HWC LLC (Hollywood Controls)
770 Concho Dr
Sedona, AZ 86351
WEB Link with Photographs:
https://www.hollywoodcontrols.com/pdf/HCZ8613K-kit-assembly.pdf

Fluke HCZ8613K Clone Assembly Instructions

Thank you for purchasing this kit form of our HCZ8613 custom CPU replacement. In order to successfully complete the kit assembly and install the device, you will need soldering equipment, a PCB vise or holder, water-soluble or rosin flux solder 20mil diameter or similar.

Whether you have a 8840A, 8840AF or 8842A meter, the replacement clone processor works the same. For the 8840A you should use 8840A 4.0 ROMs in U202 (low) and U222 (high) positions. This version has been tested to work correctly with the UB8840M clone. Earlier versions have erratic behavior. For 8842A we recommend 8842A V3.1B ROMs. For the 8840AF use 8840AF V2.5 ROMs. NOTE that the there are V2.5 ROMs available for both the 8840A & 8840AF, *but they are distinctly different*. Contact us if you have issues obtaining ROMs.

Cautions:
First and obvious, un-plug the meter from the mains! ***Use reasonable ESD protection methods like mats & wrist bands***.

On the 8840A the U222 EPROM is readily accessible. But on the 8840AF & 8842A Fluke added an integral line filter to the AC socket with heavy shrink tube over it and the Fast-On connectors. This assembly makes it difficult to remove the U222 EPROM if you are changing it. You have a choice. Remove the entire filter module (a real pain), or trim away the shrink tube. Either way, first remove the black, white and green Fast-On connectors and ***discharge the stored energy in the filter internal capacitors by shorting together the black & white terminals on the filter with a piece of wire. You very likely will get a spark!***

Read all of the instructions first! ***It is very important that the sequence is followed or you will make subsequent steps hidden and inaccessible!*** The special double pin header strips MUST be installed first.

Bill of Materials

1. UB8840M QIL package processor
2. 2 double ended 20-pin strips
3. 24 pin EPROM socket
4. HC Z8613K PCB with mounted SMD capacitors
5. Machined 40 pin socket
6. 1 – 100uF leaded capacitor

Assembly Instructions

1. Use the machined 40-pin socket as an alignment fixture and insert the 2 rows of 20 pin strips into the 40 pin socket with the shoulder pin up and exposed. (***This is real important!)*** See the photo.
2. Insert the exposed shoulder pins into the bottom of the PCB (non-silk screen side). Solder the 40 pins in place insuring that the pins are seated flat against the PCB. (Solder pins 1 & 21 first and check alignment). Remove the 40 pin socket. Check for bridged pins. (Last chance!)
3. If using water-soluble flux solder, clean and dry the PCB now as some pins will get hidden in the following steps.

4. Paying attention to the pin 1 orientation, gently finesse the 64 pin QIL package into the through holes on the top of the PCB. DO NOT over stress or bend the leads. Use tweezers to manipulate stubborn pins into the holes. Use a piece of tape or similar to keep the package in position.

   It is ok if the bottom of the QIL package rests against the protruding header pins, as the QIL leads are long. Ensure that the leads are protruding on the bottom sufficient for soldering. Begin with soldering 2 pins on each end. You may need to press some leads from the top, particularly the long leads. Finish the pin soldering and check for bridges.

5. Insert and solder the 100uF capacitor from the top paying attention to polarity.
6. Insert and solder the 24 pin EPROM socket from the top paying attention to pin 1 orientation. Trim the EPROM socket leads after soldering on the bottom to provide clearance over U220.
7. If you have used water soluble flux and solder, wash the PCB in hot water and dish soap. Blow off excess water with an air gun or duster. Dry in an oven at 40-50deg C for 20-30 minutes to remove moisture. Inspect all joints for good soldering. If you used rosin flux cleaning is optional.
8. Insert the LOW 4Kx8 EPROM into the 24 pin PCB socket observing pin 1 orientation.
9. The 40 pin DIP socket provided is used for aligning the pins during soldering and as a stand-off spacer after assembly. We recommend inserting the machined pin socket into the U202 blade-style socket first. Support the underside on a block of wood or something similar. Align & press the socket in place. Make sure it seats all along each side. It is a challenge, but once in place, leave it there. It is VERY important that the pin socket be fully engaged with the blade-style socket on the main board.
10. Insert a matching HIGH EPROM in the U222 socket offset to the right such that socket pins 1,2,25,26 are exposed. On the 8840AF/8842A this will be challenging because Fluke used a different style of AC entrance module containing internal line filtering. This module overlaps U222 and, short of removing the AC module, you have to remove the Fast-on connectors and likely trim the shrink tubing as seen in the pictures. Take your time. Re attach the mains wires observing the color code.
11. Finally, insert the clone Z8613K into the U202 spacer socket observing pin 1 orientation. On the 8840AF/8842A you will have to finesse the mains a bit to position the clone PCB.

Power up the meter and follow the service manual instructions for further debugging. Further fault tracking is beyond the scope of these instructions, but the manual is very detailed in diagnostic procedures.

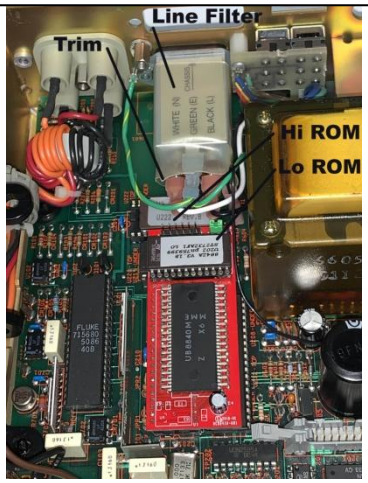
If your meter boots up but shows erratic display behavior or locks up you likely do not have the clone seated adequately in the main PCB socket. Before reseating, try booting the meter while pressing down on the clone board. Remove AC power and reposition or reset the stacked sockets.

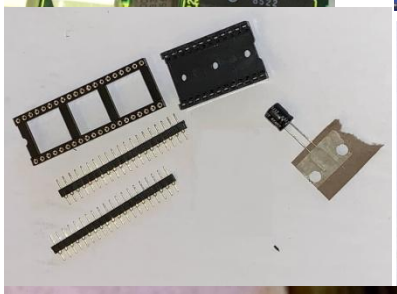
Please refer to the following photos as guidance.
Feedback on these instructions is always encouraged!

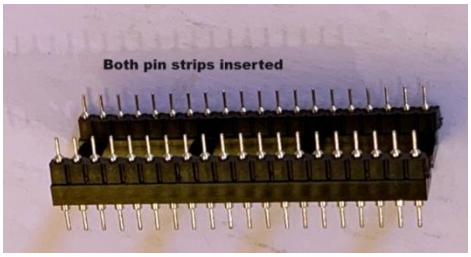
Hollywood Controls Inc
Sedona, AZ

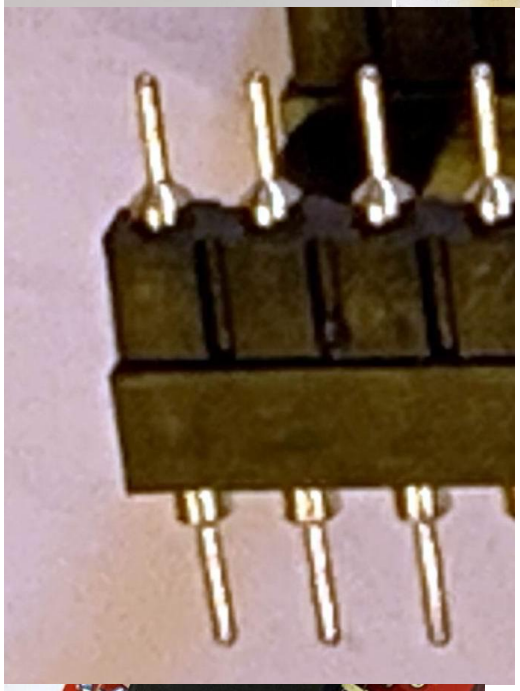
Finished installation in Fluke 8840A

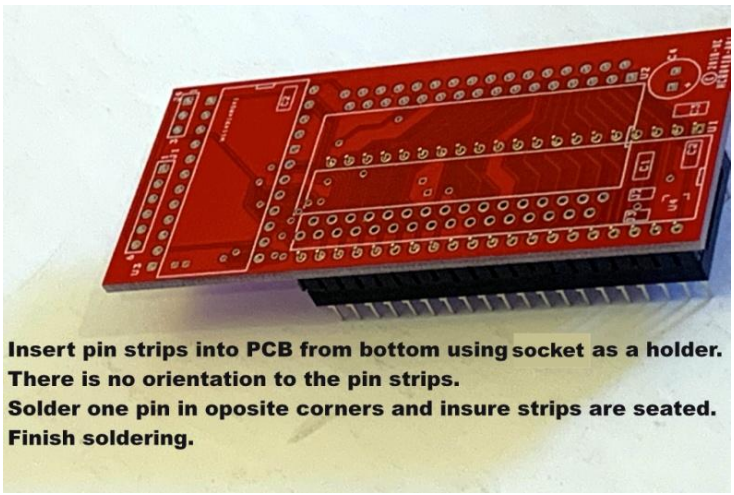
Finished installation in Fluke 8842A

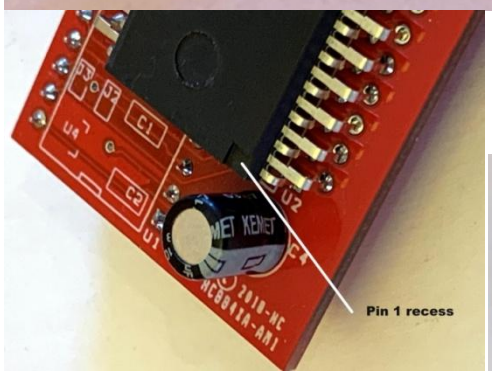




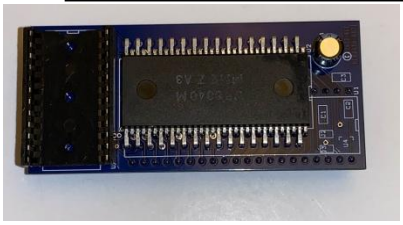


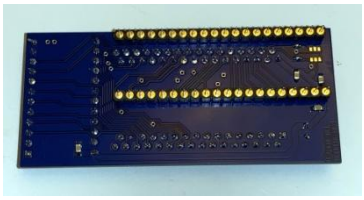


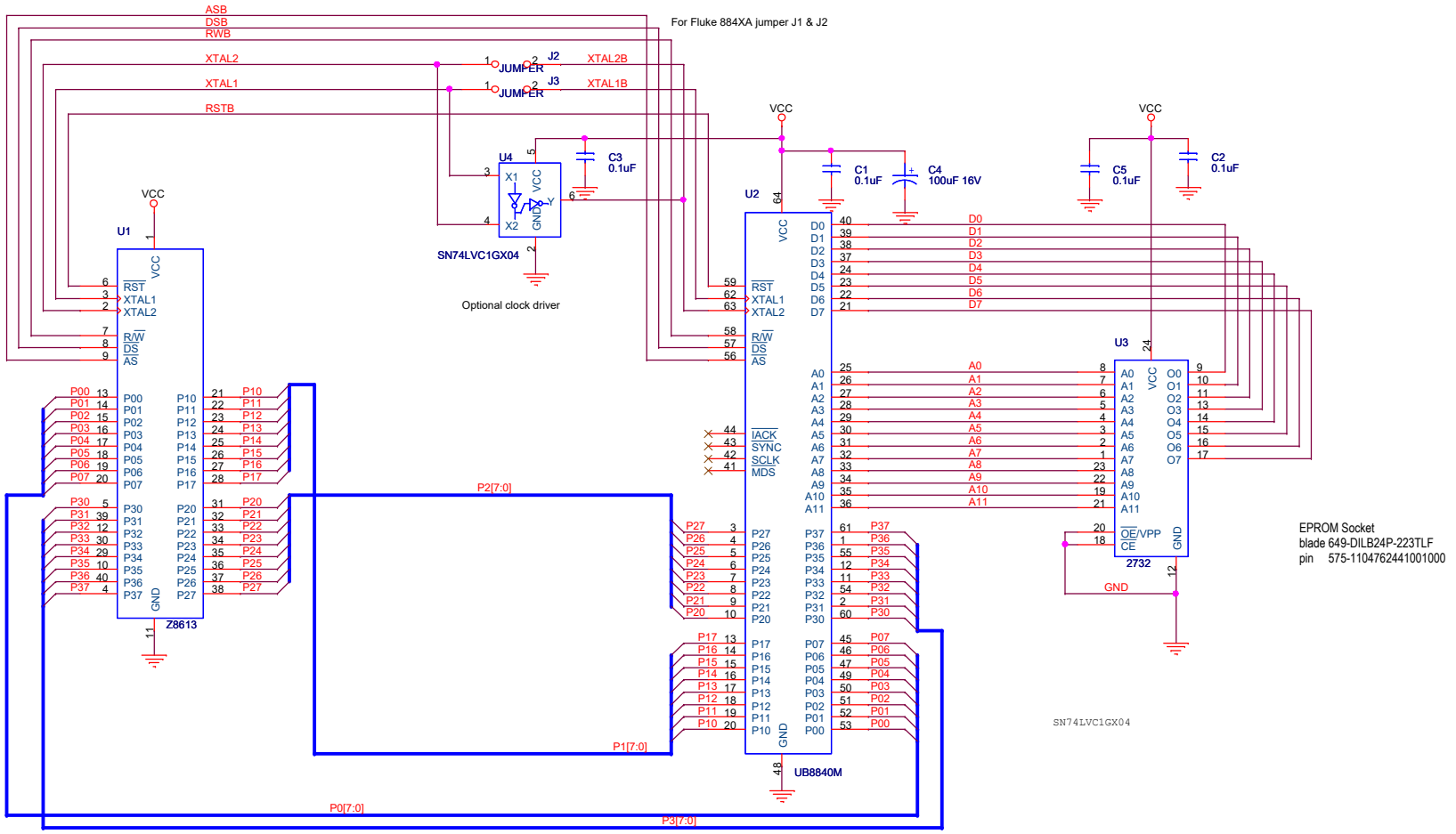




New Blue Soldermask PCB w/o Headers/Jumper






ASB
DSB
RWB
XTAL2
XTAL1
RSTB
For Fluke 884XA jumper J1 & J2
JUMPER
J2
XTAL2B
J3
XTAL1B
VCC
U4
X1
X2
Y
SN74LVC1GX04
C3
0.1uF
Optional clock driver
U1
Z8613
U2
UB8840M
C1
0.1uF
C4
100uF 16V
C5
0.1uF
C2
0.1uF
U3
2732
EPROM Socket
blade 649-DILB24P-223TLF
pin 575-1104762441001000
P2[7:0]
P1[7:0]
P0[7:0]
P3[7:0]
SN74LVC1GX04
Removed J1 & J4 to shorten length of PCB
xy 1320,2935
Title
Z8613 to UB8840M Emulator V6.1
Size
B
Document Number
<Doc>
Rev
AM2
Date:
Sunday, March 02, 2025
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