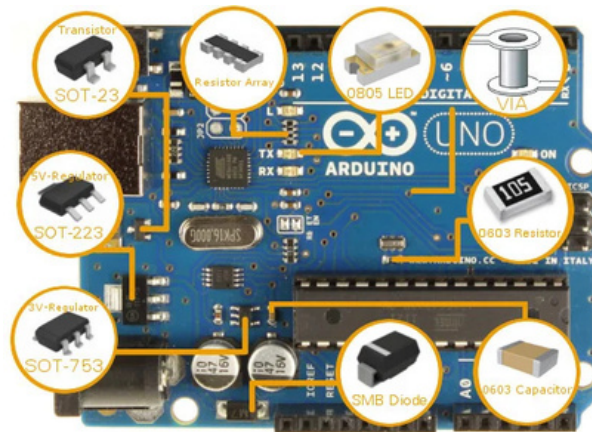
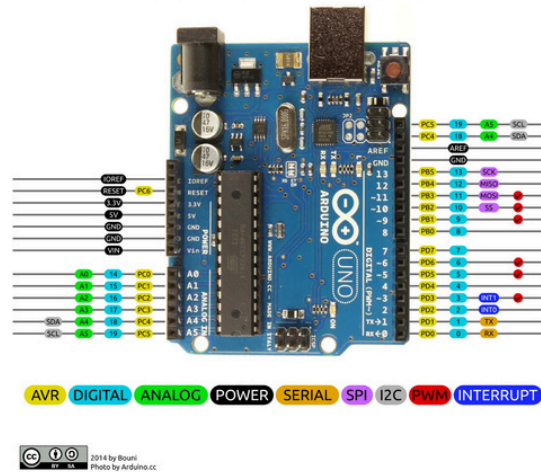


Arduino UNO Overview



Arduino Uno R3 Pinout



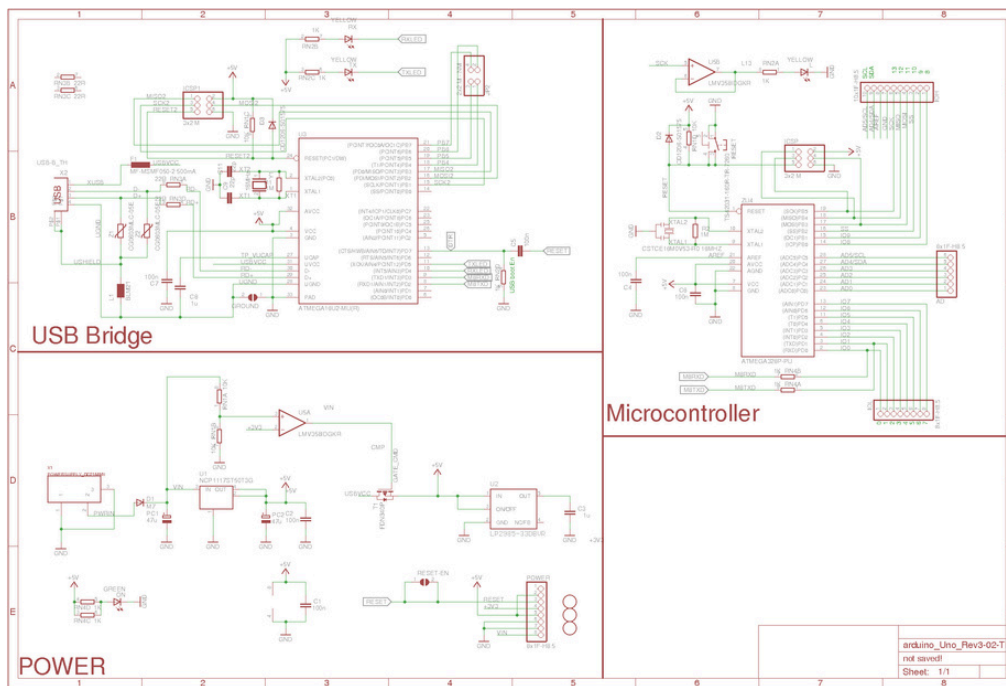
Arduino UNO R3 pinout. Image courtesy of GitHub.

Atmega168 Pin Mapping

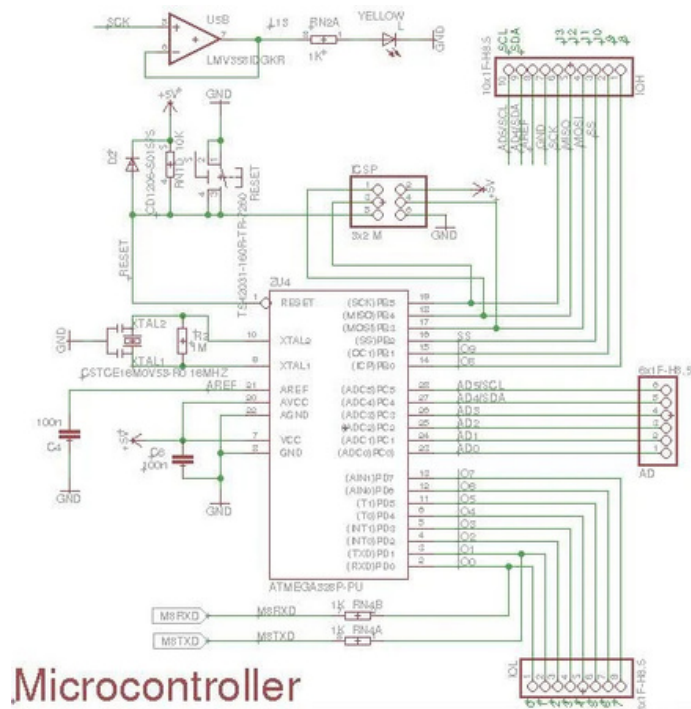
Arduino function	Atmega168 Pin	Atmega168 Pin	Atmega168 Pin	Arduino function
reset	(PCINT14/RESET) PC6	1	PC5 (ADC5/SCL/PCINT13)	analog input 5
digital pin 0 (RX)	(PCINT16/RXD) PD0	2	PC4 (ADC4/SDA/PCINT12)	analog input 4
digital pin 1 (TX)	(PCINT17/TXD) PD1	3	PC3 (ADC3/PCINT11)	analog input 3
digital pin 2	(PCINT18/INT0) PD2	4	PC2 (ADC2/PCINT10)	analog input 2
digital pin 3 (PWM)	(PCINT19/OC2B/INT1) PD3	5	PC1 (ADC1/PCINT9)	analog input 1
digital pin 4	(PCINT20/XCK/T0) PD4	6	PC0 (ADC0/PCINT8)	analog input 0
VCC	VCC	7	GND	GND
GND	GND	8	AREF	analog reference
crystal	(PCINT6/XTAL1/TOSC1) PB6	9	AVCC	VCC
crystal	(PCINT7/XTAL2/TOSC2) PB7	10	PB5 (SCK/PCINT5)	digital pin 13
digital pin 5 (PWM)	(PCINT21/OC0B/T1) PD5	11	PB4 (MISO/PCINT4)	digital pin 12
digital pin 6 (PWM)	(PCINT22/OC0A/AIN0) PD6	12	PB3 (MOSI/OC2A/PCINT3)	digital pin 11 (PWM)
digital pin 7	(PCINT23/AIN1) PD7	13	PB2 (SS/OC1B/PCINT2)	digital pin 10 (PWM)
digital pin 8	(PCINT0/CLKO/ICP1) PB0	14	PB1 (OC1A/PCINT1)	digital pin 9 (PWM)

Digital Pins 11, 12 & 13 are used by the ICSP header for MOSI, MISO, SCK connections (Atmega168 pins 17, 18 & 19). Avoid low-impedance loads on these pins when using the ICSP header.

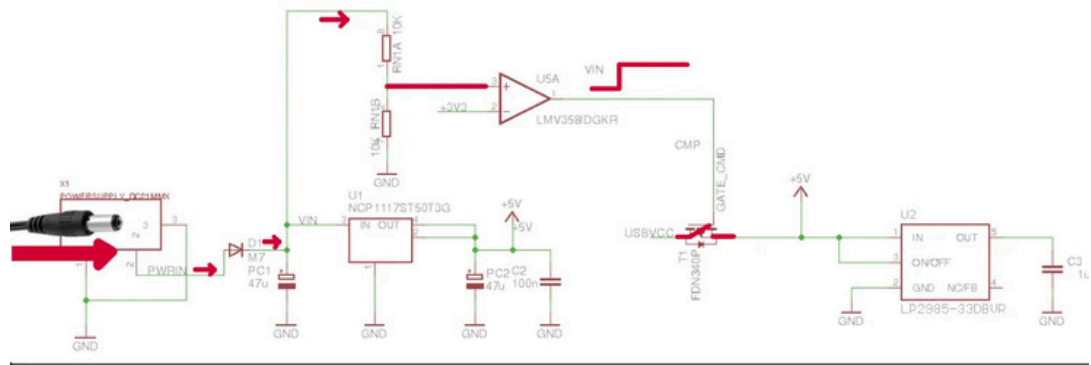
ATmega168 pinout with Arduino labels; the ATmega168 and ATmega328 are pin compatible. Image courtesy of Arduino.



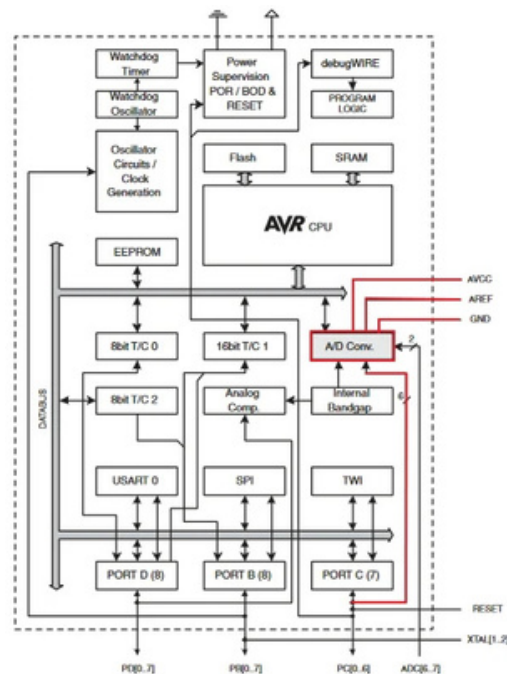
Redistributed version of the original Arduino schematic.



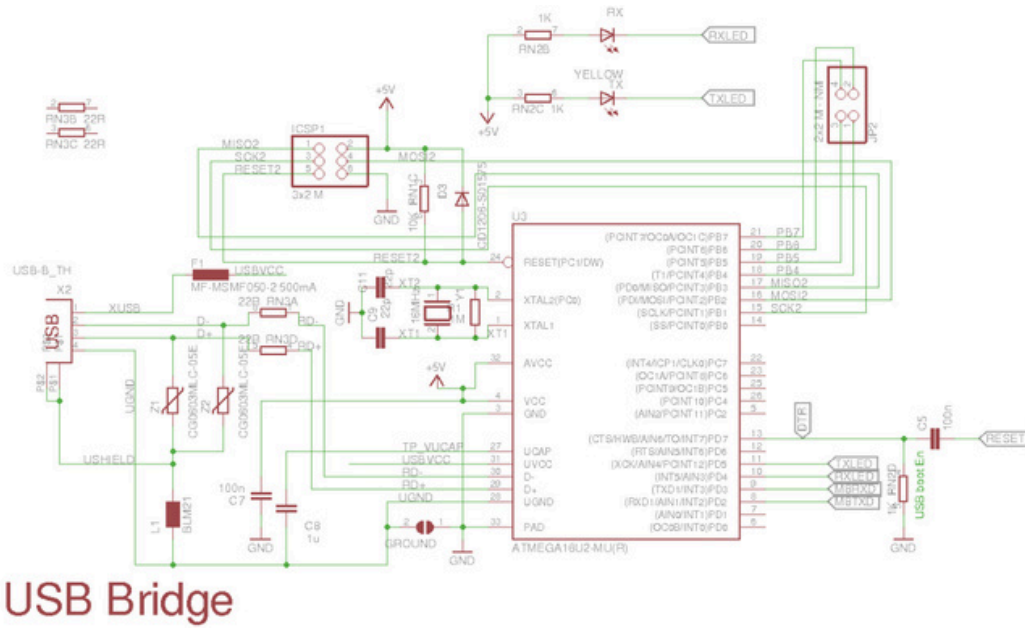
Arduino UNO R3 MCU part.



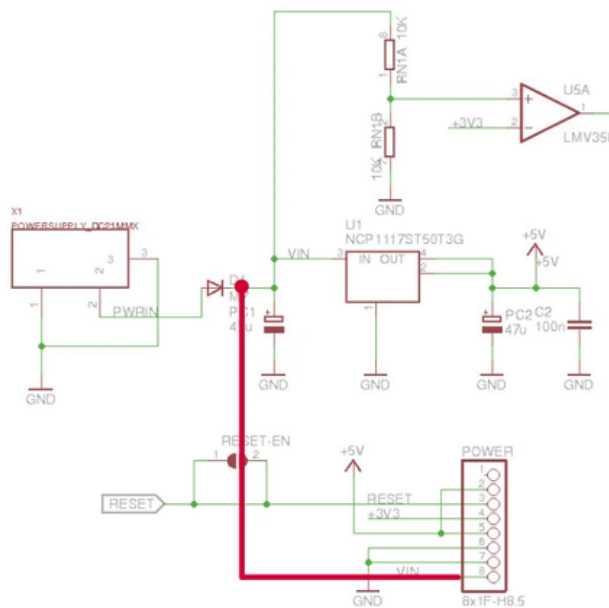
Power source switching mechanism.



ATmega328 block diagram.



Arduino USB bridge part. Click to enlarge.



reference - <https://www.allaboutcircuits.com/technical-articles/understanding-arduino-uno-hardware-design/>