

How to mount and unmount a uCOM board

Embedded Artists AB

Rundelsgatan 14
SE-211 36 Malmö
Sweden

<https://www.EmbeddedArtists.com>

Copyright 2021 © Embedded Artists AB. All rights reserved.

No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language or computer language, in any form or by any means, electronic, mechanical, magnetic, optical, chemical, manual or otherwise, without the prior written permission of Embedded Artists AB.

Disclaimer

Embedded Artists AB makes no representation or warranties with respect to the contents hereof and specifically disclaim any implied warranties or merchantability or fitness for any particular purpose. Information in this publication is subject to change without notice and does not represent a commitment on the part of Embedded Artists AB.

Feedback

We appreciate any feedback you may have for improvements on this document. Send your comments by using the contact form: www.embeddedartists.com/contact.

Trademarks

All brand and product names mentioned herein are trademarks, services marks, registered trademarks, or registered service marks of their respective owners and should be treated as such.

Table of Contents

1	Document Revision History	4
2	Introduction	5
2.1	Conventions.....	5
3	Unmount uCOM board.....	6
3.1	Preparations	6
3.2	Place fingers over connectors	7
3.3	Place tool in middle of PCB.....	8
4	Mount uCOM board.....	10
4.1	Orientation of board.....	10
4.2	Find connectors	12
4.3	Connect the board.....	13
4.4	Mount screws in corner holes.....	14
4.5	Use a heat sink	15

1 Document Revision History

<i>Revision</i>	<i>Date</i>	<i>Description</i>
A	2021-10-06	First release

2 Introduction

This document describes how you can safely mount and unmount a uCOM board from a carrier board.

2.1 Conventions

A number of conventions have been used throughout to help the reader better understand the content of the document.

Constant width text – is used for file system paths and command, utility and tool names.

```
$ This field illustrates user input in a terminal running on the  
development workstation, i.e., on the workstation where you edit,  
configure and build Linux
```

```
# This field illustrates user input on the target hardware, i.e.,  
input given to the terminal attached to the COM Board
```

```
This field is used to illustrate example code or excerpt from a  
document.
```

```
This field is used to highlight important information
```

3 Unmount uCOM board

3.1 Preparations

First make sure you work in an ESD safe environment placing the uCOM board on an anti-static mat. You should also have a wrist strap attached to your wrist and the anti-static mat.



Figure 1 - Anti-static wrist strap

To disconnect the board, you can use for example a screwdriver with a flat head. Make sure the flat head is at least 3 mm wide and that the screwdriver doesn't have any sharp corners that can damage the PCB.

TODO: bilder på skruvmejsel samt det andra verktyget...

3.2 Place fingers over connectors

Begin by placing your fingers over the connectors to counteract big movements. In Figure 2 you can see where the connectors are located and how to place your fingers.

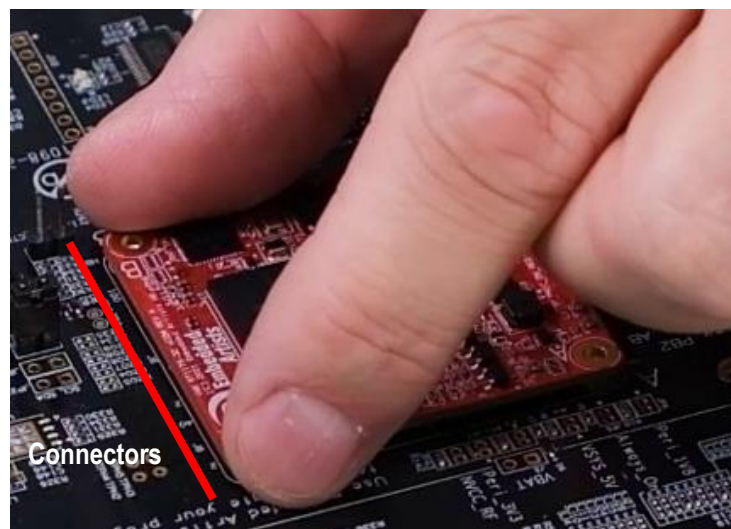
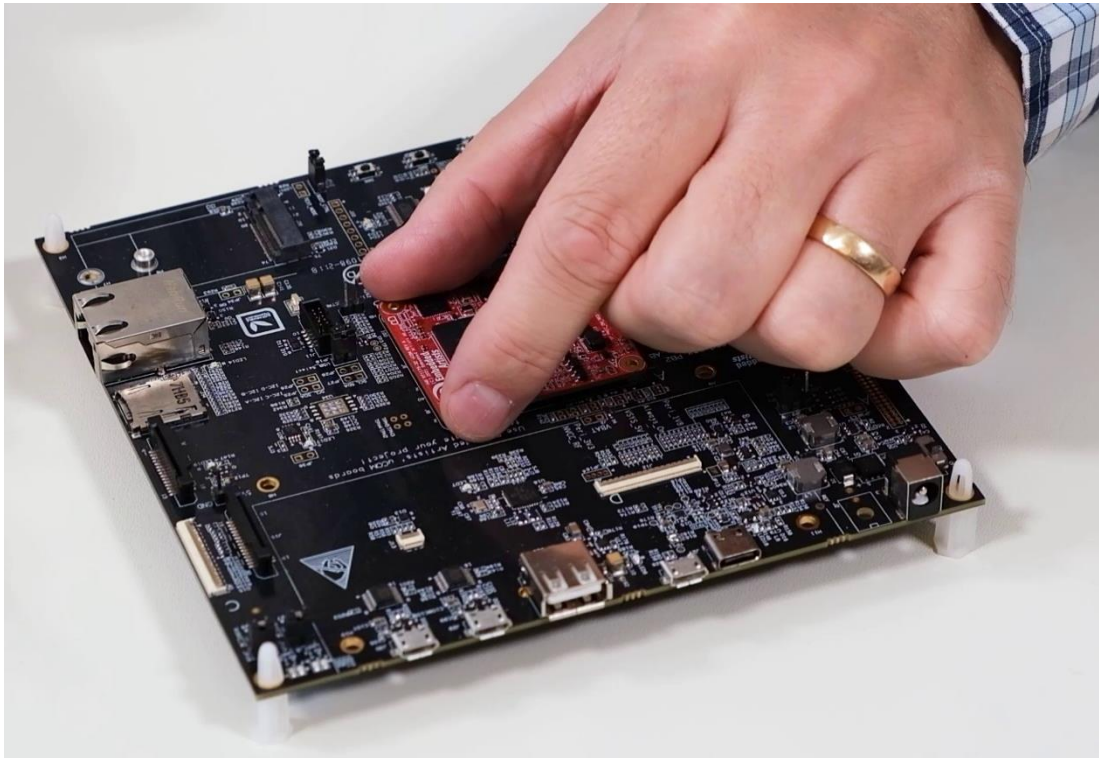


Figure 2 - Fingers over connectors

3.3 Place tool in middle of PCB

Place the screwdriver in the middle of the uCOM board as shown in Figure 3. Gently turn the screwdriver until the connectors disconnect. You may hear a click sound when it disconnects.

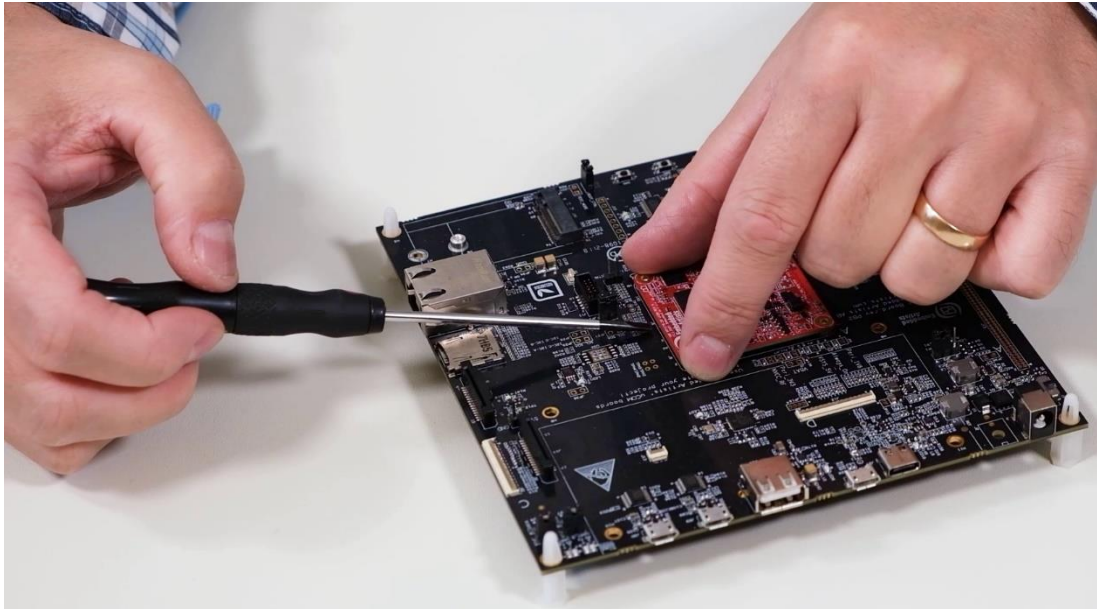


Figure 3 - Screwdriver in middle of PCB

Do not turn the screwdriver more than the first click sound (then the connectors disconnect). Keep the uCOM boards as close as possible to the connector on the carrier board. Do not do any big movements.

Turn the board around to disconnect the other side. In Figure 4 an example of another tool is shown. Do the same, that is, place the tool in the middle of the PCB and use small movements to disconnect the connectors.

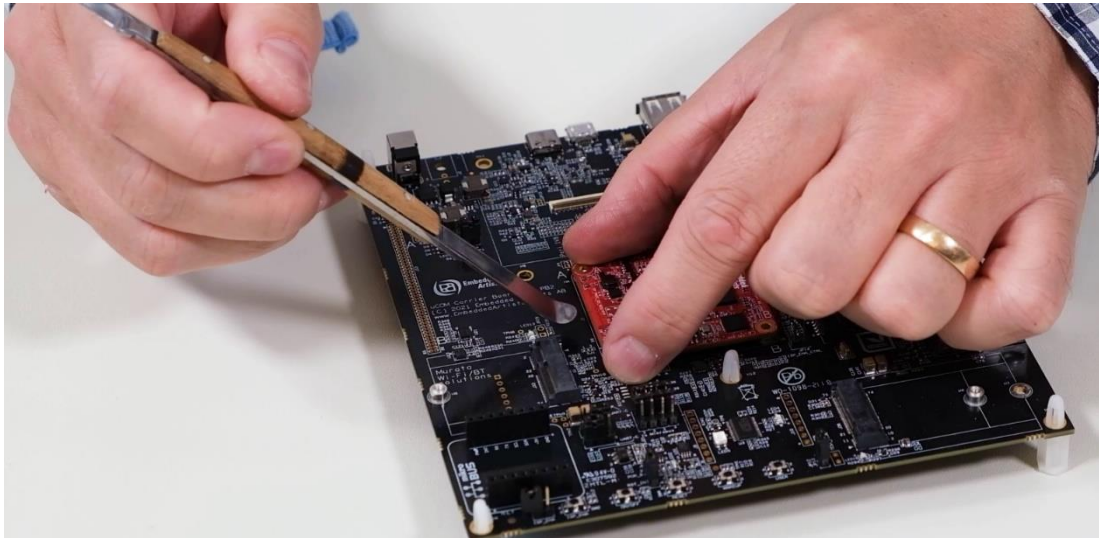


Figure 4 - Tool under middle of PCB

The board is now fully unmounted and can easily be removed. You should put it in an ESD bag or ESD safe environment immediately.

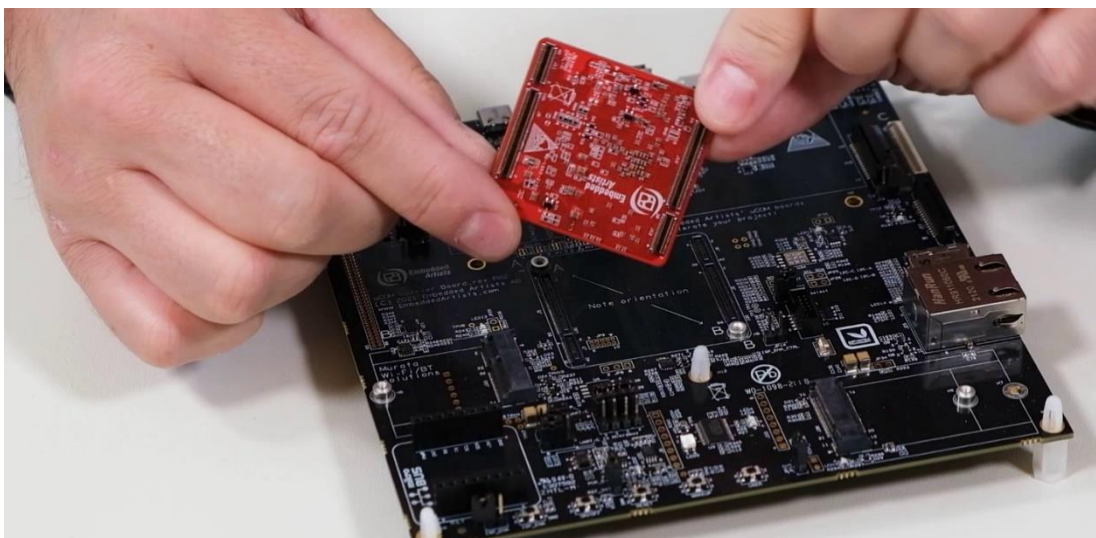


Figure 5 - Disconnected uCOM board

4 Mount uCOM board

4.1 Orientation of board

Note: There are stringent requirements on how relative to each other the connectors are mounted on the uCOM board and carrier board. See the **datasheet** for details before designing your carrier board.

Before mounting the board, you must identify the A- and the B-corner on the uCOM board. There is an A and B on the PCB as you can see in the circles in Figure 6.

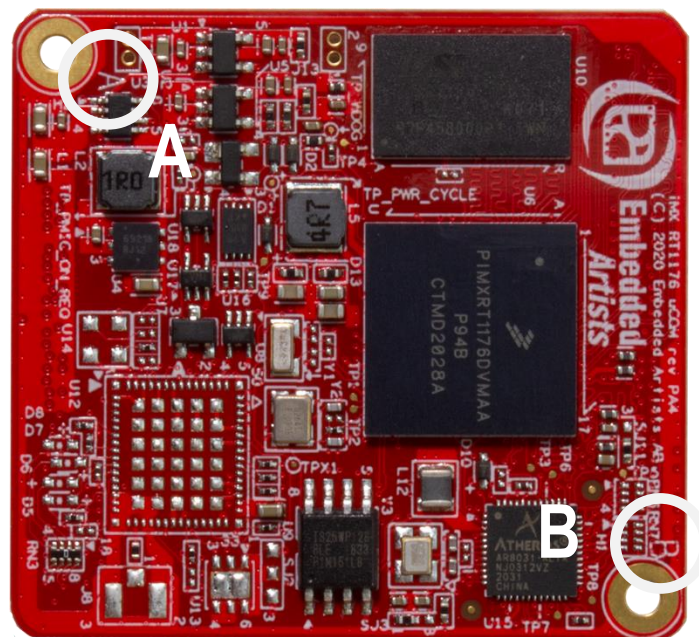


Figure 6- uCOM board front

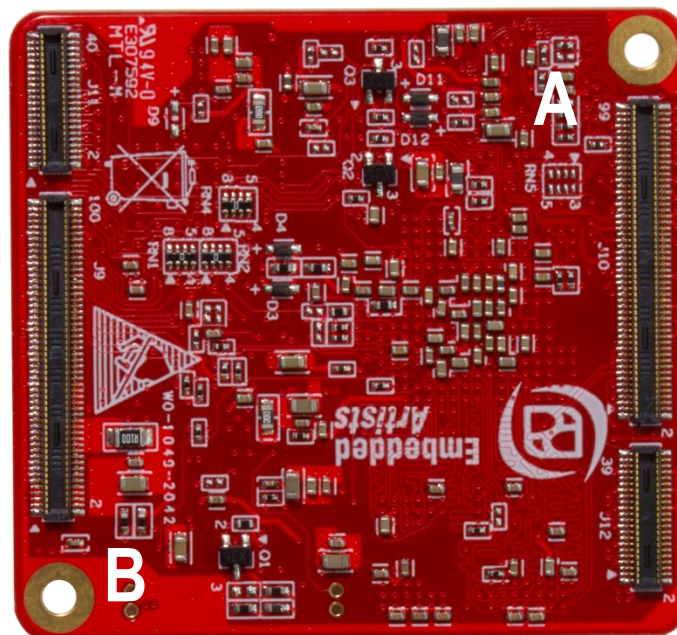


Figure 7 - uCOM board bottom

There is also an A- and a B-marking on the uCOM carrier board as shown in Figure 8. It is recommended that you put an A- and B-marking in the silk screen on your carrier board to avoid mounting the uCOM board incorrectly.

Note: It is possible to mount the board incorrectly. It will look almost perfectly, but the corner holes will be a bit misaligned. If the uCOM board is mounted incorrectly and powered the board will be **irreparable**.

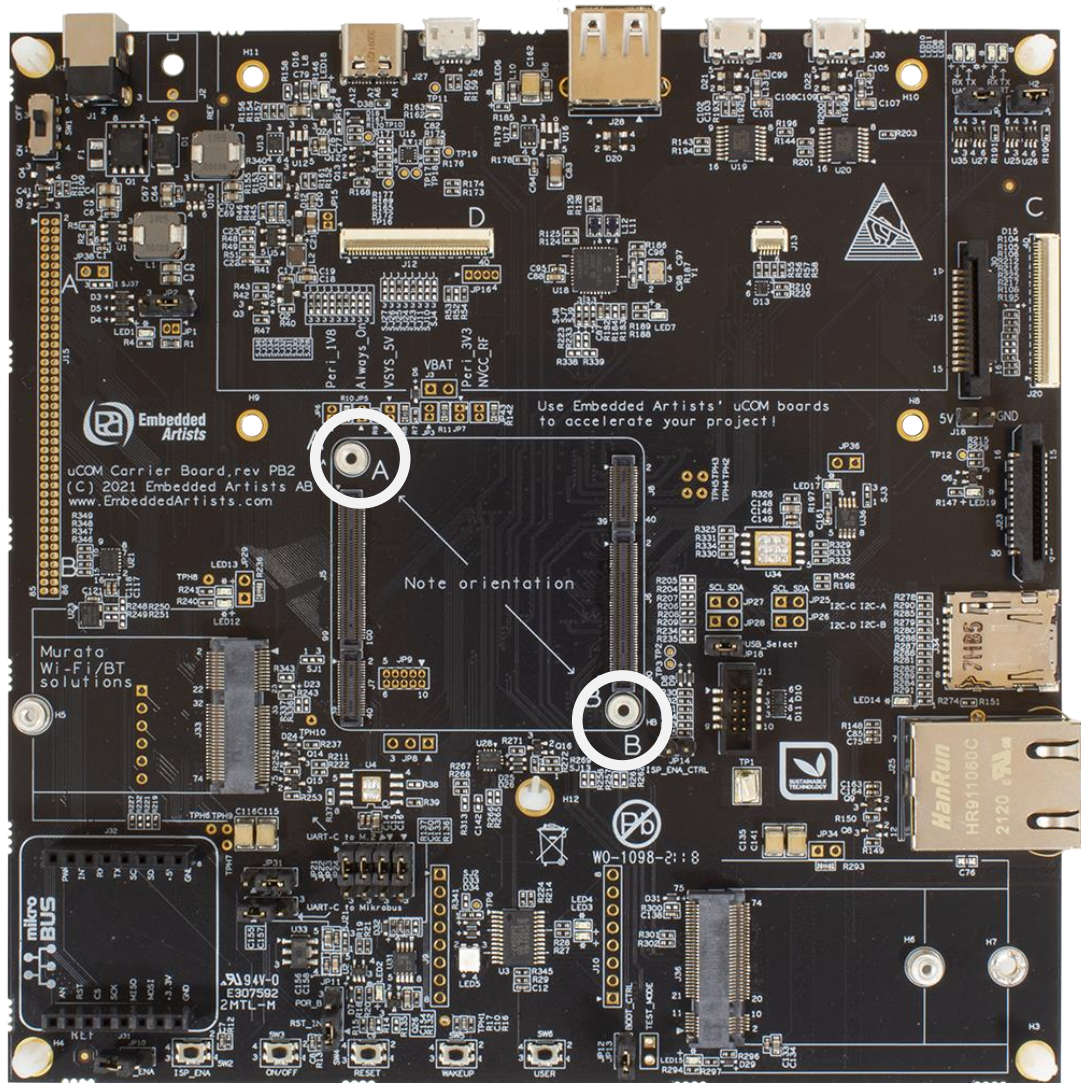


Figure 8 - uCOM carrier board

4.2 Find connectors

With the correct orientation place the uCOM board above the connectors and then with all four fingers feel where the connectors meet. You will find a position when there the uCOM board will rest in the connector positions on the carrier board. You can then also see that the corners are aligned with the holes.

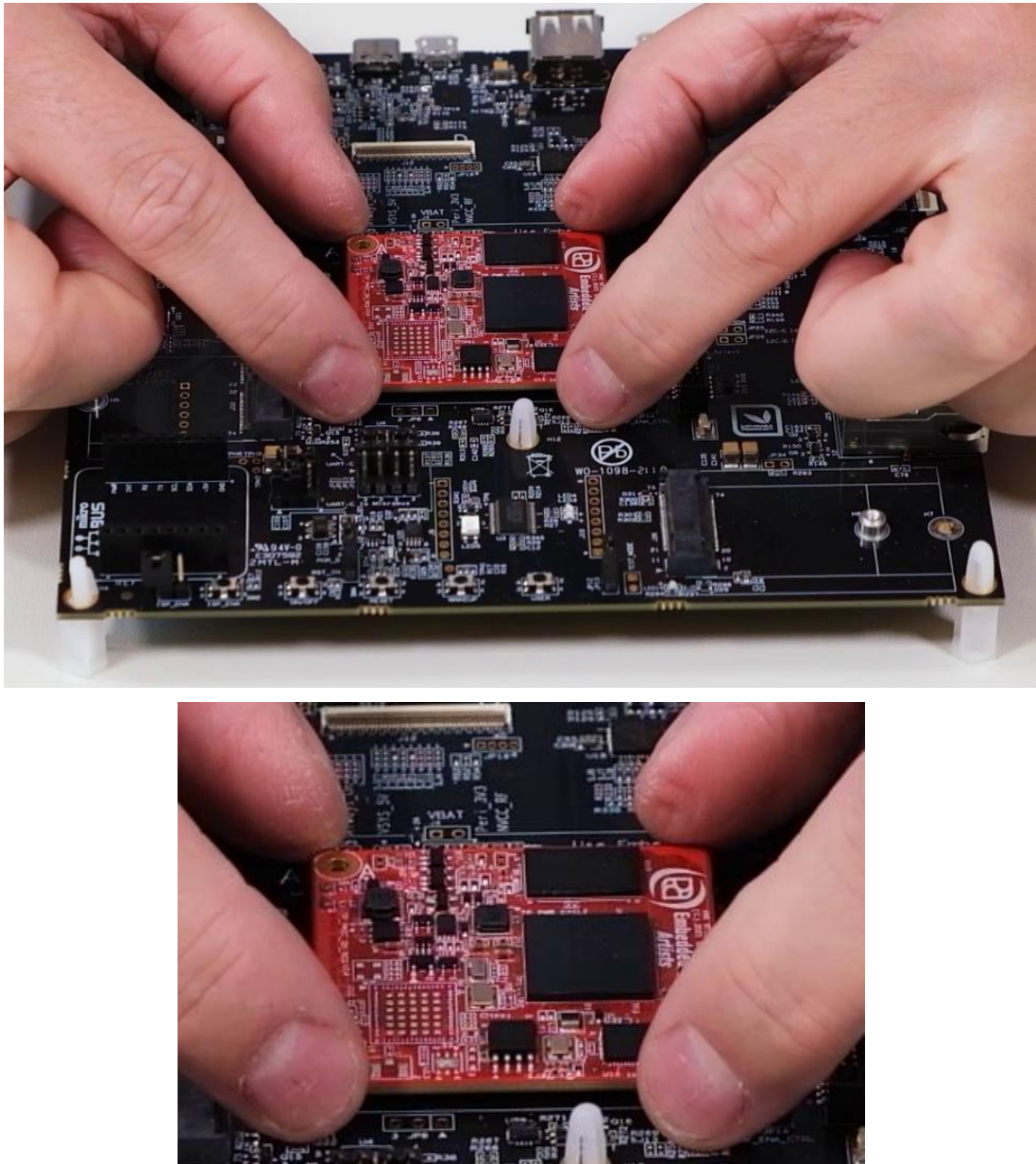


Figure 9 - Find connectors

4.3 Connect the board

Start with one of the edges and put your fingers above the connectors about 10 mm in from the corners. Gently press until the connectors are connected. You may hear a click sound. Repeat and do the same thing on the other edge.

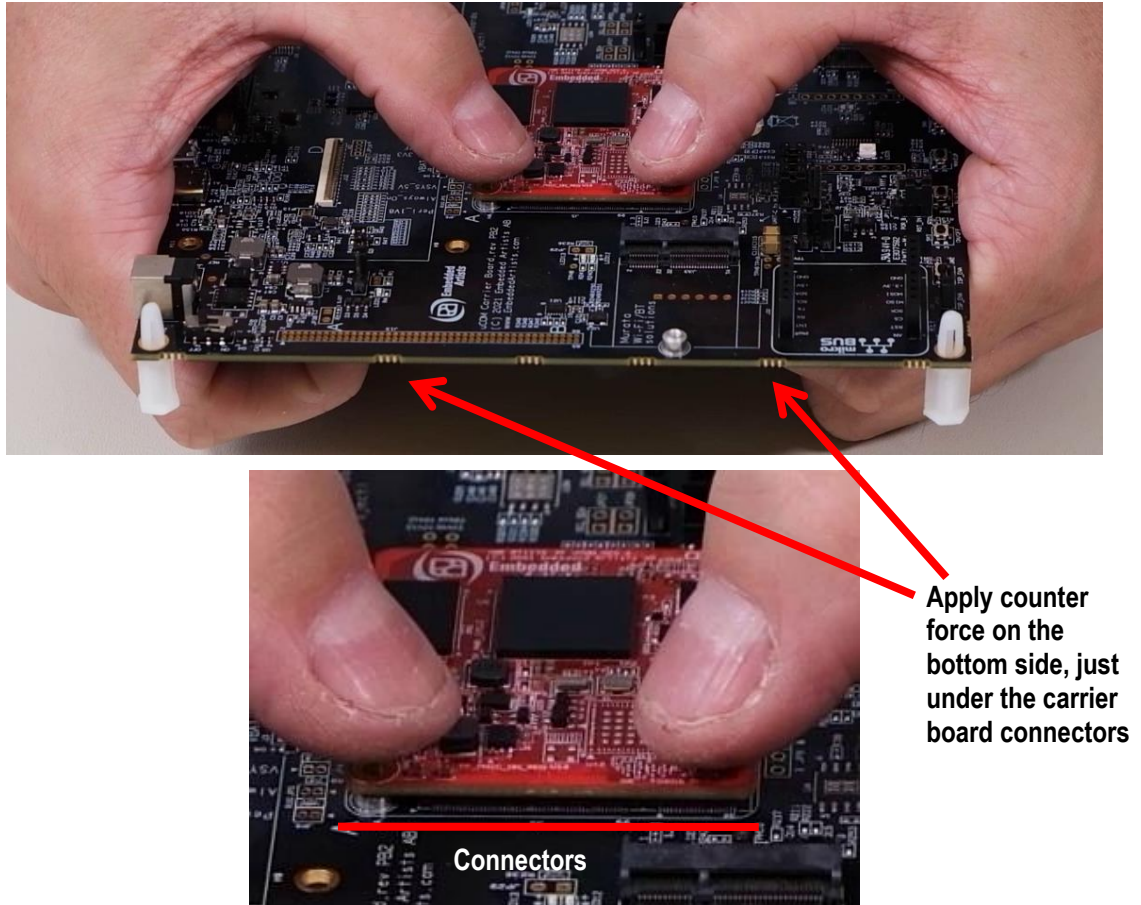


Figure 10 - Connect board

Note: It is **very important to apply a counter force on the bottom side**, under the carrier board connectors. If not, the risk is high that the carrier board is bent when pressing the uCOM board into the connectors. Bending on the carrier board can easily damage the connectors and the copper tracks on the carrier board.

The counter force does not need to come from hands. It can come from stand-offs close to the carrier board connectors or from a fixture used during uCOM board mounting.

4.4 Mount screws in corner holes

As a final step you can mount screws in the corner holes. Tighten the screws, but don't use too much force because then you can damage the PCB.

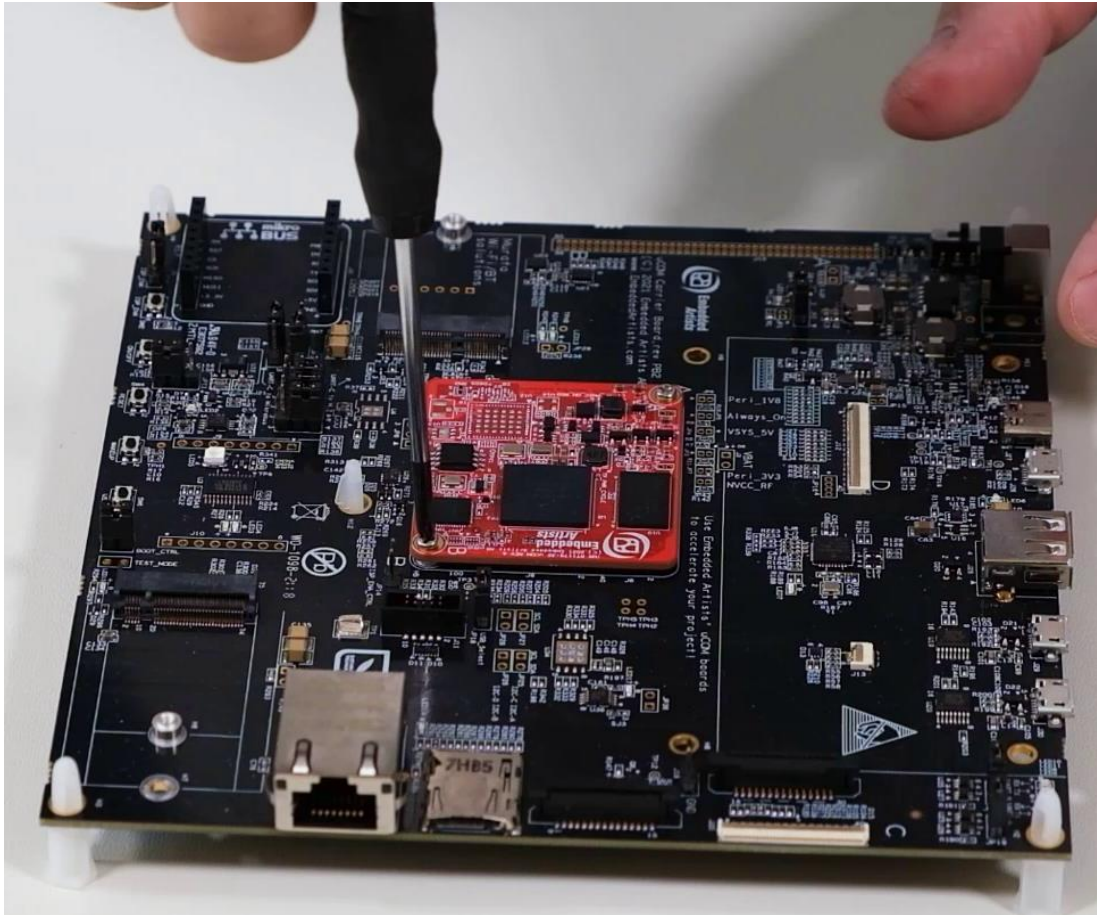


Figure 11 - Screws in corner holes

Note: Be careful with the screwdriver. If it loose the grip on the screw it can easily damage components on the uCOM board.

4.5 Use a heat sink

If you would like to mount a heat sink on the processor, design the heat transfer management system so that the heat sink doesn't push down on the processor and bend the uCOM PCB when the heat increases (and materials expand).

Use spring loaded screws, push pins or captive screws when mounting the heat sink in order to get a precise and constant pressure on the processor even if some of the material expand when temperature increase.

Alternatively use a thermal interface material (TIM) that is thicker and designed to absorb material expansion.