2023-2024 spring capstone final report: <https://docs.google.com/document/d/1QNvqZRcIlr5oz7clWzOwtHOtSd97eKo5BvxzaM-GsSM/edit>

Github wiki: <https://github.com/Epsilon391/High-Frequency-Sampling-for-Circuit-Analysis>

STM32F103C8T6

10/02/2024:

* Fking finally I’m at testing!!
* Change\_clock\_test0 is the good STM32 program!! Working on both STM32s
* Testing different voltage gains by adjusting gain pot on amp

| **Vpp (V)** | **Max (V)** | **Oscilloscope** | **Resulting Graph** |
| --- | --- | --- | --- |
| 1.82 | 1.82 |  |  |
| 1.60 | 1.72 |  |  |
| 1.42 | 1.62 |  |  |

* + This testing done with power going from computer -> ST-Link -> STM32
* Tried powering STM32 with micro-USB instead of computer -> ST-Link
  + It worked!, gonna use this for setup
* Uploaded current setup images to google drive
* Even though I removed the line that makes PC13 blink with each buffer read in the STM32 program, I think the light stays on because I have the pin configured for output.
  + It is a good indicator of the STM32 getting enough power though because the light only turns on when it has enough power to function properly I believe
* Current questions:
  + Why use a cutoff frequency of 800 Hz for the lowpass filter?
    - How did this remove DC offset?
  + How to accurately scale model to be able to trustworthily compare it to the measured data?
    - How do I know if the measured voltage ripples are the correct gain to be accurately compared to the model?
  + Lowkey, I still don't really understand what the buck converter load resistor is for
    - Just kidding, the cap ripple voltage is measured across the load resistor
* Starting to think about what I really want to do with this system:
  + Figure out how to double ADC data rate by using both ADCs with an offset?
    - <https://community.st.com/t5/stm32-mcus-products/to-use-the-adc-data-offset-registers-with-adc1-2-should-i-use/td-p/128015>
  + Create comparison method for comparing simulated model and measured data
    - Will this happen on STM32 chip or on pi?
      * Prob pi if I’m making a pi shield