ARDUINO



| D19/SCL | PC5 | SCL |
| D18/SDA | PC4 | SDA |
| AREF | | |
| GND | | |
| D13 | PB5 | SCK |
| D12 | PB4 | CIPO |
| ~D11 | PB3 | COPI |
| ~D10 | PB2 | SS |
| ~D9 | PB1 | |
| D8 | PB0 | |

| D7 | PD7 | |
| ~D6 | PD6 | |
| ~D5 | PD5 | |
| D4 | PD4 | |
| ~D3 | PD3 | |
| D2 | PD2 | |
| D1/TX | PD1 | |
| D0/RX | PD0 | |

| NC |
| IOREF |
| PC6 | RESET |
| +3V3 |
| +5V |
| GND |
| GND |
| VIN |

| ADC[0] | PC0 | A0 | D14 |
| ADC[1] | PC1 | A1 | D15 |
| ADC[2] | PC2 | A2 | D16 |
| ADC[3] | PC3 | A3 | D17 |
| ADC[4] | PC4 | A4 | D18 |
| ADC[5] | PC5 | A5 | D19 |

| LED_BUILTIN | PB5 |
| TX LED | PD5 |
| RX LED | PD4 |

| Power |

**Legend**

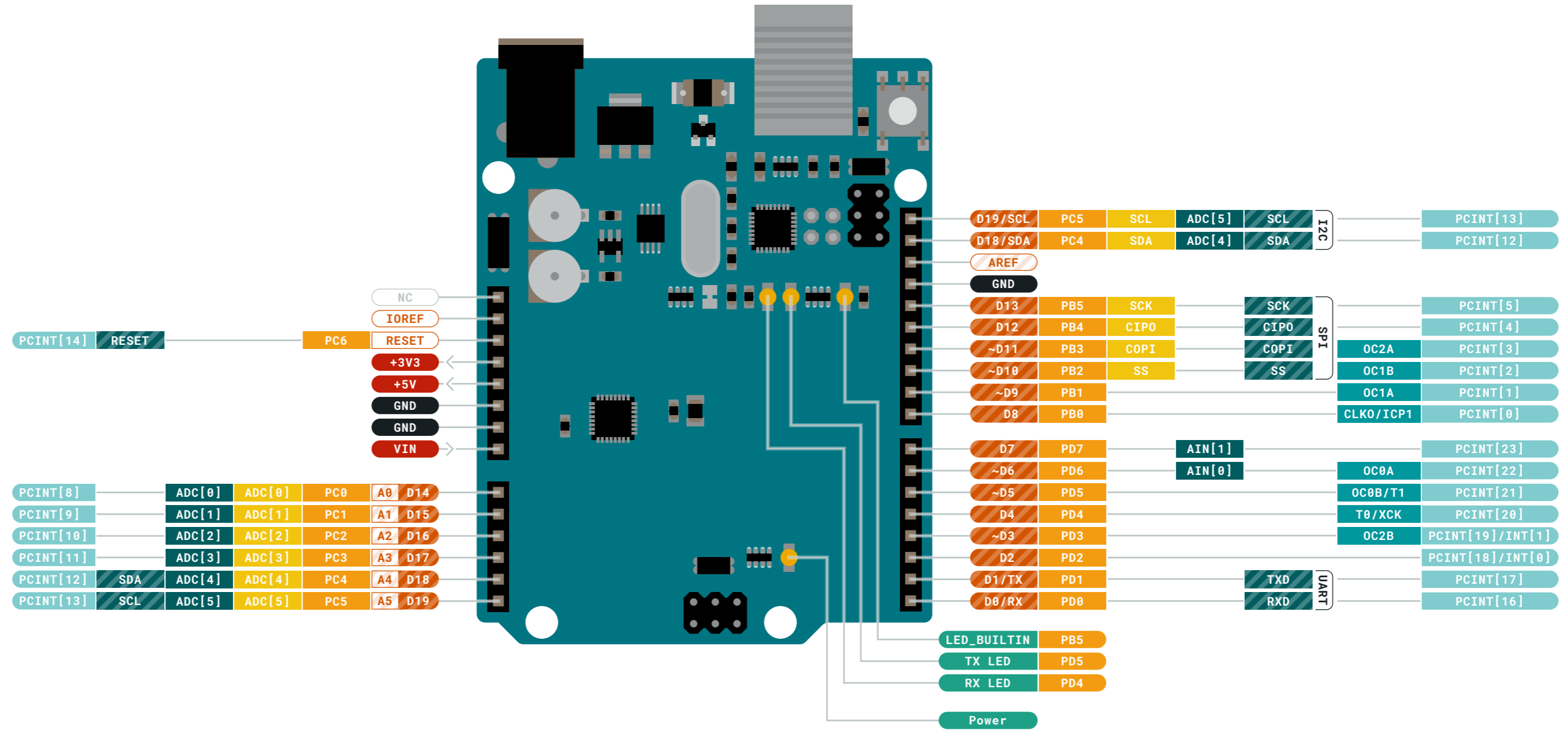| | | | |
|---|---|---|---|
| ■ Ground | | ▨ Digital Pin | |
| ■ Power | | ▨ Analog Pin | |
| ■ LED | | ▢ Other Pin | |
| ■ Internal Pin | | ▨ Microcontroller's Port | |
| ■ SWD Pin | | ▨ Default | |

⚠ **MAXIMUM** current per I/O pin is 20mA

⚠ **MAXIMUM** current per +3.3V pin is 50mA

**VIN** 6-20 V input to the board.

NOTE: CIPO/COPI have previously been referred to as MISO/MOSI

**Last update: 17/06/2020**

ARDUINO



| | | | | | |
|---|---|---|---|---|---|
| D19/SCL | PC5 | SCL | ADC[5] | SCL | I2C |
| D18/SDA | PC4 | SDA | ADC[4] | SDA | |

AREF
GND

| | | | | | | |
|---|---|---|---|---|---|---|
| D13 | PB5 | SCK | | SCK | | |
| D12 | PB4 | CIPO | | CIPO | | SPI |
| ~D11 | PB3 | COPI | | COPI | OC2A | |
| ~D10 | PB2 | SS | | SS | OC1B | |
| ~D9 | PB1 | | | | OC1A | |
| D8 | PB0 | | | | CLKO/ICP1 | |

| | | | | |
|---|---|---|---|---|
| D7 | PD7 | AIN[1] | | |
| ~D6 | PD6 | AIN[0] | | OC0A |
| ~D5 | PD5 | | | OC0B/T1 |
| D4 | PD4 | | | T0/XCK |
| ~D3 | PD3 | | | OC2B |
| D2 | PD2 | | | |
| D1/TX | PD1 | | TXD | UART |
| D0/RX | PD0 | | RXD | |

PCINT[13]
PCINT[12]

PCINT[5]
PCINT[4]
PCINT[3]
PCINT[2]
PCINT[1]
PCINT[0]

PCINT[23]
PCINT[22]
PCINT[21]
PCINT[20]
PCINT[19]/INT[1]
PCINT[18]/INT[0]
PCINT[17]
PCINT[16]

| | |
|---|---|
| LED_BUILTIN | PB5 |
| TX LED | PD5 |
| RX LED | PD4 |

Power

NC
IOREF

| | | |
|---|---|---|
| PCINT[14] | RESET | PC6 | RESET |

+3V3
+5V
GND
GND
VIN

| | | | | | | |
|---|---|---|---|---|---|---|
| PCINT[8] | ADC[0] | ADC[0] | PC0 | A0 | D14 |
| PCINT[9] | ADC[1] | ADC[1] | PC1 | A1 | D15 |
| PCINT[10] | ADC[2] | ADC[2] | PC2 | A2 | D16 |
| PCINT[11] | ADC[3] | ADC[3] | PC3 | A3 | D17 |
| PCINT[12] | SDA | ADC[4] | ADC[4] | PC4 | A4 | D18 |
| PCINT[13] | SCL | ADC[5] | ADC[5] | PC5 | A5 | D19 |

**Legend**

- Ground
- Power
- LED
- Internal Pin
- SWD Pin

- Digital Pin
- Analog Pin
- Other Pin
- Microcontroller's Port
- Default

- Analog
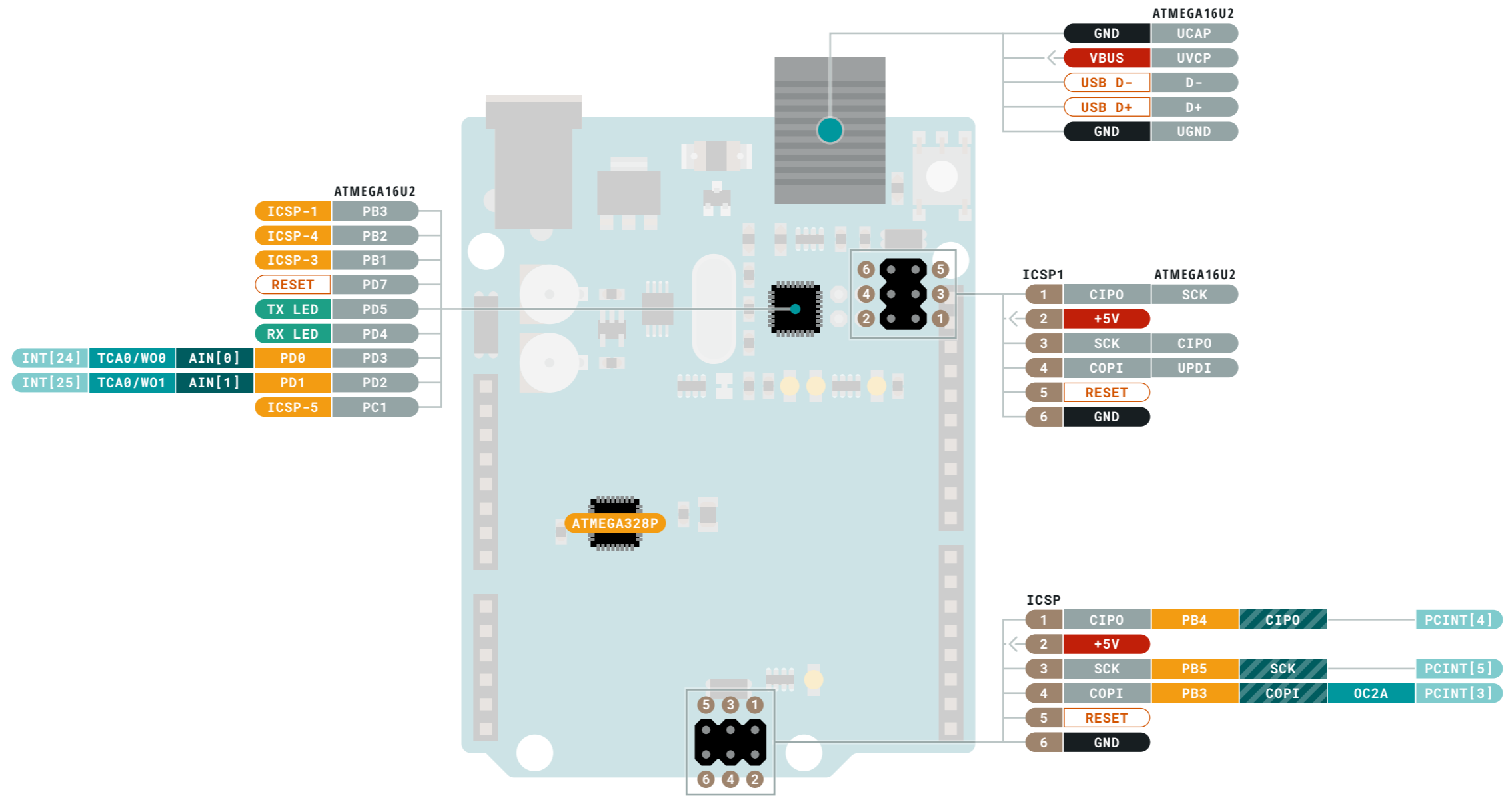- Communication
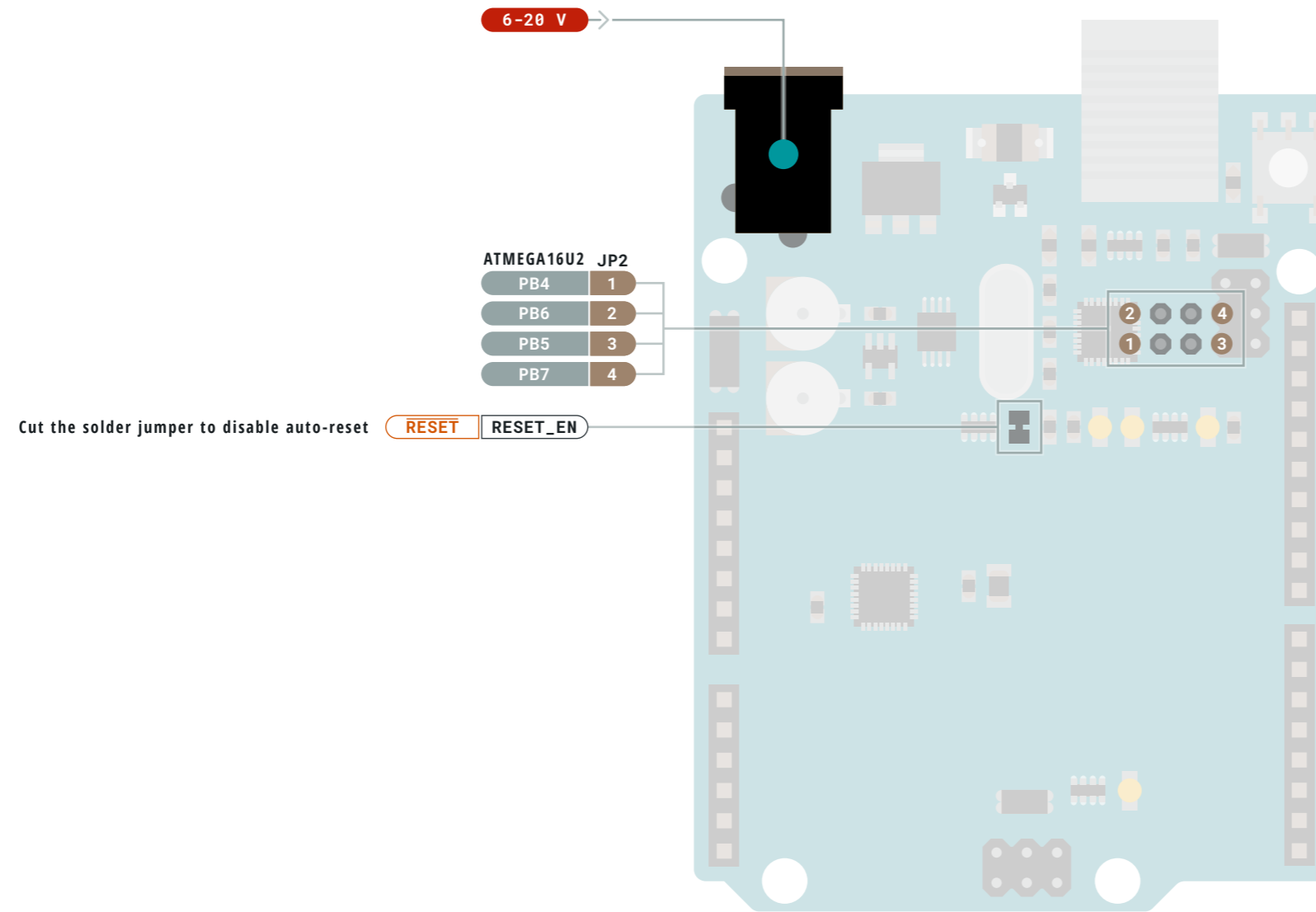- Timer
- Interrupt
- Sercom

⚠ **MAXIMUM** current per I/O pin is 20mA

⚠ **MAXIMUM** current per +3.3V pin is 50mA

**VIN** 6-20 V input to the board.

NOTE: CIPO/COPI have previously been referred to as MISO/MOSI

**ATMEGA16U2**

| GND | UCAP |
|---|---|
| VBUS | UVCP |
| USB D- | D- |
| USB D+ | D+ |
| GND | UGND |

**ATMEGA16U2**

| ICSP-1 | PB3 |
|---|---|
| ICSP-4 | PB2 |
| ICSP-3 | PB1 |
| RESET | PD7 |
| TX LED | PD5 |
| RX LED | PD4 |

| INT[24] | TCA0/WO0 | AIN[0] | PD0 | PD3 |
|---|---|---|---|---|
| INT[25] | TCA0/WO1 | AIN[1] | PD1 | PD2 |
| | | ICSP-5 | PC1 | |

**ICSP1**     **ATMEGA16U2**

| 1 | CIPO | SCK |
|---|---|---|
| 2 | +5V | |
| 3 | SCK | CIPO |
| 4 | COPI | UPDI |
| 5 | RESET | |
| 6 | GND | |

**ATMEGA328P**

**ICSP**

| 1 | CIPO | PB4 | CIPO | | PCINT[4] |
|---|---|---|---|---|---|
| 2 | +5V | | | | |
| 3 | SCK | PB5 | SCK | | PCINT[5] |
| 4 | COPI | PB3 | COPI | OC2A | PCINT[3] |
| 5 | RESET | | | | |
| 6 | GND | | | | |

**Legend:**

- Ground
- Power
- LED
- Internal Pin
- SWD Pin
- Digital Pin
- Analog Pin
- Other Pin
- Microcontroller's Port
- Default
- Analog
- Communication
- Timer
- Interrupt
- Sercom

⚠ **MAXIMUM** current per I/O pin is 20mA

⚠ **MAXIMUM** current per +3.3V pin is 50mA

**VIN** 6-20 V input to the board.

NOTE: CIPO/COPI have previously been referred to as MISO/MOSI

6-20 V

ATMEGA16U2 JP2

| PB4 | 1 |
| PB6 | 2 |
| PB5 | 3 |
| PB7 | 4 |

Cut the solder jumper to disable auto-reset    RESET    RESET_EN

**Ground**

**Power**

**LED**

**Internal Pin**

**SWD Pin**

**Digital Pin**

**Analog Pin**

**Other Pin**

**Microcontroller's Port**

**Default**

**SJ Pin**
Making a short circuit
using the solder jumper
allows only the function
in the SJ Pin cells.

⚠ **MAXIMUM** current per I/O
pin is 20mA

⚠ **MAXIMUM** current per +3.3V
pin is 50mA

**VIN** 6-20 V input to the board.