SMTMulti

Step	Picture	Detail
	ABOUT	
	Early on I created a Multi Chip Adapter for the USBTiny Programmer. As a low cost solution to programming common chips, I thought it was something missing from the community. So here it is. Able to program Tiny13 (8pin), Tiny2313 (20pin), or ATMega328s (28pin) chips. SMTMulti designed by Charley Jones, PMP aka Dataman For SMTBoards.Com 4/2010	
	PARTS LIST	

1		Kit as distributed
1a		Kit Contents, Details follow.
1b		SMTMulti Board

1c		100ohm resistor 1/4 watt
1d		Standard LED Note: the longer lead is +. The shorter lead is -.
		15cm wire Due to the complexity of the board, you're going to need to make a few jumpers.
		12 pins of .1" header. You'll be make 3x2pin headers, and 2x3pin headers from this. May already be broken into sub sections.

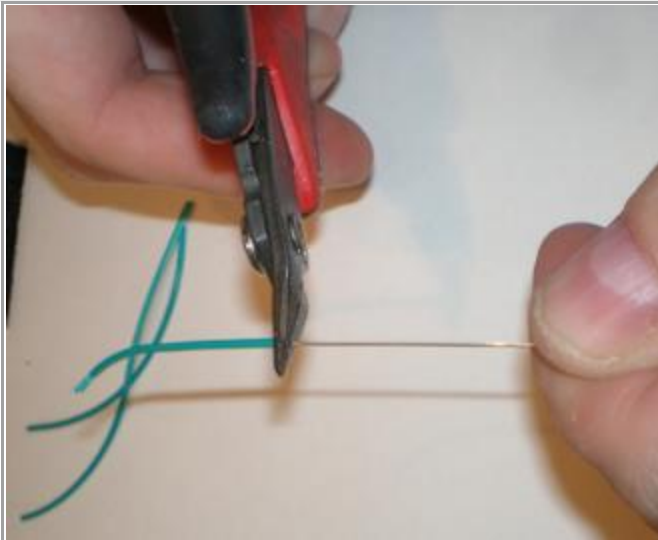|	
	16mhz resonator. May be jumpered in or out of the circuit.
	3x .1" shunts
	8 pin socket 20 pin socket 28 pin socket You'll be trimming some of the pins off these sockets. Does not effect the circuit electrically, but made for less holes to drill.
REQUIRED / NOT PROVIDED	

2		USBTiny or compatible programmer. See Adafruit.Com
ASSEMBLY INSTRUCTIONS		
3		Begin by soldering the right angle connector from the back of the board.
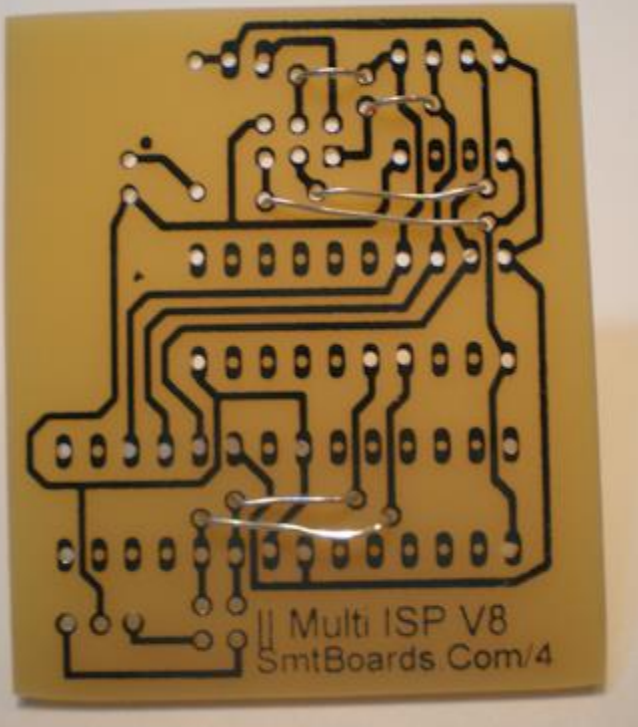
4		Next, feed wire as shown. Clip leaving generous room to solder underneath. (We're actually going to be soldering from the other side of the board. See step 6.)
5		Next, pull out the jumpers we just placed and place them in order, top to bottom to the left of the board.
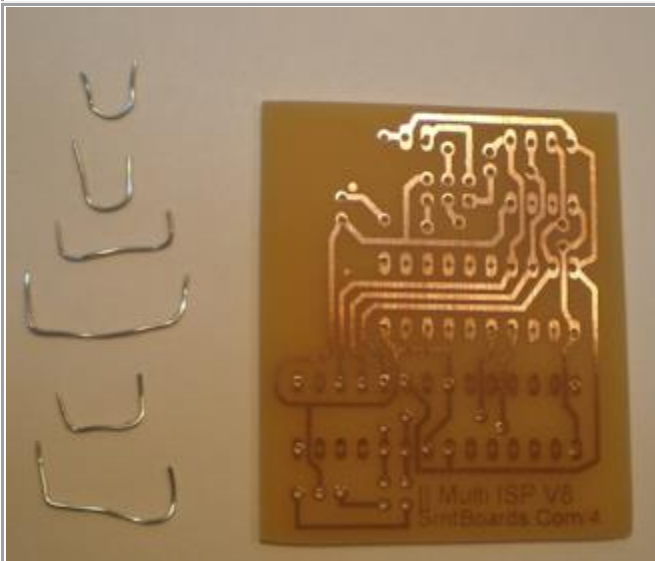
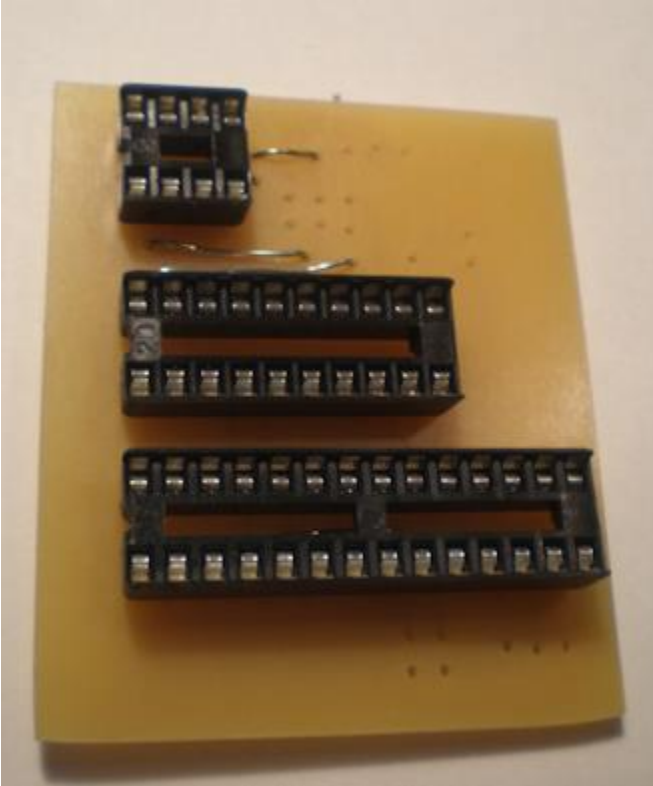| 6		Next, flip the board over and place the jumpers as shown. Flip back again, solder, and clip.
7		Next, with the socket face down and notch pointed to the right, clip the middle two leads on the bottom. Bottom row: Skip 1, clip 2.
8		On the 20 pin socket, same orientation, on face, notch pointing right, clip the pins as shown. Top row: skip 1, clip 5. Bottom row: skip 1, clip 4, skip 2, clip 2.

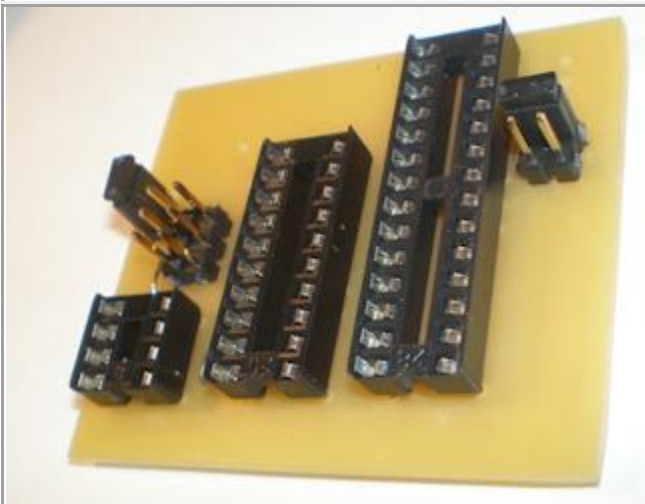| 9		On the 28 pin socket, same orientation, face down, notch pointing right, clip pins as shown: Top row: Skip 1, clip 1, skip 4, clip 1, skip 1, clip 5. Bottom Row: Skip 1, clip 3, skip 4, clip 5.
10		Flip to the back side of the board again, place sockets as shown. All notches face left.
11		Break the single row of header into 3x 2pin and 2x 3pin.

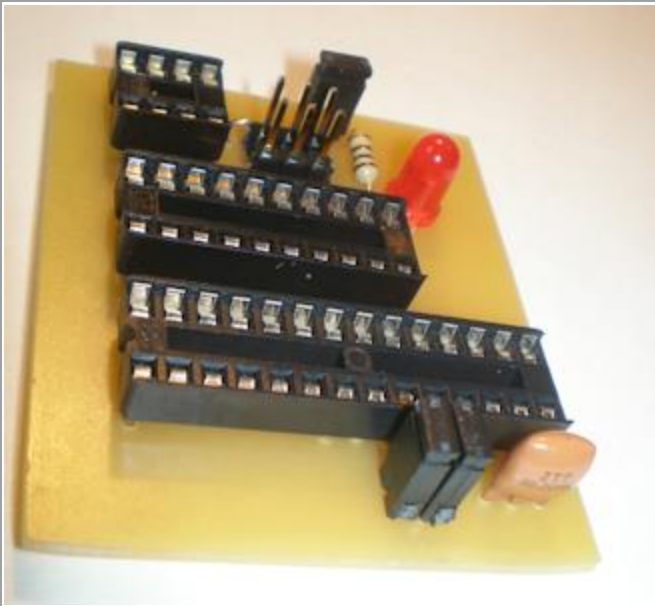|		
12		Place a two pin in the left two holes at the top of the board. This should leave 1 hole for the resistor to the right. Place the 2x 3pin below the two pin you just placed. Note that the remaining 2x 2pin goes into the 4 holes at the bottom of the board. Note also, VERY IMPORTANT, that the orientation is verticle as shown. Only 1 was placed here to demonstrate the verticle orientation. You should place both sets here.
13		Place a shunt on the Power Enable jumper at the top of the board. Place two shunts vertically on the Crystal Enable at the bottom of the board. Only 1 jumper was placed here to demonstrate the verticle of the jumpers.
14		Next, place the resonator in the 3 remaining holes at the bottom of the board and solder in place. It's typical to face the resonator so that the frequency can be read. Bend and place the 100 ohm resistor as shown. Solder and clip.
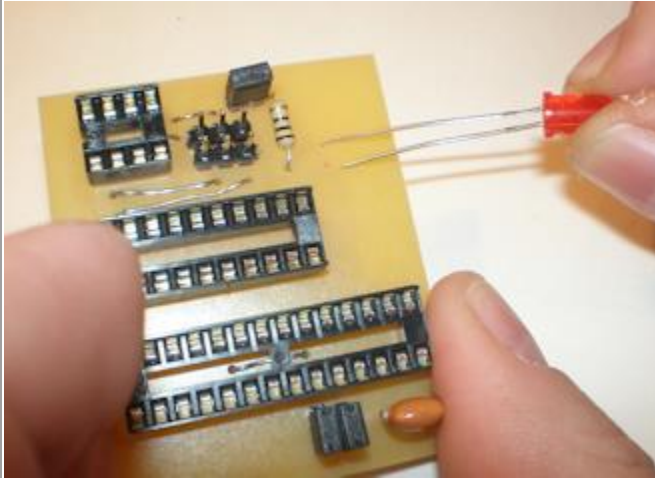
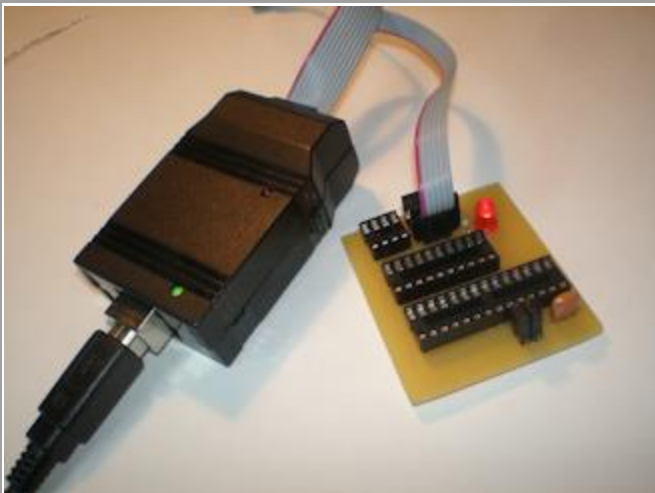| 15		The orientation of the LED is important. The longer leg, which is positive, should face the top of the board as shown. Solder and clip.
16		This is the completed SMTMulti board.

<div align="center">**USAGE INSTRUCTIONS**</div>

| 17 | | Attach a USBTiny or compatible device as shown. The LED should light if the device is powered and the plug is orientated correctly. Try reversing the plug if the light does not come on.

The jumper of the top of the board enables power. Pull the jumper and rest on one pin only to disable power while changing chips.

The bottom two jumpers enable a |

		16mhz crystal required by some chips. Pull the jumpers and rest on 1 pin to disable the crystal.