



Audio Digitizer



Project Overview

- Introduction
 - Multi-channel audio synthesizer
 - Simultaneously sample multiple channels of audio data
 - Convert audio data into a playable format



Project Overview

- Why this project?
 - Interest
 - Practical experience in PCB layout and production
 - Exposure to I2S and SPI communication
 - Provide a cost-effective solution



Project Overview

- What is the desired result?
 - Sample multiple channels of audio data
 - Control sampling rate through software
 - Convert raw audio data into a wav file



Project Overview

- What were we able to accomplish?
 - We can affect the sampling rate through software
 - Codec can sample and transmit audio data
 - We can properly initialize all components

Project Overview

- Unable to accomplish ...
 - Reading audio data with the FTDI chip
 - Schematic error



A hand is holding a red probe connected to a green PCB. In the foreground, a red digital multimeter is visible, showing various buttons like 'SELECT', 'FUNC.', 'HOLD', 'RANGE', and 'MAXH'. The background features a zebra print pattern.

Project Overview

- List of what we'll be showcasing in our demonstration
 - SPI communication from FTDI
 - Show we can sample and transmit audio data
 - Show changing the sampling rate in software is reflected in hardware

Demonstration

- SPI communication from FTDI - PulseView
- Show we can sample and transmit audio data - PulseView
- Show changing the sampling rate in software is reflected in hardware




```
Opened device  
Reset device  
EEProm programmed  
Initialized USB device  
Initialized ADC device  
address is: 255  
adcAddress is: 0x79  
registerAddress is: 0xFF  
Set sampling rate to single speed mode  
adcAddress is: 0x79  
registerAddress is: 0xFF  
Bytes received is: 0, should have been: 250000
```

Conclusion

Any Questions?