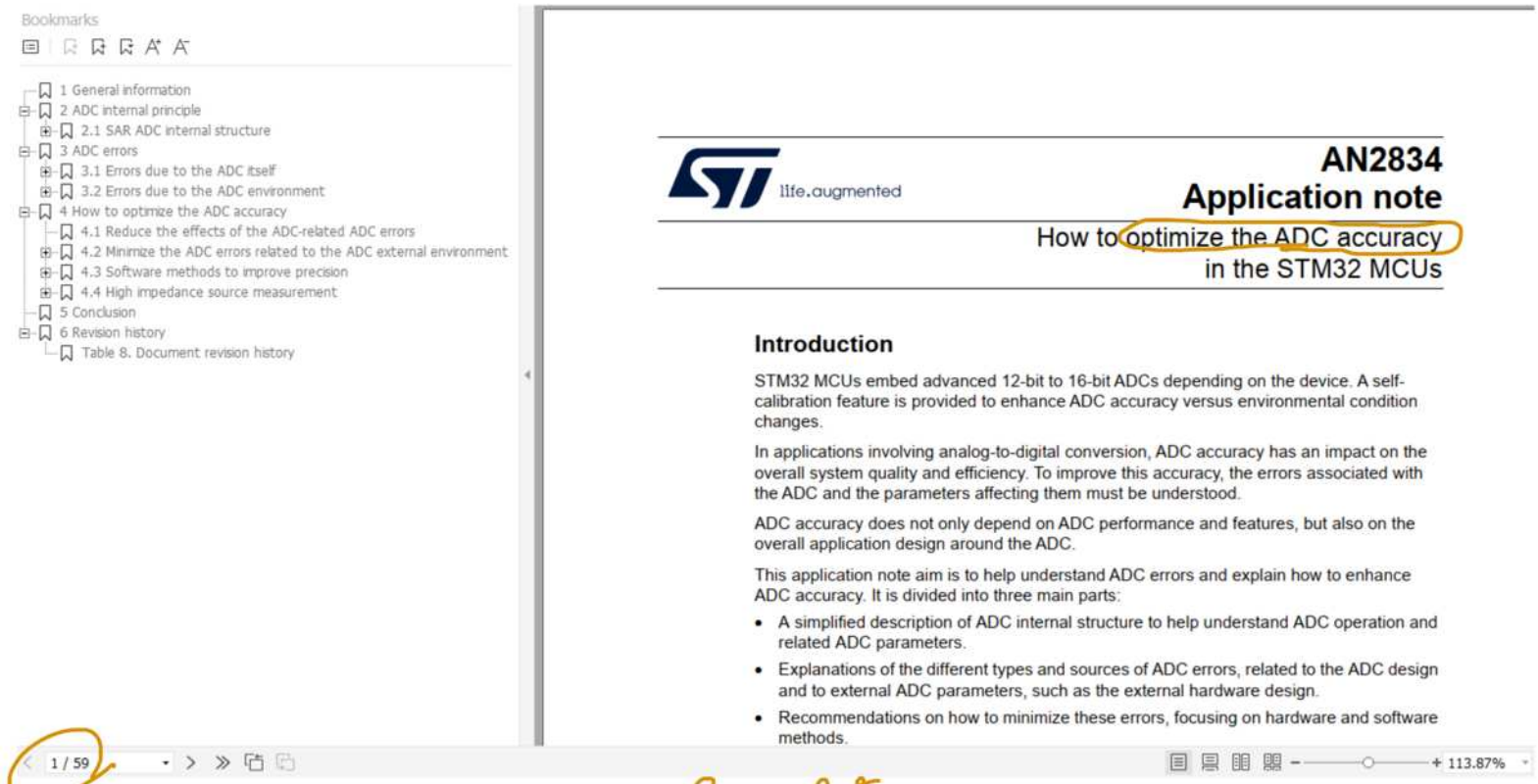

Table 13-1. Device Clocking Options Select

Device Clocking Option	CKSEL[3:0]
Low Power Crystal Oscillator	1111 - 1000
Full Swing Crystal Oscillator	0111 - 0110
Low Frequency Crystal Oscillator	0101 - 0100
Internal 128kHz RC Oscillator	0011
Calibrated Internal RC Oscillator	0010
External Clock	0000
Reserved	0001

Note: For all fuses, '1' means unprogrammed while '0' means programmed.

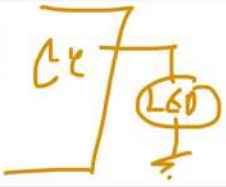

Table 14-1. **Port Pin Configurations**

DDxn	PORTxn	PUD (in MCUCR)	I/O	Pull-up	Comment
1	0	X	Output	No	Output Low (Sink)
1	1	X	Output	No	Output High (Source)