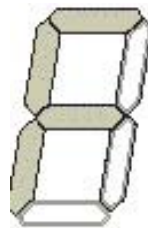


# Wulfden/Fundamental Logic iDuino (v2 & v3) Semi-Kit

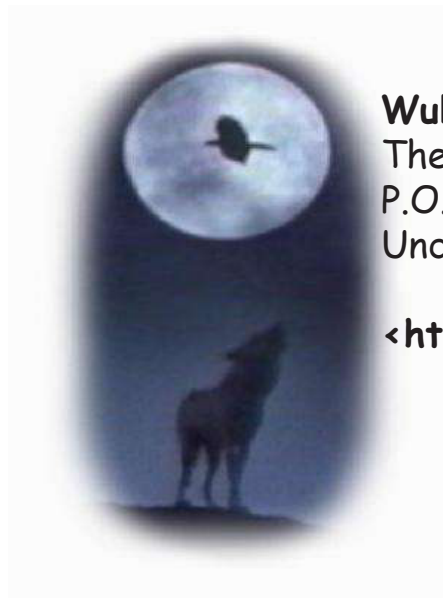


Totally Open Arduino-Compatible  
Hardware Development

*Revised - 2/3/2009*



## Fundamental Logic



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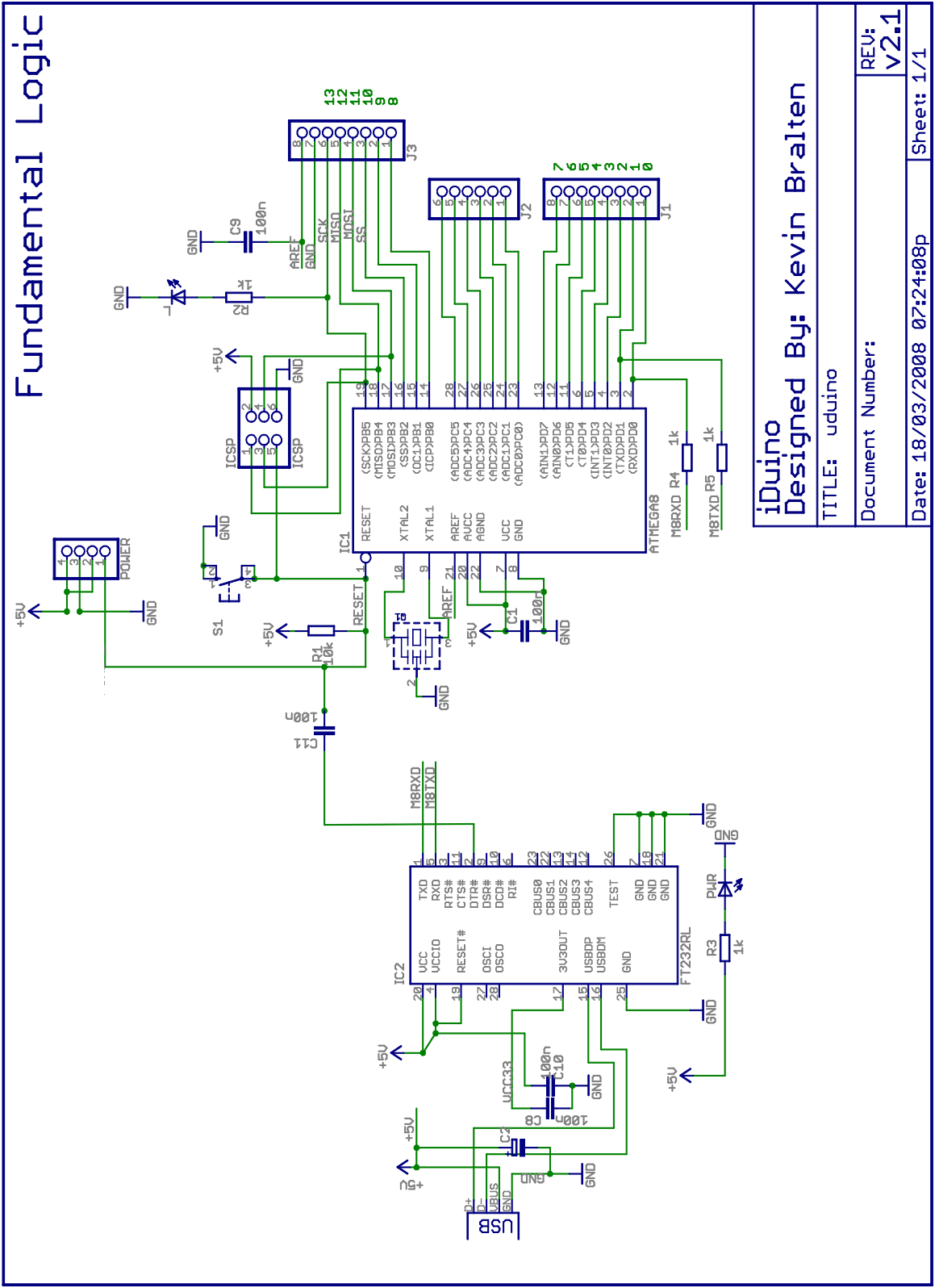
# 1 Wulfden - iDuino v2 Parts List

This is a **Semi-Kit**. Wulfden purchases the iDuino boards from Fundamental Logic with the surface mounted FT232RL chip and the USB B-female connector already soldered in place and functionally tested. This leaves only the through-hole parts to be attached, soldered and clipped by the purchaser.

The part designations come directly from the schematic (see next page)

1.	iDuino Board v2 w/FT232R chip and USB attached and checked	Fundamental Logic
2.	C1, C8, C9, C10, C11      0.1 uF monolithic capacitor ("104")	Mouser 80-C315C104M5U
3.	C2      47 uF 16v electrolytic capacitor	DigiKey P834-ND
4.	R1      carbon film resistor 10 Kohm 1/8 w (brwn-blk-org)	Mouser 299-10K-RC
5.	R2,R3,R4,R5      carbon film resistor 1 Kohm 1/8 w (brwn-blk-red)	Mouser 299-1K-RC
6.	Q1      ceramic resonator, 3 pin SIP, 16.000 MHz	Mouser 520-ZTT1600MX
7.	PWR      Green LED, 5 mm T 1-3/4	All Electronics LED-2
8.	L      Red LED, 5 mm T 1-3/4	All Electronics LED-1
9.	S1      n.o. push button switch - 6mm	Panasonic EVQ-QS205K
10.	ICSP      double row pin header (2x3)	Mouser 511-6121TG
11.	PWR      single row pin headers (1x4)	Mouser 511-6111TG
12.	J1      single row pin headers (1x10)	Mouser 511-6111TG
13.	J2      single row pin headers (1x6)	Mouser 511-6111TG
14.	J3      single row pin headers (1x8)	Mouser 511-6111TG
15.	n/a      3M dual wipe DIP socket 20 pin **	Mouser 517-4820-3004-CP
16.	n/a      3M dual wipe DIP socket 8 pin **	Mouser 517-4808-3004-CP

\*\* - Capacitor C1 is placed inside the outline of the U1 IC (ATmega168). The 28 pin socket you select can make or break how easy this is to fit. Many narrow spaced (0.3") 28 pin sockets have a support bar across the center that will interfere. At Wulfden we are fond of 3M's dual wipe sockets. You may use an 8 pin socket and a 20 pin socket to *assemble* a 28 pin socket. The 3M sockets have kinked legs that will hold them in place firmly while being soldered and are spaced that C1 will fit.



# 2

## Wulfden - iDuino v3 Parts List

This is a **Semi-Kit**. Wulfden purchases the iDuino boards from Fundamental Logic with the surface mounted FT232RL chip and the USB B-female connector already soldered in place and functionally tested. This leaves only the through-hole parts to be attached, soldered and clipped by the purchaser.

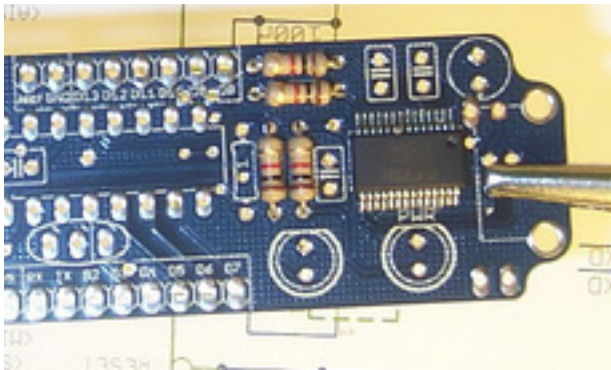
The part designations come directly from the schematic (see next page)

1.	iDuino Board v3 w/FT232R chip and USB attached and checked	Fundamental Logic
2.	C8, C9, C10, C11	0.1 uF monolithic capacitor ("104") Mouser 80-C315C104M5U
3.	C2	47 uF 16v electrolytic capacitor DigiKey P834-ND
4.	R1	carbon film resistor 10 Kohm 1/8 w (brwn-blk-org) Mouser 299-10K-RC
5.	R2,R3,R4,R5	carbon film resistor 1 Kohm 1/8 w (brwn-blk-red) Mouser 299-1K-RC
6.	Q1	ceramic resonator, 3 pin SIP, 16.000 MHz Mouser 520-ZTT1600MX
7.	PWR	Green LED, 5 mm T 1-3/4 All Electronics LED-2
8.	L	Red LED, 5 mm T 1-3/4 All Electronics LED-1
9.	S1	n.o. push button switch - 6mm Panasonic EVQ-QS205K
10.	ICSP	double row pin header (2x3) Mouser 511-6121TG
11.	J1	single row pin headers (1x15) Mouser 511-6111TG
12.	J2	single row pin headers (1x6) Mouser 511-6111TG
13.	J3	single row pin headers (1x8) Mouser 511-6111TG
14.	n/a	3M dual wipe DIP socket 20 pin ** Mouser 517-4820-3004-CP
15.	n/a	3M dual wipe DIP socket 8 pin ** Mouser 517-4808-3004-CP
16.	D1	silicn diode 1N4148/1N914

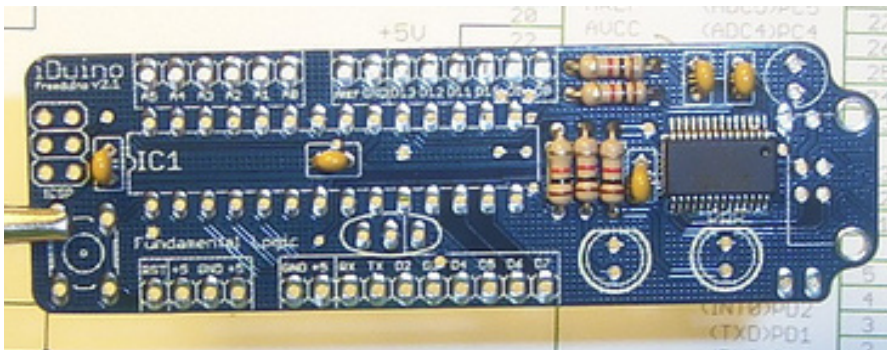
\*\* - At Wulfden we are fond of 3M's dual wipe sockets. Your kit may contain ether 2 14 pin sockets or may use an 8 pin socket and a 20 pin socket to *assemble* a 28 pin socket . The 3M sockets have kinked legs that will hold them in place firmly while being soldered.



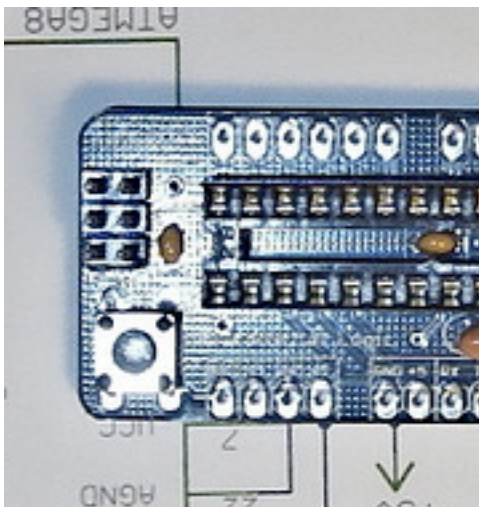
# 3 iDuino Assembly Tips



Install the four (4) 1 Kohm resistors (brown-black-red)

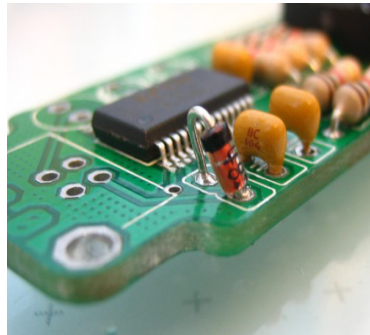
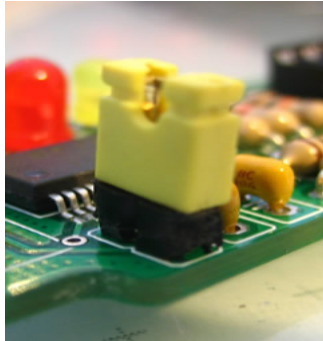


Install the 10 Kohm resistor (brown-black-orange) and the five monolithic 0.1 uF capacitors ("104")

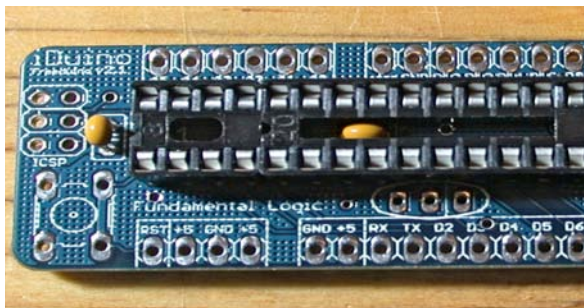


Install the the 6 mm pushbutton reset switch. Hold so the prongs go up and down (not left and right) Center the switch and bend the prongs and solder.

Place in the 2x3 pin header. Solder one pin and check alignment, then solder the other five.

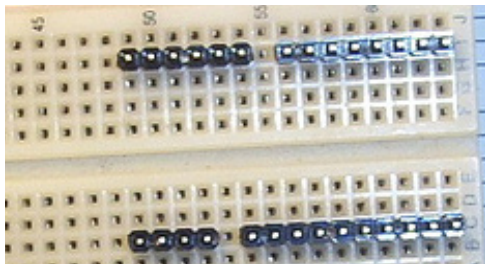


(iDuino v3) provision for diode or jumper to isolate the board Vcc buss from the FTDI chip Vcc supply. Diode goes in as shown, with band up.

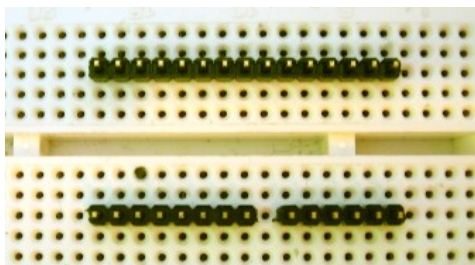


As mentioned on the parts list the Wulfden kit contains two 3M sockets, an 8 pin and a 20 pin (v2/v3) or two 14 pin (v3 only). They can be placed in either order, but have the notch to the left when the board is oriented so you can read the silkscreen. With these sockets C1 (v2) will fit under easily. Make sure you solder every pin.

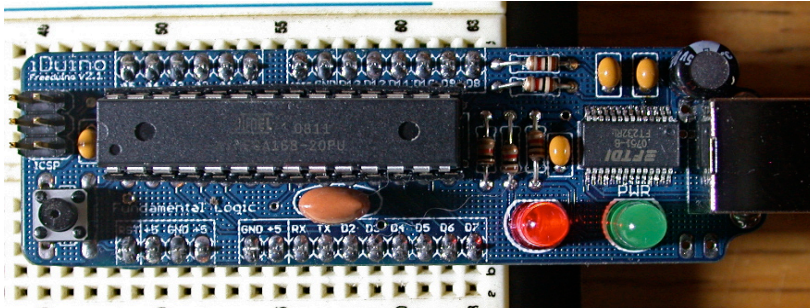
Insert and solder LEDs. The green LED is the power circuit and the red LED is the Digital Pin 13. Observe the flats on the LED bodies and the silkscreen outline and install accordingly, solder and clip leads. Insert C2, the 47 uF electrolytic capacitor with the shorter (negative) lead towards the board edge.



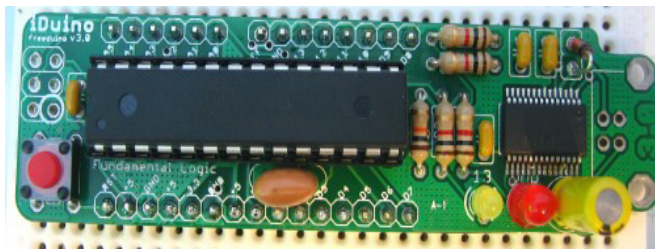
(iDuino v2) Take the four single row pin headers (1x4, 1x6, 1x8, and 1x10) and insert, long side of pin down, them into a breadboard as shown



(iDuino v3) Take the three single row pin headers (1x6, 1x8, and 1x15) and insert, long side of pin down, them into a breadboard as shown

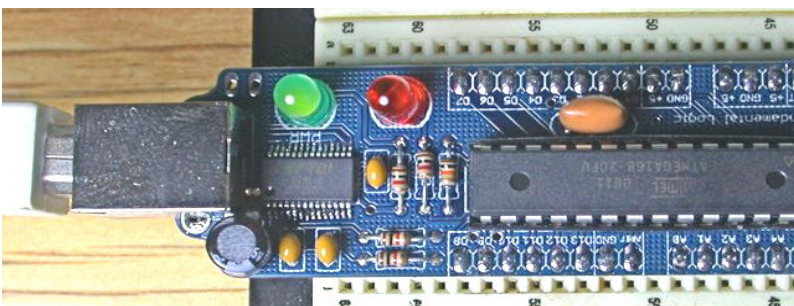


Place the PCB onto the pins and carefully solder, making sure not to heat any one pin for too long. v2 board shown, same instructions for v3



V3 board complete, take note of differences with v2 board

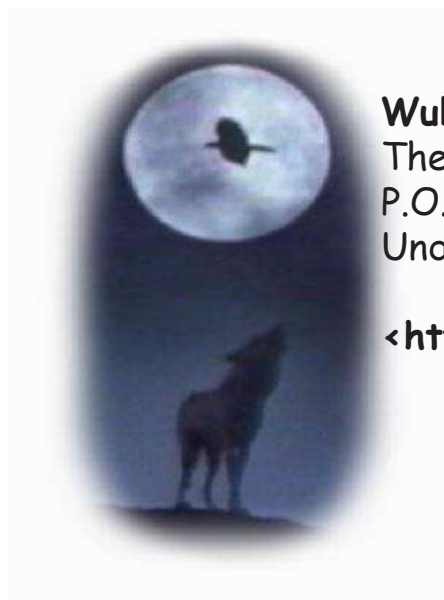
***Before inserting chip, eyeball all solder joints. Look for unsoldered, cold solder (dull appearance) and solder bridges. When all appears OK, plug in a USB cable and verify that the green LED lights brightly. Remove USB cable.***



Insert chip, notch on chip aligned with notch on socket.

Plug USB cable back in, the red LED should immediately start flashing with the BlinkLED Sketch that has been burned in place.





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