

Hardware Design

The VGA Payload differs from P/L 2 and P/L3 greatly, both in purpose and development. As previously stated the VGA camera itself is a COTS component, meaning no development of the actual instrument is done as a part of the hardware design. Despite this, in this section will be explained the basic components of the camera module as well as the connections with the PCB it's placed on.

Due to the simplicity of the system the design choices of the only component are explained on the subsystem description page.

1. Schematic Design

The schematic design of the VGA PCB consists of the vertical connectors that run through the stack as well as the VGA camera itself:

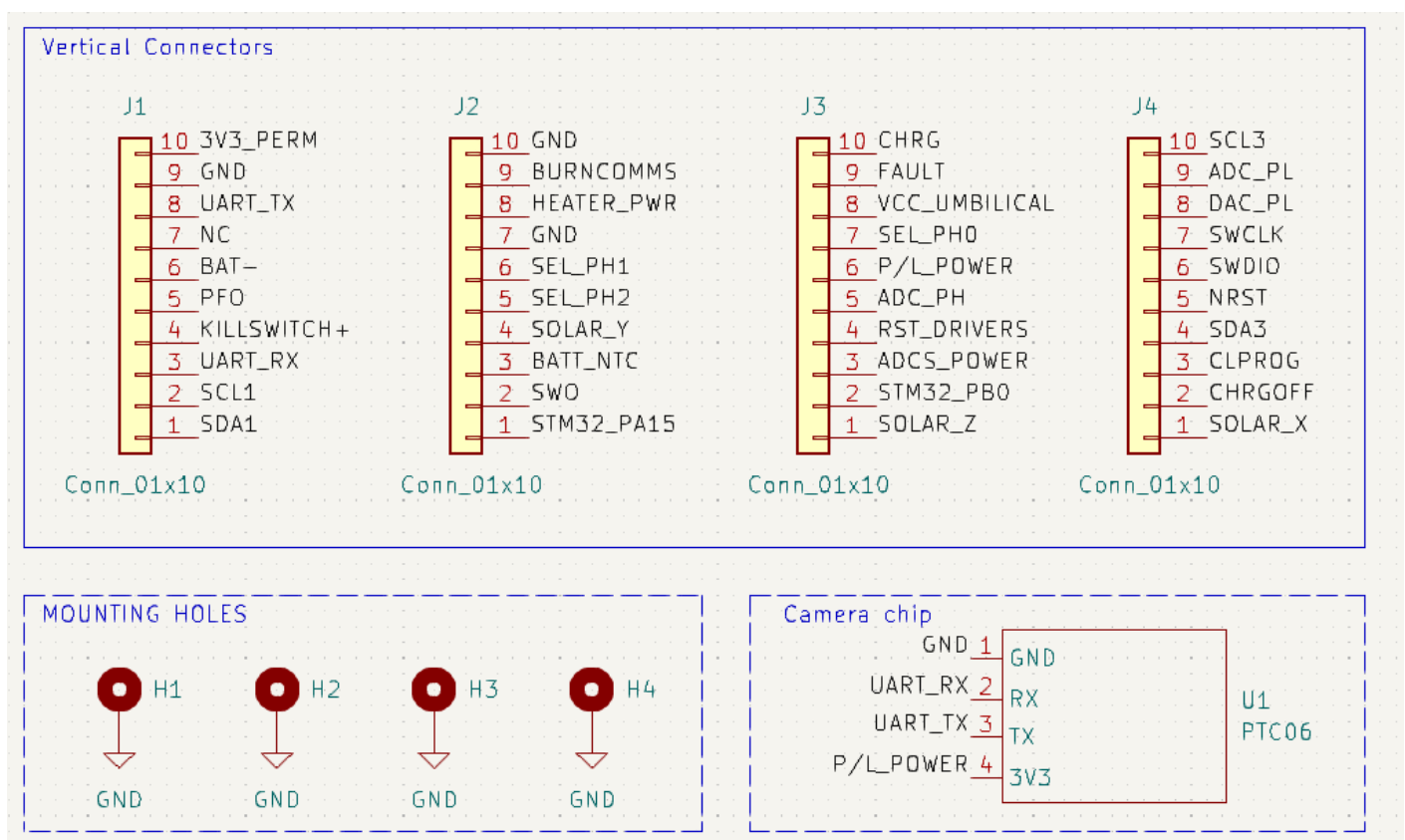


Figure 1: VGA PCB Schematic

2. PCB Design

The VGA camera is fitted so that the lens is placed on the middle of the PocketQube. The resulting PCB model representation corresponds to:

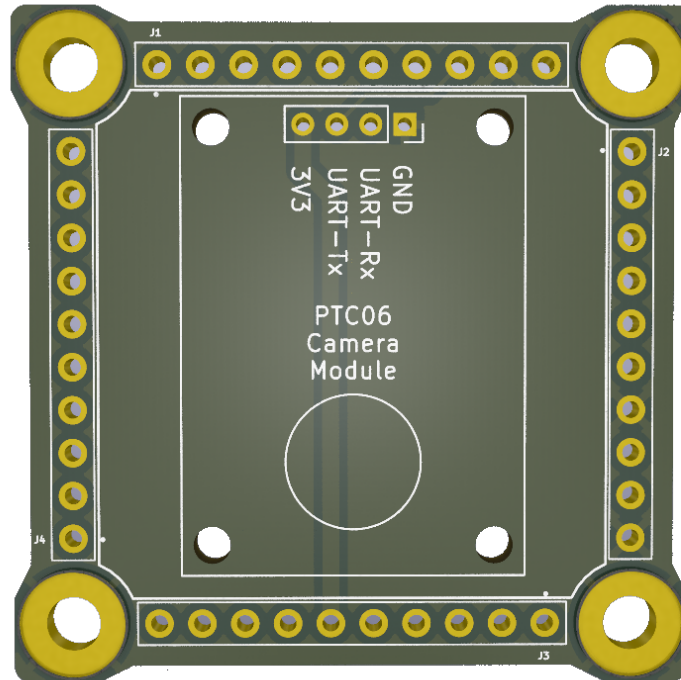


Figure 2: VGA PCB Render

3. Reverse Engineering

The PCB Reverse Engineering task was started with the goal of creating a PCB of the camera that would be inside the PocketQube. After making the first measurements of each element, it was discovered that, to find out some of the connection lines, it was necessary to remove the thin green layer that the camera has. This green layer works as an insulator and makes it difficult to measure properly.

Since it was not possible to measure the connections well, it was decided to remove the camera to see if we could work better that way. However, due to some of the components, such as the lens, being hidden by the manufacturer, there was no access to them, so knowing which pin the camera connected to was not possible.

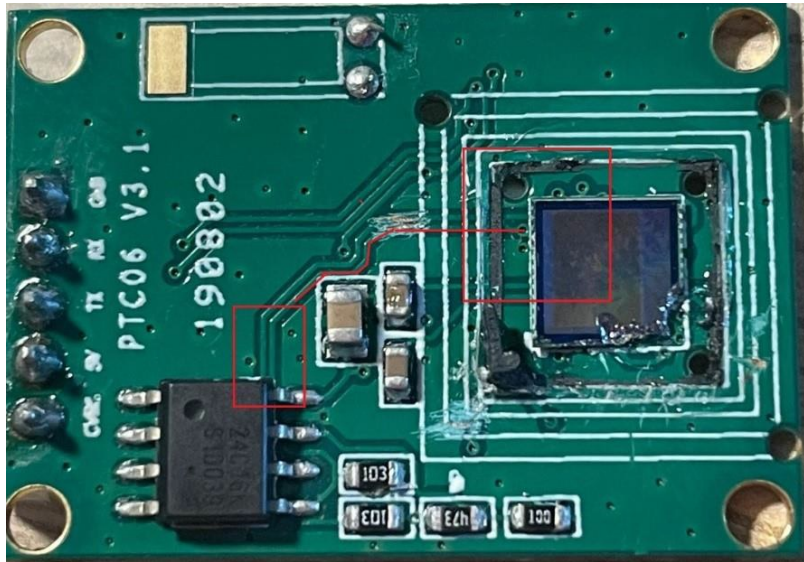


Figure x: Open VGA

Doing the PCB Reverse Engineering became an unsolvable problem. There was no way to figure out where the connections went because there was no information about the components. So, it was decided not to continue with this process. What will be done is directly connect the device to the PocketQube trying to take as less pace as possible from the device so that it does not cause problems.

Revision #1

Created 15 November 2024 17:55:21 by roger.almirall

Updated 15 November 2024 17:55:30 by roger.almirall