

Cambridge Electronic Design Limited

Installing a USB adaptor card in a CED micro1401 mk 1

Introduction

The CED micro1401 communicates with its host computer either by the CED standard host adaptor, CED 2501 02, or the USB adaptor, CED 2501 10, introduced in 1999. These adaptors are small printed circuit boards (PCBs), which may be swapped. This involves opening the external case and the internal can. If your monitor ROM is earlier than version 0.12 this must also be upgraded (as detailed on a separate sheet). You will also need to update the 1401 driver software in the host computer.

What you will need

It is essential to take precautions against electrostatic discharge. While working inside the micro1401, it should be earthed to mains earth, and you should be earthed to the micro1401 via a wrist strap. The USB swap kit comprises:

- A 2mm hex wrench
- The USB adaptor card
- The USB filler plate
- Various M3 fixings

Opening the micro1401

1. Switch off the micro1401 and remove all cables connected to it.
2. Place the micro1401 on a bench with the back facing towards you.
3. Undo the four black countersunk screws from the rear panel, and swing it away. Earlier models are secured by 1-pt crosshead fixings, later ones by 2mm hex fixings. Do not undo the yellow/green earth strap.
4. Slide the bright-metal inner can about halfway out of the outer case, and unscrew the yellow/green earth strap from the side of the inner can. Note the sequence of the tag and washers; it is important that they go back the same way.
5. Slide the inner can all the way out. Try not to splay the outer case's side extrusions (removing the rear panel compromises the rigidity of the outer case.)
6. Undo the six screws on the side flanges of the inner can. Carefully lift off the top. Note the two graphite gasket strips, important for EMC emission control.

Identifying & removing the old adaptor

The CED host adaptor is a conspicuous dark-green PCB raised above the general level of components. The CED host interface cable plugs into this PCB. The adaptor plugs into the micro1401 motherboard by a sixty-way pin header. The adaptor is secured to the motherboard by three special M3 screws with integral shakeproof washers, and to the inner can metalwork by two 5mm M3 screws. Undo all five screws. You can now unplug the adaptor and its filler plate from the motherboard. Lift the adaptor with a gentle rocking motion. Try not to be too forceful; if it pulls out suddenly, some of the pins may be bent.

Inserting the USB filler plate

Unlike the CED host adaptor, the USB adaptor is not attached to its filler plate. The USB filler plate is inserted first. The plate is correctly aligned when the two threaded bushes face inward, and the two small dimples are towards the lower edge. Slide the plate behind the inner can and secure it by two 5mm M3 screws through the threaded bushes. Ignore any other M3 holes.

Inserting the USB adaptor

The USB adaptor plugs into the same sixty-way socket as the CED host adaptor. Insert the adaptor, making sure that the pins line up correctly. Secure the adaptor with the three M3 screws with integral shakeproof washers.

Self-test & closing the micro1401

Before closing the micro1401 you should run the self-test. Reconnect the power cable and switch the micro1401 on. The red 'TEST' led should light for about five seconds, while the yellow leds flash; the red led should then go out. If it begins to flash, or remains lit for more than a few seconds, please contact the CED hardware help desk. Close the micro1401 by reversing the procedure for opening it. Make sure that the graphite gasket strips are properly positioned before replacing the inner can lid. Ensure that the washers on the earth strap are in the same order as before.