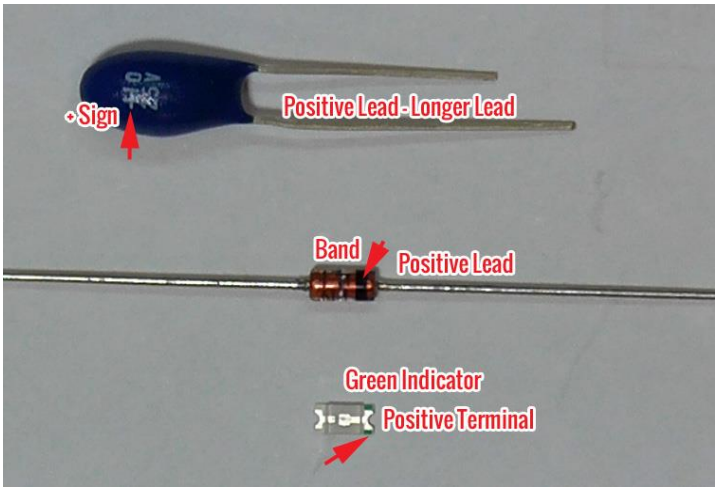
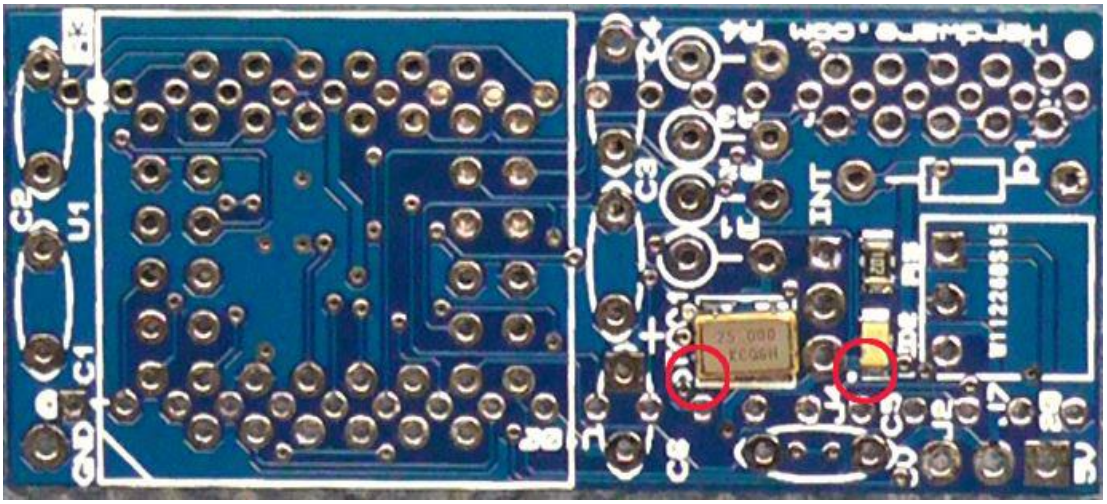
Assembly Instructions – Simple CPLD Rev 4

Category	Quantity	References	Value	Description
Capacitors	5	C1-C5	0.1u	Multilayer Ceramic Capacitors MLCC TH
Capacitors	1	C6	10u	10uF Tantalum Capacitor Polarity Sensitive *
Resistors	4	R1-R4	10K	10K 1/8w 5% TH Resistor
Resistors	1	R5	1K	RES 1.0K OHM 1/8W 5% 0805
Integrated Circuits	1	U1	EPM7064SLC44	IC CPLD 64MC 10NS 44PLCC
Diodes	1	D1	1N914	Generic Diode for invert protection
Connectors	1	J2	HDR-3P-	3 Pin Header- Voltage Selector
Connectors	1	J3	HDR-2X5-	Double Row, 10 Positions, JTAG Footprint
Connectors	1	J4	HDR-3P-	3 Pin Hdr - INT/EXT Clock Selector
Connectors	1	J7	EEBLOXX-3PIN	3 Pin Herdware Power connector
Connectors	1	J100	40PIN	40 Pin Machined Terminal Pins
Oscillator	1	TCO1	TCO	25Mhz TCO 1.8V, 2.5V, 3.3V, 5V
Opto	1	LED2	Blue	LED BLUE CLEAR 0805 SMD



1. Solder the thre surface mount components to the PCB – the Oscillator, the LED, and the chip resistor R5. Not that there is a pin 1 identifier on the oscillator that must line up with the silkscreen dot on the PCB and the green identifier on the LED. (Circled in Red)

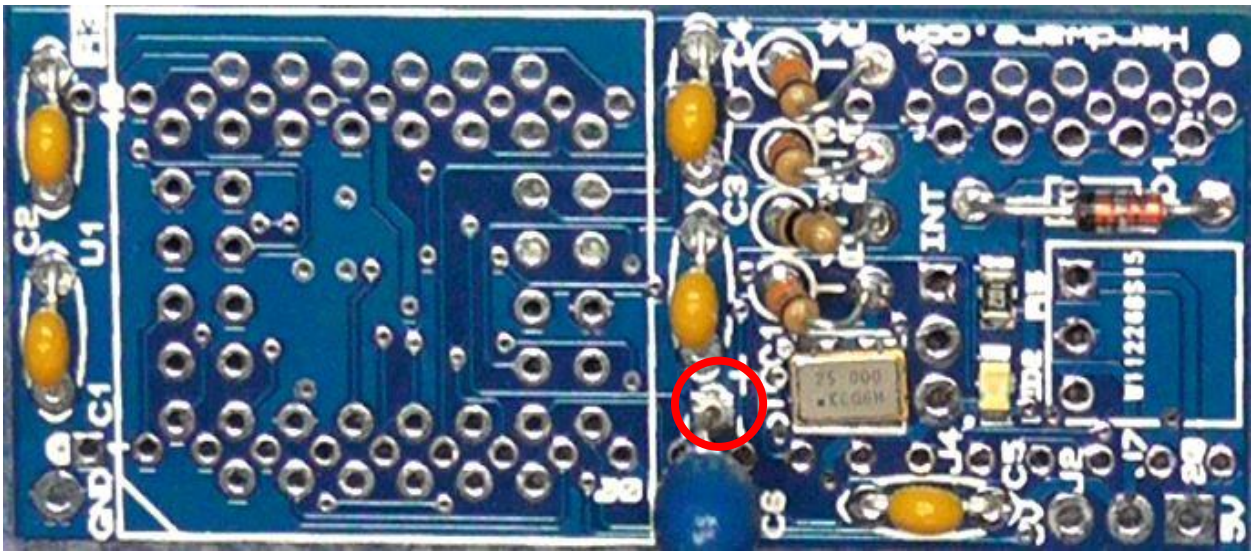


These parts can be soldered with a regular soldering iron but it is easier to use solder paste and a hot air solder station. The kit is available with these three parts already assembled.

2. Solder the (4) 10K resistors as shown below. The resistors are stood on end to maximize PCB space.

3. Solder the (5) .1uF MLC capacitors as shown. Care must be taken to push the component in using the body instead of pulling it via the lead or the component may break.

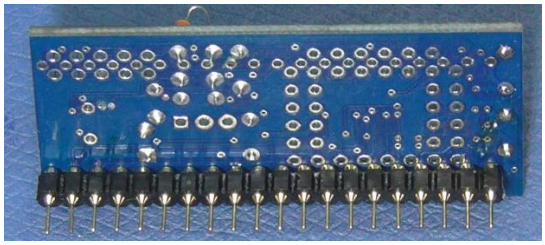
4. Solder the 10uF Tantalum capacitor talking note of the polarity. (+ Circled in Red)

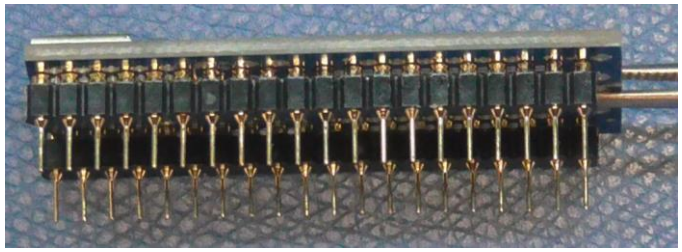


5. Cut the machine pin strip into two strips of 20 terminals if it isn't separated already. Be VERY careful with these connectors, the pins bend easily. Repeated bending can result in the pin breaking off.

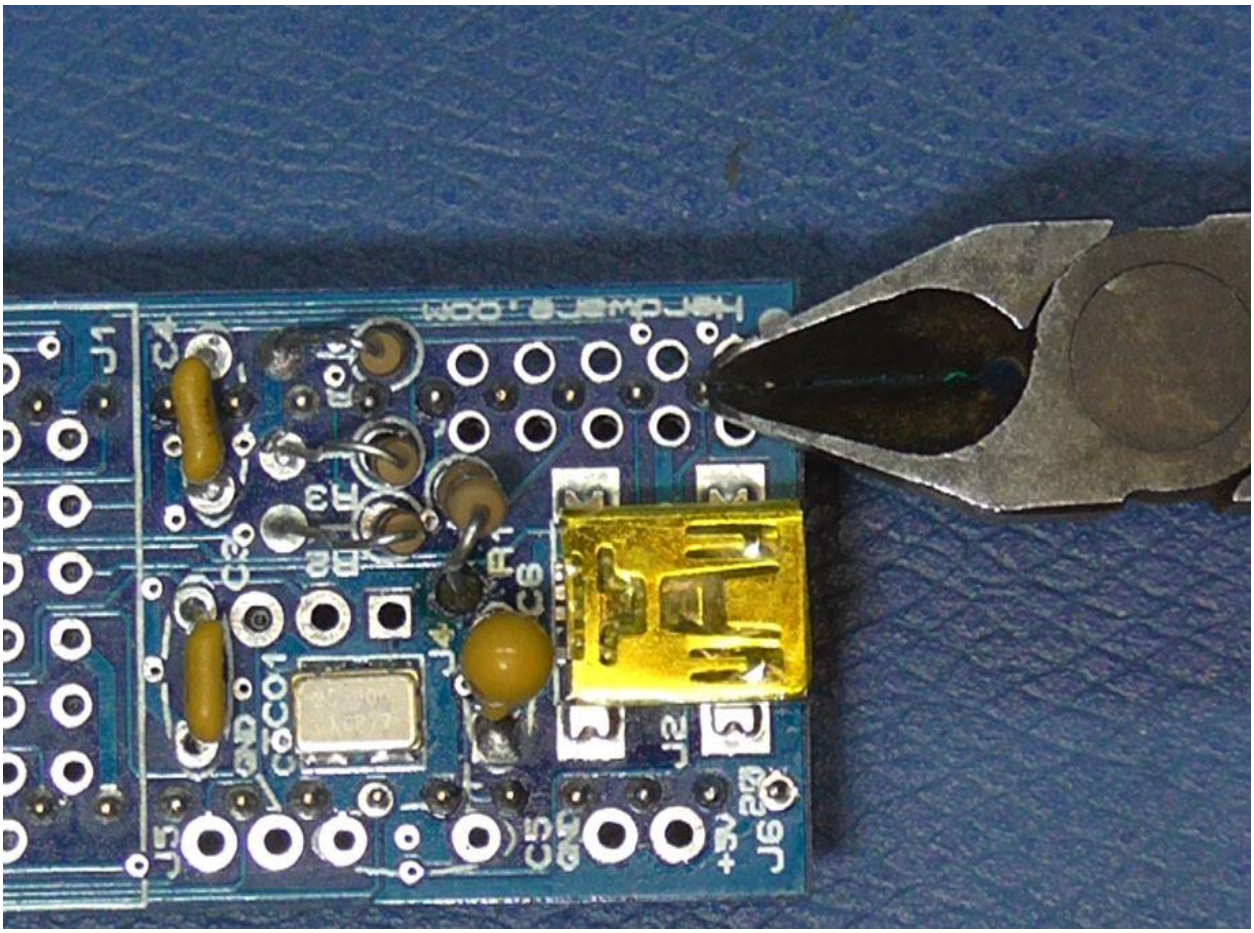
   You can insert the full strip into the PCB and use it as a guide as to the exact place to cut the strip. Trying to break the strip by flexing often results in a break in the wrong location and is not recommended.

   Insert the shorter pins of the strip in from the BOTTOM of the PCB and solder on the top as shown.

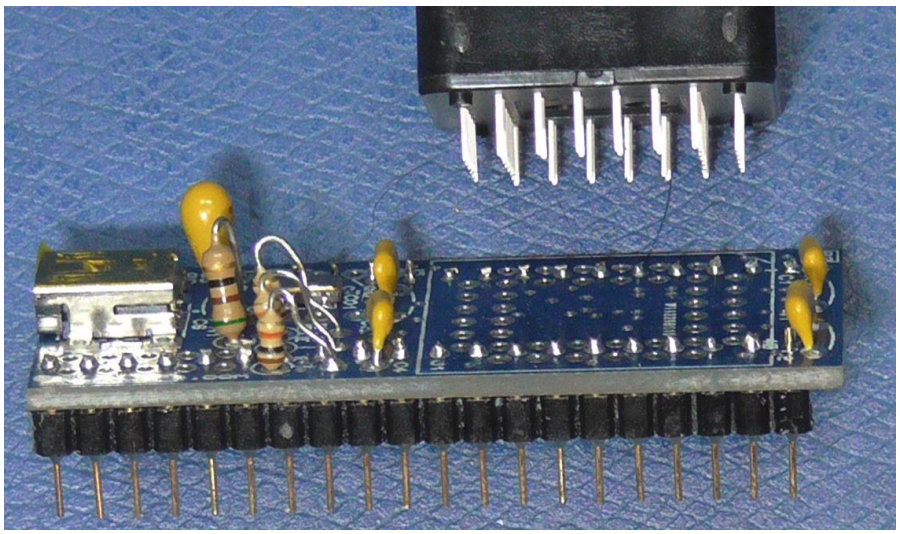




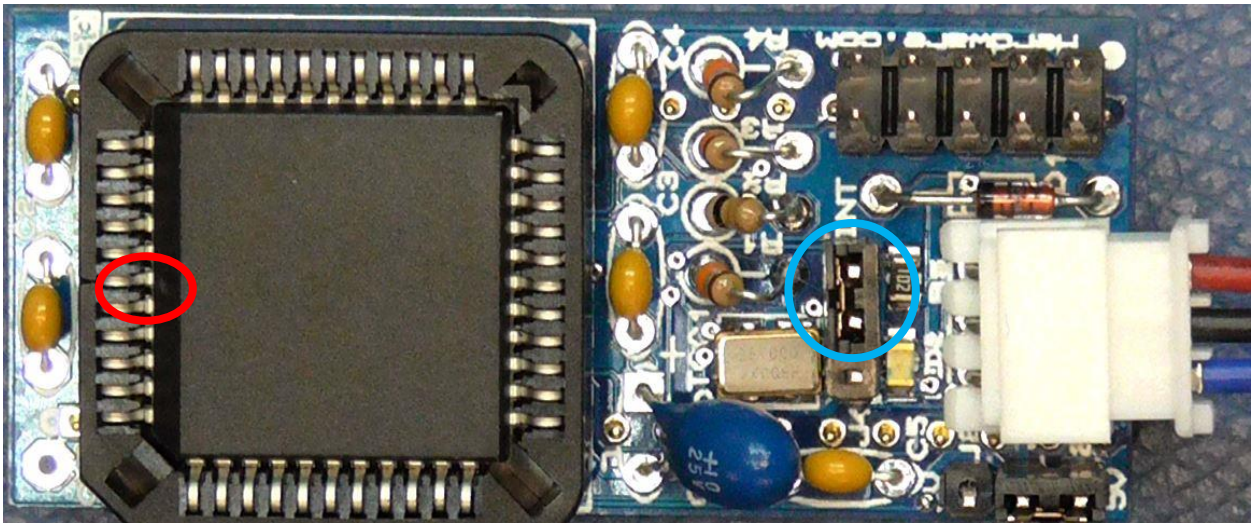
6. You may choose to clip the pins on the top underneath the 44 Pin socket and the 10 Pin programmer header. I found that this wasn't really necessary if the solder joints are clean. (Rev 2 board shown as example)



7. Insert the 44 Pins Socket from the top and solder the leads on the bottom. Take care that solder does not bridge and that all pins are soldered. (Rev 2 board shown as example)

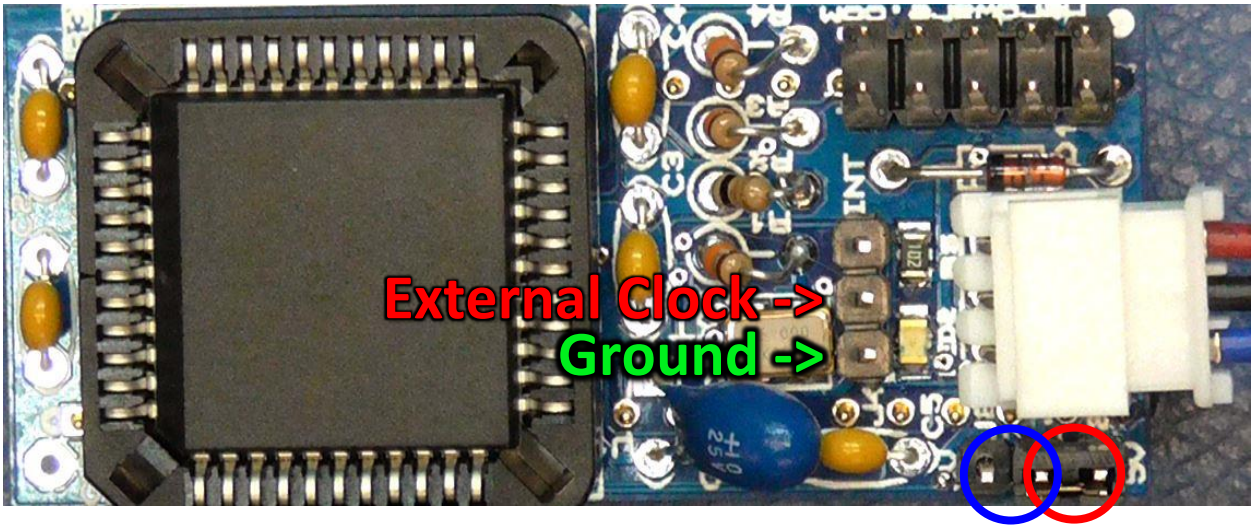


8. Likewise solder the 10 Pin header, the two 3 pin header and the right angle 3 pin connector. Sometimes it helps to grab a pin from the top of the PCB with needlenose pliers long enough to tack a pin.



9. Insert the 44 Pin PLCC carefully into the socket taking note of the bevel (green circle) and the pin 1 dot (red circle). Put the jumper on the 3 pin header as shown below (blue circle) to select the onboard oscillator.

10. To provide an external clock source, remove the jumper and apply the clock signal to the center pin, Pin 2. Pin 3 is provided as a ground reference for the clock signal.



11. To use the Herdware 3 Pin Connector to supply and select between +3.3V and +5V plug the connector in and supply +5V on the Red wire and/or +3.3V on the Blue while the Black wire is ground.

    The Red circle denotes the position of the jumper to select the +5V or Red wire supply, the Blue circle selects the Blue wire.

12. To supply an external power directly to the jumper the middle pin may be used and one of the Ground test points or the Ground pin shown in green may be used.

13. To program you can download a copy of Quartus Web 9.1 or use the copy provided on DVD along with the included demo project. Plug a USB Blaster or USB Blaster Clone, (available on Herdware.com,) taking note of the Pin 1 orientation (purple circle) which lines up with the Pin 1 leader on the ISP cable and you should be able to autodetect the 7064 from within the Programmer tool of Quartus.