Fluke 9010a 6809 Pod UUT- Cable

1) Background

The POD-to-UUT- cables come in basically 2 variants:

- 1x40 PIN ribbon- cable which is easy to make using ‚standard' crimping parts. This kind of cable is used in the original Z80 and 6502 Pods for example.

- A 2x40 pin variant is used in later pods (like the 6809). This type of cable uses obviously double the amount of wires in a ‚twisted pair' pattern; signal wires alternating with ground ones. This kind of configuration provides some shielding and essentially balanced connections.

- The latter type of UUT cables seems to be essential for the 6809 pod to run reliably. While for some UUTs / some basic testing a single 40 pin cable may be sufficient, most others won't run *at all* or behave extremely flaky.

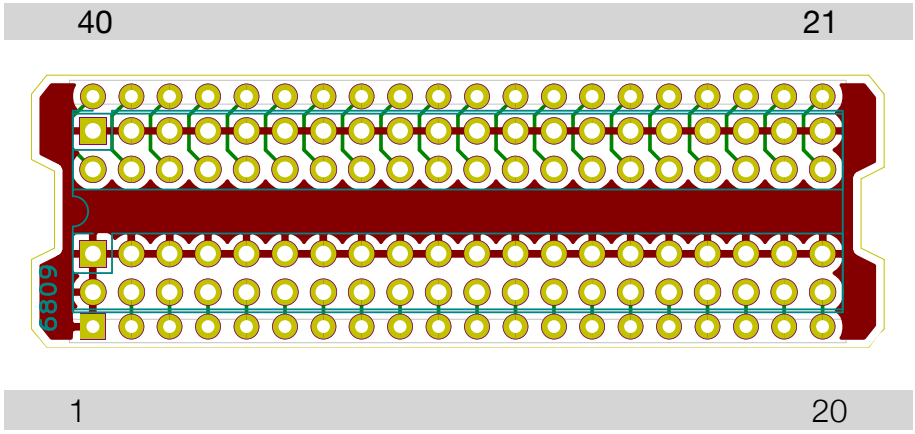
- Since the position of the ground PIN changes from CPU to CPU, these cables are not interchangeable between different pods.

- Also, these cables are not easy to reproduce. This means that if you own an original pod and brake its UUT connector this will present a problem.

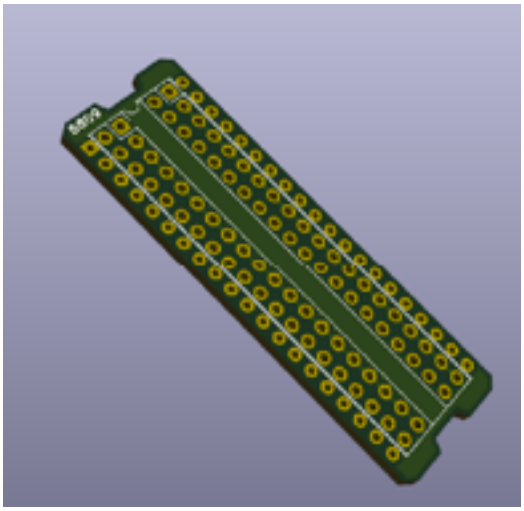
2) Reproducing a POD-to-UUT Cable

- One way to reproduce such a cable is to manually solder every second wire to a 40 pin socket and then connecting every other wire together and to the ground pin. This is a very tedious process and not fun at all.

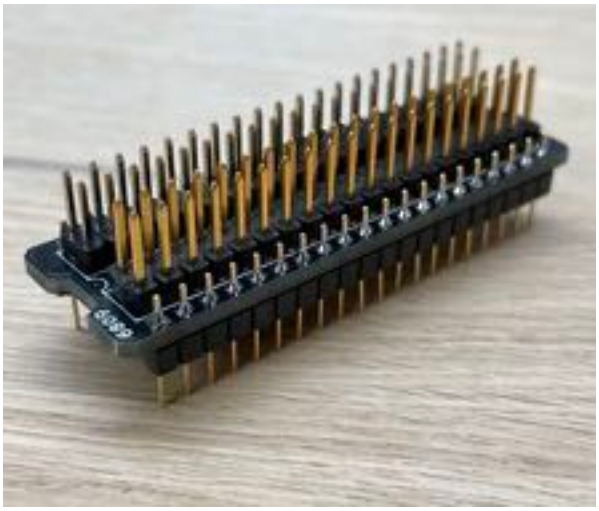
- This little PCB allows the use of simple ‚straight 40 PIN IDC connectors. It seems to work reliably even if the cables used are longer than the original ones. The cables are very easy to make.



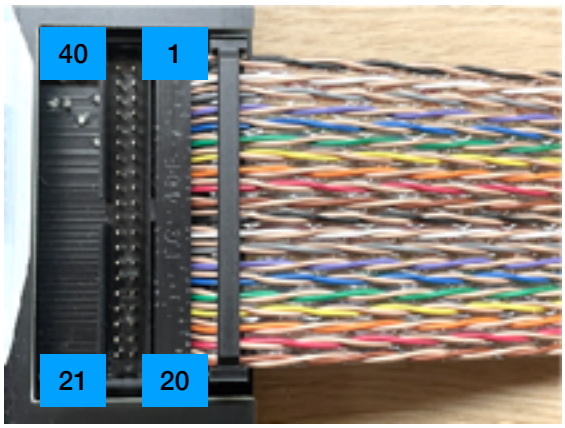
The ‚6809'- label marks the position of pin 1 if viewed from the top



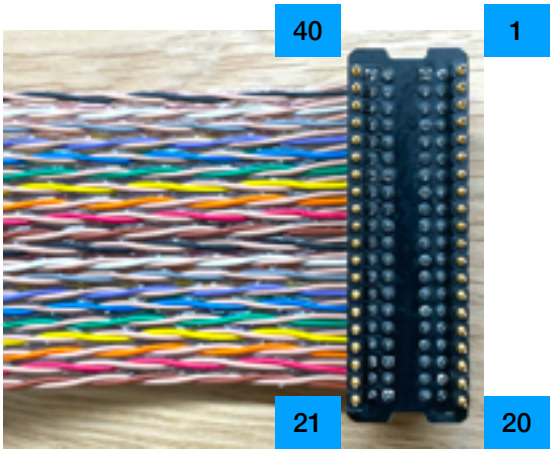
The board from top



Printed side goes to cable



corresponding pins on the 1x40 connector

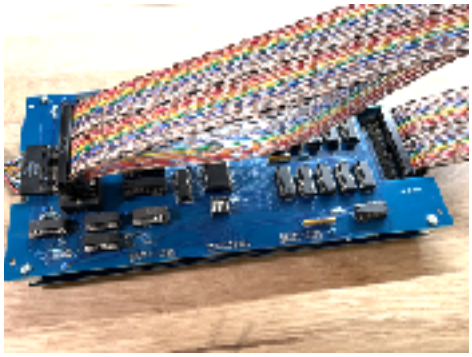


3) Assembly

The inner 2x2 rows will connect to the cables and have to be soldered on the ‚top side' of the PCB (the one with the 6809 marking).

The outer rows will connect to the UUT socket; the pins have to be soldered to the opposite side of course. Be careful to use ‚thin / round, pins on the UUT side; standard (square) pins won't fit in normal sockets.

Please note that the IDC connectors are on ‚other sides' on each end (facing ‚down' and ‚up'. When put in the selftest socket, the cable should look like that:



Before powering on please check continuity / position between the 1x 40 PIN connector on the pod (see pin numbering above) and the UUT connector and make sure there are no shorts between pins (if the board was populated on the wrong sides, all UUT PINS could be shorted!).

4) Part list (examples from digikey)

- 1x adapter PCB

- 2x 40 PIN ribbon Cable. Used above were twisted pair ones.
  https://www.digikey.ch/product-detail/de/3m/1700-40-100/3M157910-5-ND/9478781

- 4x straight IDC connectors:
  https://www.digikey.ch/product-detail/de/assmann-wsw-components/AWP-40-7240-T/HHKC40H-ND/5040123

- 2x 40 PIN straight headers:
  https://www.digikey.ch/product-detail/de/molex/0901310780/WM8152-ND/760866

- 2x 20 PIN single row pins/headers:
  https://www.digikey.ch/product-detail/de/preci-dip/350-10-132-00-001101/1212-1139-ND/3757389
  Note: thinner pins on UUT side