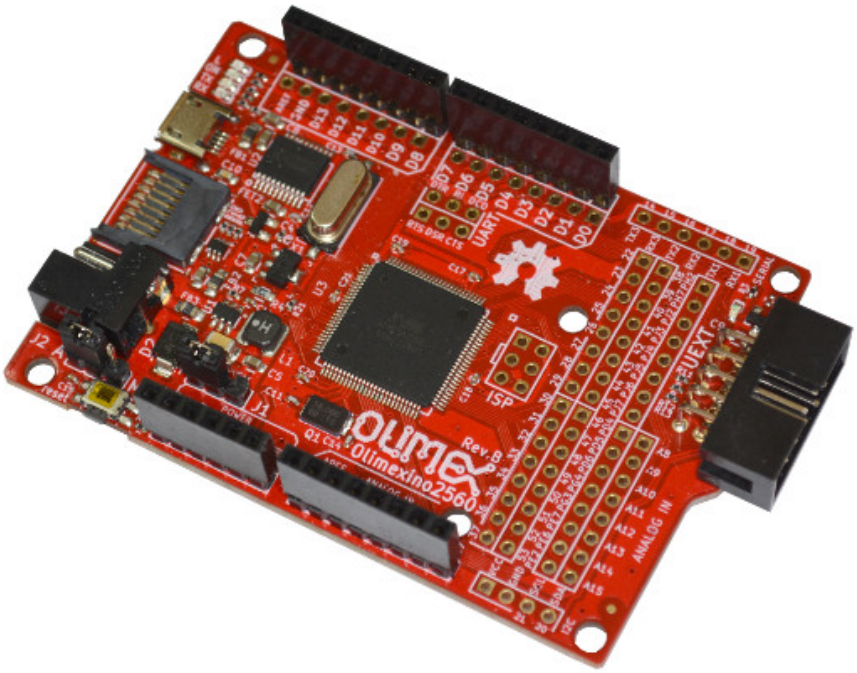

# OLIMEXINO-2560

# Users manual

## Rev.2 May 2021

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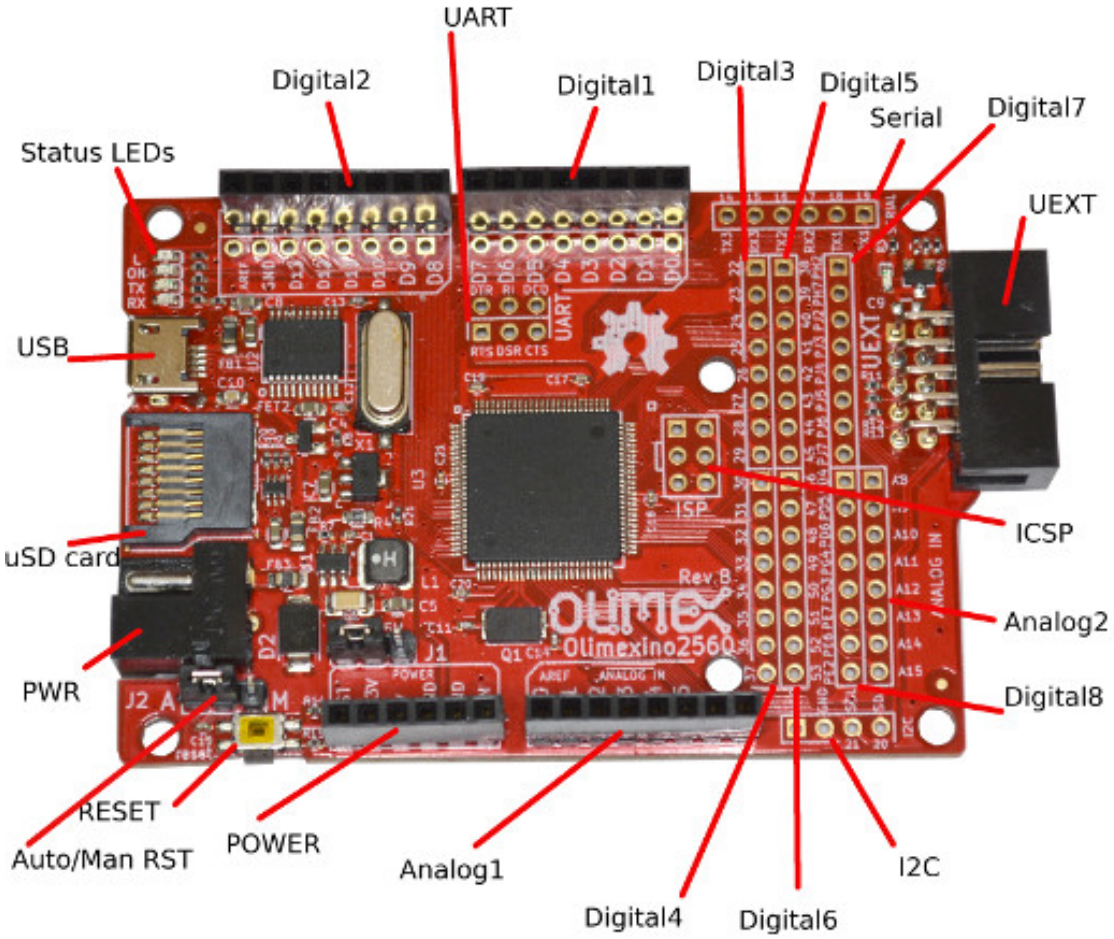
## OLIMEXINO-2560 features

OLIMEXINO-2560 is Arduino Mega 2560 like board with ATMega2560 processor and these features:

- ATMega2560 AVR processor
- 256 KB Flash, 8KB SRAM, 4KB EEPROM
- 64 digital GPIOs, 15 analog GPIOs, 4 UARTs
- micro USB connector
- USB-serial converter with CH340T for Arduino IDE programming via USB
- 4 status LEDs – Power (green), Status (yellow), Tx (green), Rx (red)
- micro SD card for file storage
- Works on either 5V and 3.3V (jumper selectable)
- Programmable with Arduino IDE (www.arduino.cc)
- Power supply is 6-15VDC for 5V operation
- Power supply is 5-15VDC for 3.3V operation
- Can be powered by USB connector power
- UEXT connector with power supply enable/disable
- Reset Button

# OLIMEXINO-2560 component locations



## GPIO Digital1

| | | |
|---|---|---|
| o | D0 | PE0 / RXD0 / PCINT8 |
| o | D1 | PE1 / TXD0 |
| o | D2 | PE4 / OC3B / INT4 |
| o | D3 | PE5 / OC3C / INT5 |
| o | D4 | PG5 / OCOB |
| o | D5 | PE3 / OC3A / AIN1 |
| o | D6 | PH3 / OC4A |
| o | D7 | PH4 / OC4B |

## GPIO Digital2

| | | |
|---|---|---|
| o | D8 | PH5 / OC4C |
| o | D9 | PH6 / OC4C |
| o | D10 | PB4 / PCINT4 / OC2A |
| o | D11 | PB5 / PCINT5 / OC1A |
| o | D12 | PB6 / PCINT6 / OC1B |
| o | D13 | PB7 / PCINT7 / OC0A / OC1C |
| o | GND | Ground 0V |
| o | AREF | Analog Reference for ADC |

## GPIO Serial

| | | |
|---|---|---|
| o | D14 | PJ1 / TXD3 / PCINT10 |
| o | D15 | PJ0 / RXD3 / PCINT9 |
| o | D16 | PH1 / TXD2 |
| o | D17 | PH0 / RXD2 |
| o | D18 | PD3 / TXD1 / INT3 |
| o | D19 | PD2 / RXD1 / INT2 |

## GPIO I2C

| | | |
|---|---|---|
| o | D20 | PD1 / SDA / INT1 |
| o | D21 | PD0 / SCL / INT0 |
| o | GND | Ground 0V |
| o | VCC | VCC 3.3V or 5V (J1 selectable) |

## GPIO Digital3

| | | |
|---|---|---|
| o | D22 | PA0 / AD0 |
| o | D23 | PA1 / AD1 |
| o | D24 | PA2 / AD2 |
| o | D25 | PA3 / AD3 |
| o | D26 | PA4 / AD4 |
| o | D27 | PA5 / AD5 |
| o | D28 | PA6 / AD6 |
| o | D29 | PA7 / AD7 |

## GPIO Digital4

| | | |
|---|---|---|
| o | D30 | PC7 / A15 |
| o | D31 | PC6 / A14 |
| o | D32 | PC5 / A13 |
| o | D33 | PC4 / A12 |
| o | D34 | PC3 / A11 |
| o | D35 | PC2 / A10 |
| o | D36 | PC1 / A9 |
| o | D37 | PC0 / A8 |

## GPIO Digital5

| | | |
|---|---|---|
| o | D38 | PD7 / T2 |
| o | D39 | PG2 / ALE |
| o | D40 | PG1 / RD |
| o | D41 | PG0 / WR |
| o | D42 | PL7 |
| o | D43 | PL6 |
| o | D44 | PL5 / OC5C |
| o | D45 | PL4 / OC5B |

## GPIO Digital6

| | | |
|---|---|---|
| o | D46 | PL4 / OC5A |
| o | D47 | PL2 / T5 |
| o | D48 | PL1 / ICP5 |
| o | D49 | PL0 / ICP4 |
| o | D50 | PB3 / PCINT3 / MISO |
| o | D51 | PB2 / PCINT2 / MOSI |
| o | D52 | PB1 / PCINT1 / SCK |
| o | D53 | PB0 / PCINT0 / SS |

## GPIO Digital7

| | | |
|---|---|---|
| o | PH2 | PH2 / XCK2 |
| o | PH7 | PH7 / T4 |
| o | PJ2 | PJ2 / XCK3 / PCINT11 |
| o | PJ3 | PJ3 / PCINT12 |
| o | PJ4 | PJ4 / PCINT13 |
| o | PJ5 | PJ5 / PCINT14 |
| o | PJ6 | PJ6 / PCINT15 |
| o | PJ7 | PJ7 |

## GPIO Digital8

| | | |
|---|---|---|
| o | PD4 | PD4 / ICP1 |
| o | PD5 | PD5 / XCK1 |
| o | PD6 | PD6 / T1 |
| o | PG4 | PG4 / TOSC1 |
| o | PG3 | PG3 / TOSC2 |
| o | PE7 | PE7 / CLK0 / ICP3 / INT7 |
| o | PE6 | PE6 / T3 / INT6 |
| o | PE2 | PE2 / XCK0 / AIN0 |

## GPIO Analog 1

| | | |
|---|---|---|
| o | A0 | PF0 / ADC0 |
| o | A1 | PF1 / ADC1 |
| o | A2 | PF2 / ADC2 |
| o | A3 | PF3 / ADC3 |
| o | A4 | PF4 / TCK / ADC4 |
| o | A5 | PF5 / TMS / ADC5 |
| o | A6 | PF6 / TDO / ADC6 |
| o | A7 | PF7 / TDI / ADC7 |

## GPIO Analog 2

| | | |
|---|---|---|
| o | A8 | PK0 / ADC8 / PCINT16 |
| o | A9 | PK1 / ADC9 / PCINT17 |
| o | A10 | PK2 / ADC10 / PCINT18 |
| o | A11 | PK3 / ADC11 / PCINT19 |
| o | A12 | PK4 / ADC12 / PCINT20 |
| o | A13 | PK5 / ADC13 / PCINT21 |
| o | A14 | PK6 / ADC14 / PCINT22 |
| o | A15 | PK7 / ADC15 / PCINT23 |

## UEXT

| | | | | | |
|---|---|---|---|---|---|
| 3.3V | 1 | o | o | 2 | GND |
| D18 / TXD1 | 3 | o | o | 4 | D19 / RXD1 |
| D21 / SCL | 5 | o | o | 6 | D20 / SDA |
| D50 / MISO | 7 | o | o | 8 | D51 / MOSI |
| D52 / SCK | 9 | o | o | 10 | D53 / CS |

## UART (CH340T USB-to-Serial signals)

| | | | | | |
|---|---|---|---|---|---|
| RTS | 1 | o | o | 6 | DTR |
| DSR | 2 | o | o | 5 | RI |
| CTS | 3 | o | o | 4 | DCD |

## ISP AVR programming connector

| | | | | | |
|---|---|---|---|---|---|
| MISO | 1 | o | o | 2 | VCC |
| SCK | 3 | o | o | 4 | MOSI |
| RST | 5 | o | o | 6 | GND |

# LEDs

| | |
|---|---|
| L | D13 / STATUS LED |
| ON | VCC |
| TX | D0 / RXD0 |
| A11 | D1 / TXD0 |

# Jumpers

## J1

J1 allows selecting the operating voltage of OLIMEXINO-2560. It can be set for either 5V operation (1-2 pin) or 3.3V operation (2-3pin).

Note!  Most Olimex UEXT expansion boards work at 3.3V, so if you use UEXT expansion board ensure that the jumper is set to 3.3V or the UEXT board will be damaged.

Important! According to ATmega2560's documentation in order for the chip to operate withing specification at 16MHz it needs 5V power supply. Our tests show that it works fine at 16Mhz at 3.3V, but if you wish to follow the specifications – use 5V mode of operation.

| | | |
|---|---|---|
| o | +5.0V | 5V power supply input |
| o | VCC | VCC output to AVR |
| o | +3.3V | 3.3V power supply input |

## J2

J2 jumper selects if Arduino can Reset and program board automatically if pin 1-2 are shorted

| | | |
|---|---|---|
| o | DTR | AUTO RESET BY Arduino IDE |
| o | RST | RESET |
| o | GND | Manual RESET button only |

## Using Digital GPIOs

You can set any of the Digital GPIOs as input or output using their names:

```
pinMode(D33,INPUT);         //D0-D53, PH2..PE2

value = digitalRead(D33);

pinMode(D13,OUTPUT);

digitalWrite(D13,HIGH);
```

## Using Analog GPIOs

```
value = analogRead(A7); //A0..A15

analogWrite(D44,128);         //PWM GPIOs D2..D13, D44..D46, value 0..255
```

# Power supply requirements

OLIMEXINO-2560 can be powered by USB port or External Power supply, Jack inner pin 2 mm and external diameter 5.5mm. Switching between power supplies is automatically, i.e. if external power supply is applied USB power supply is not used.

# Revision History

1.00 June 2019 – Initial release

2.00 May 2022 – Added info about clock and voltage operation of the main chip.