

RC2014 Micro

Assembly Guide

Building and using an RC2014 Micro is quite straightforward. Whilst a knowledge of electronics, computer architecture, assembly language and BASIC programming can be helpful, it is not a requirement.

A bit of soldering experience is assumed though, and kind of essential for building a RC2014. None of it is difficult, there are no surface mount components or anything on a very fine pitch, but there are quite a few joints. If you haven't soldered before, or it's been a while since you picked up a soldering iron, there are a lot of good tutorials on YouTube, or check out the [Soldering Is Easy](#) guide by Mighty Ohm.

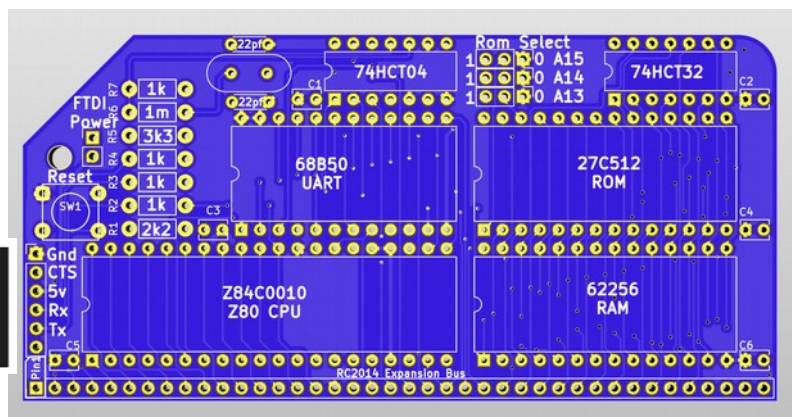
The best advice I can give is to take your time and enjoy the experience. Although it is possible to plow through and finish it in half an hour or so, it's also possible to make mistakes that way too. But don't underestimate troubleshooting as a great way to really get to know your RC2014!

Start by laying out the components and familiarise yourself with them. Matching them up on the schematic can help your understanding of how the RC2014 Micro works, but is not essential. Read through this guide at least once before you start, and refer to the photos online to identify any items that are unclear.

Up to date information and full size schematics can be found at

www.rc2014.co.uk

FTDI Cable



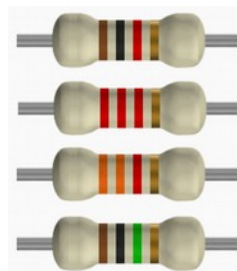
NEO14

Micro

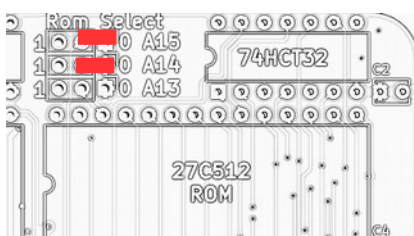
Overview

- Start by fitting the resistors where marked. Use the guide below to match the coloured bands to the value.
- Use the resistor leg offcuts as links for the FTDI Power and A14 & A15 as shown below.
- Fit the crystal slightly above the PCB so nothing shorts out
- 6 100nf capacitors go where indicated as C1 to C6 and the 2 22pf capacitors go either side of the crystal. Note that the 100nf caps look very similar to the 22pf caps, but are marked with “104” and have narrower pitch leads than the 22pf caps which are marked “22J”
- Fit the reset button where indicated
- Fit the 6 ICs next, making sure that you put the right chips in the right place according to the markings and that they are orientated with the notch pointing towards the left hand side. You may need to bend the pins in slightly. To do this, grasp the chip firmly by the ends and push all the pins on one side gently against your tabletop, then on the other side
- Split up the strip of 9 pin headers in to strips of 3 and 6 pins
- Fit the pins in to the FTDI, power and A13 ROM Select positions.

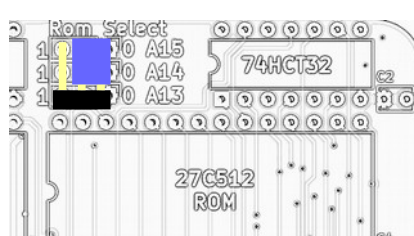
Value	Band 1	Band 2	Band 3	Band 4
1k	Brown	Black	Red	Gold
2k2	Red	Red	Red	Gold
3k3	Orange	Orange	Red	Gold
1M	Brown	Black	Green	Gold



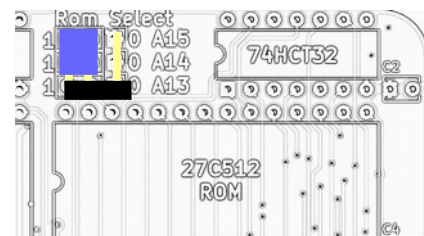
The ROM contains 8 x 8k banks, with 2 bootable images; Microsoft BASIC in bank 0 and SCM Monitor ROM in bank 4. Use a link for A14 and A15 to tie them to 0, then a jumper on a 3 pin header for A13 will switch between BASIC or SCM



Solder links

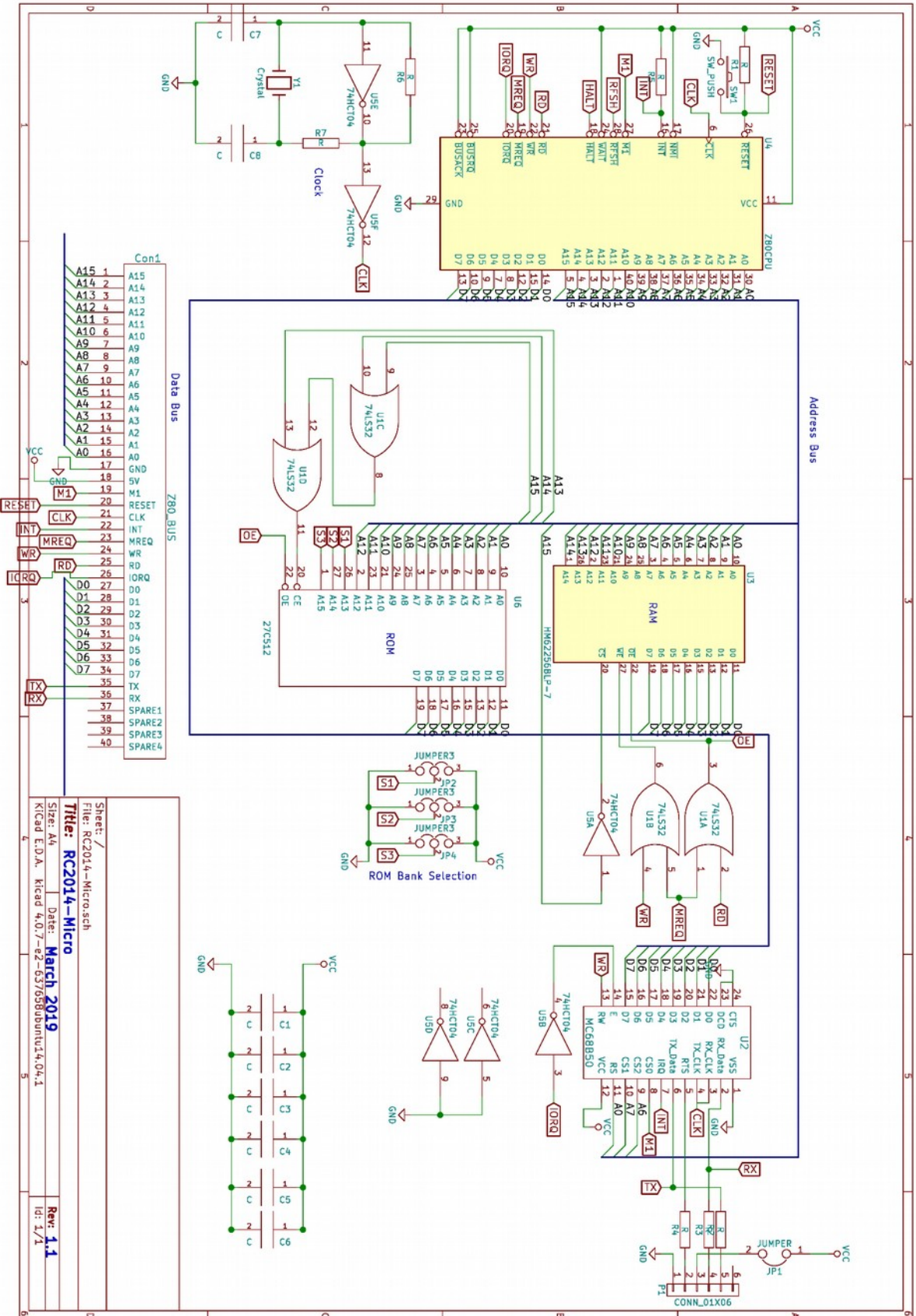


BASIC



Monitor ROM

RC2014 Micro



Sheet: /
 File: RC2014-Micro.sch
Title: RC2014-Micro
 Size: A4
 Date: **March 2019**
 Kicad E.D.A. Kicad 4.0.7-e2-637658dbuntd4.04.1
 Rev: **1.1**
 Id: 1/1

RC2014

First Time Use

Micro

When everything is soldered together, give everything a quick visual inspection and check that the jumper is set for either Microsoft BASIC or SCM Monitor ROM.

Start by plugging the FTDI cable in to a USB socket on your PC/Laptop, and opening your preferred serial terminal (I recommend PuTTY or Teraterm) and setting the baud rate to 115,200bps. The other settings should default to 8-N-1. Plug the other end in to the FTDI connector, noting the black (Ground) cable goes nearest to the reset button

If you selected, BASIC, hit the reset button and you will be greeted with the following

```
Z80 SBC By Grant Searle
Cold or warm start (C or W) ?
Memory top?
Z80 BASIC Ver 4.7b
Copyright (C) 1978 by Microsoft
32382 Bytes free
Ok
```

Push C for cold boot if this shows up

Push return to allow all RAM to be used

Congratulations! Your RC2014 works! Now it's time to type in your first program;

```
10 for a=1 to 10
20 print "RC2014 is cool"
30 next a
run
```

If you selected Monitor ROM, hit reset and you will be greeted with the following;

```
Small Computer Monitor - RC2014
*
```

Type ? then hit return for a list of options. See www.scc.me.uk for full documentation

Troubleshooting

If you have connected up your RC2014 and it hasn't sprung in to life then it's time to start troubleshooting.

Firstly, re-read the rest of this guide and see if there's something you have missed. The following steps, although seemingly obvious, have brought most troubled RC2014s to life;

- Are all the ICs of the correct part type, and the correct orientation within the socket?
- Give all the joints a visual inspection – Any solder bridges between pins? Or dodgy looking joints?
- Is 5v across the power pins of each of the ICs?
- Are you powering it from FTDI cable? If so, is the 5v FTDI Power link in place? (Are you using a 5v FTDI adapter?)
- Are the jumper pins on the ROM module all set to 0?
- If the text showing on your terminal software is garbled, check that you have the serial port settings set to 115,200, 8, N, 1
- Have you selected the correct serial port on your terminal software?
- Push the reset button again. Did that work?