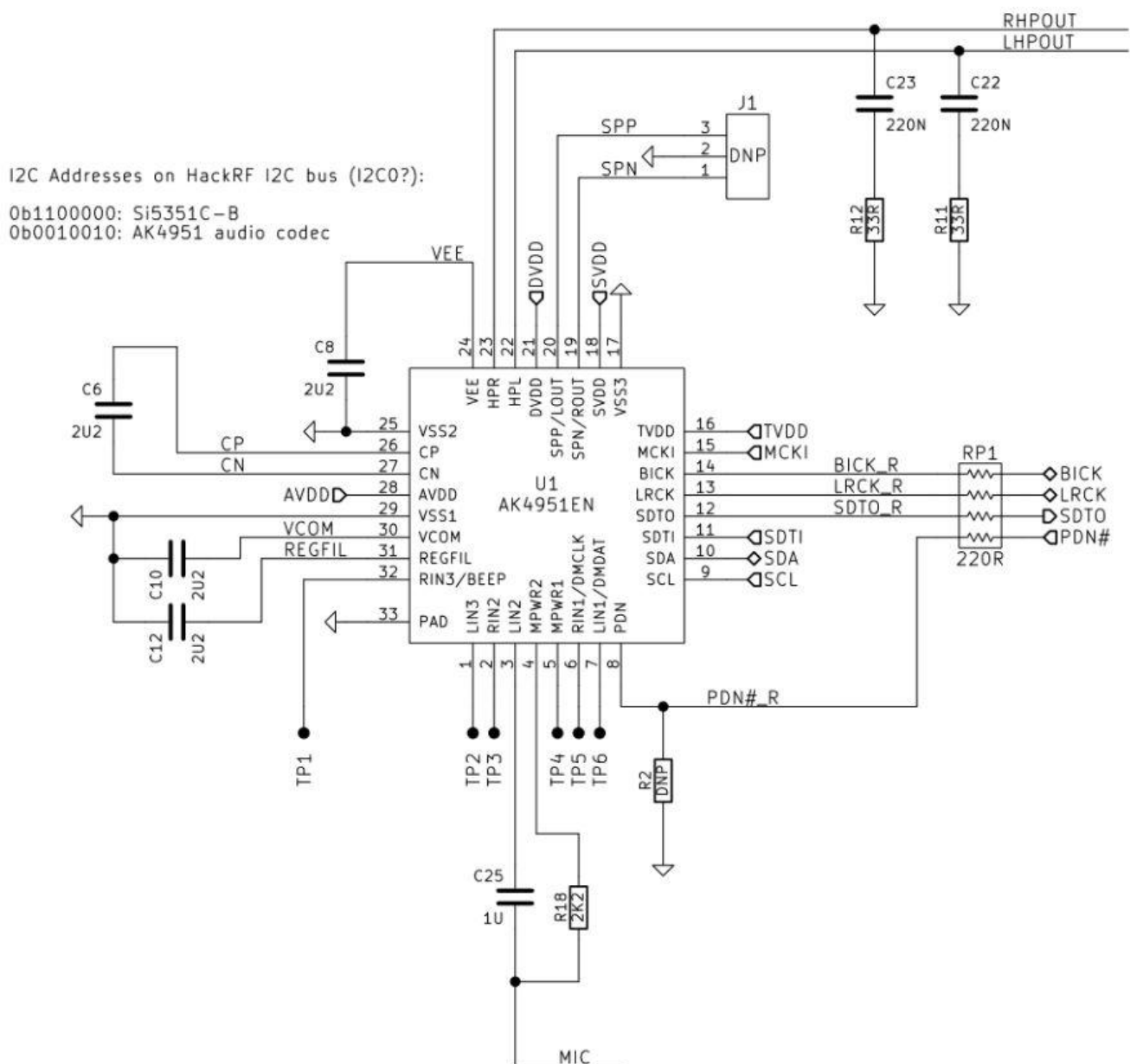


Internal microphone modification for HackRF Portapack H2

The original schematic allows connecting only external mic via 3.5 mm audio plug. This is a little bit complicated and not portable, because adds external wires/cables. We would like to have something like “walkie-talkie”, so that “everything is included”. Thanks to James

Shao for his contribution, who wrote the code activating internal mic in software.

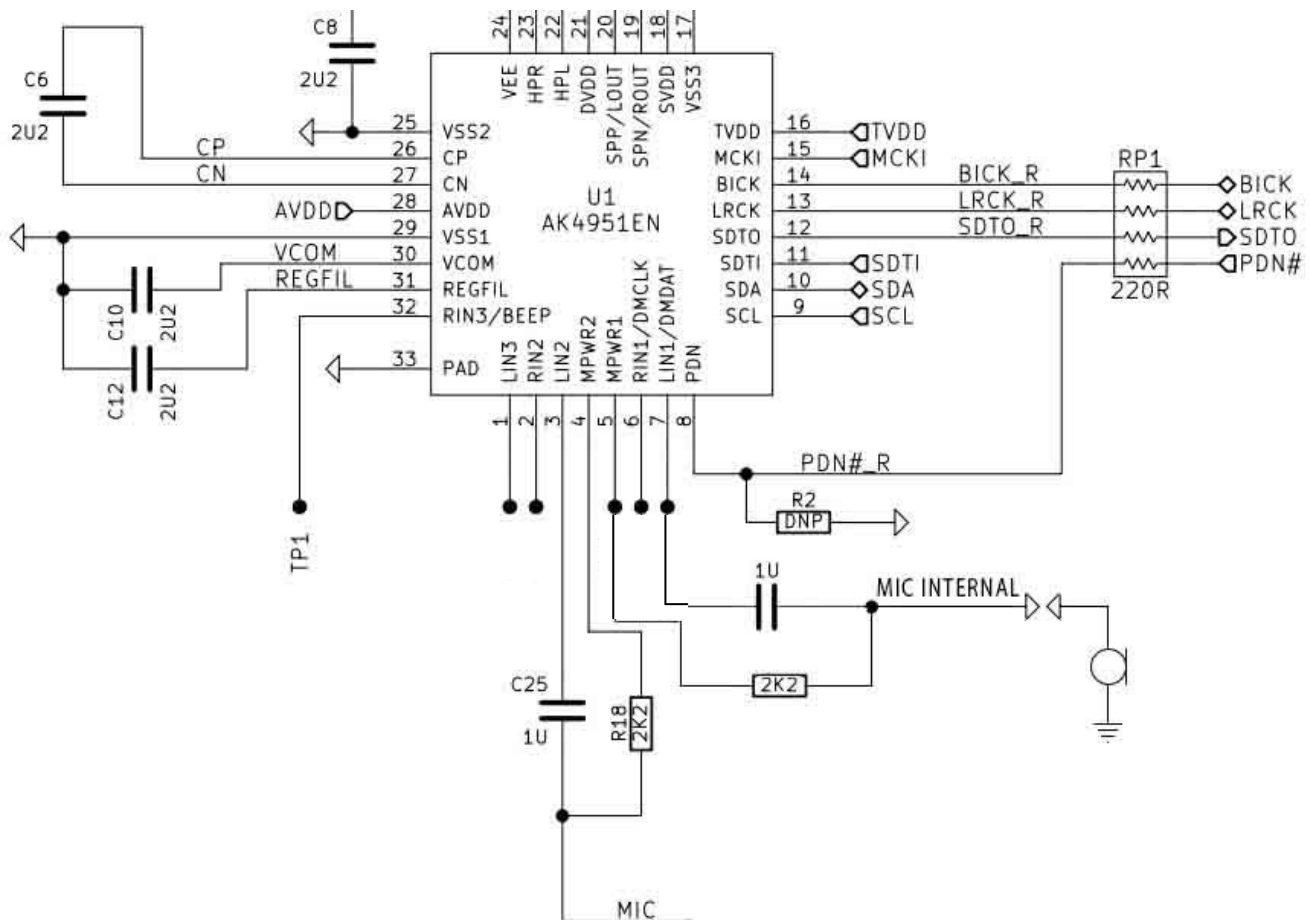
But what about hardware? Let's see what we have. The original audio subsystem schematic is depicted on **pic.1**.



Pic 1. Original audio subsystem of portapack H2

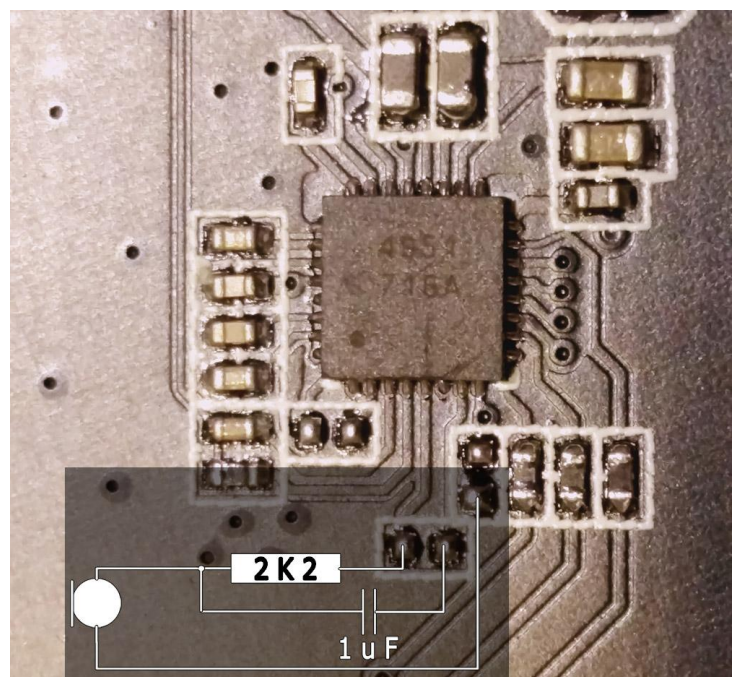
As you can see external mic is connected to 3 and 4 pins of AK4951EN. Pin 3 is audio in, and pin 4 is power for electret microphone. Let's see what are pins 5 and 7. They are used for audio

input as well. Pin 5 is power for mic, and pin 7 is audio input (LIN1 – left channel). Let add capacitor and resistor to schematic as it made for external mic, and we get the second working audio input. The modification schematic is below on **pic.2**.



Pic 2. The modified schematic for internal mic

There are 3 points on Portapack H2 PCB near the audio chip AK4951EN. We need to connect them according to schematic on **Pic 3**. All you need is 1 2,2kOhm resistor and 1 capacitor 1uF. And of course the microphone itself. The **Pic 3** shows the connection of microphone on PCB and explains the modification. It's very simple as you can see.



Pic 3. Connections are very simple