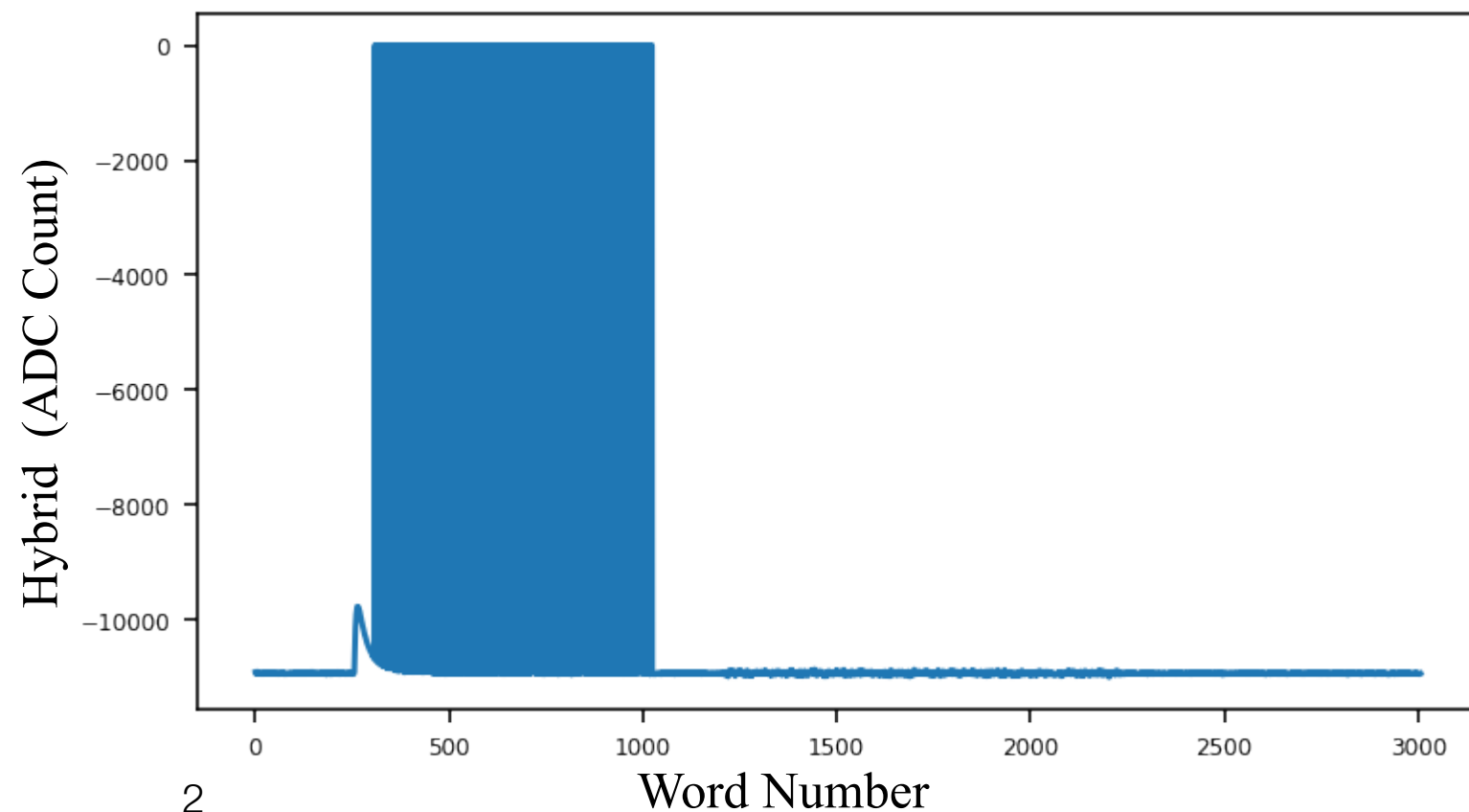
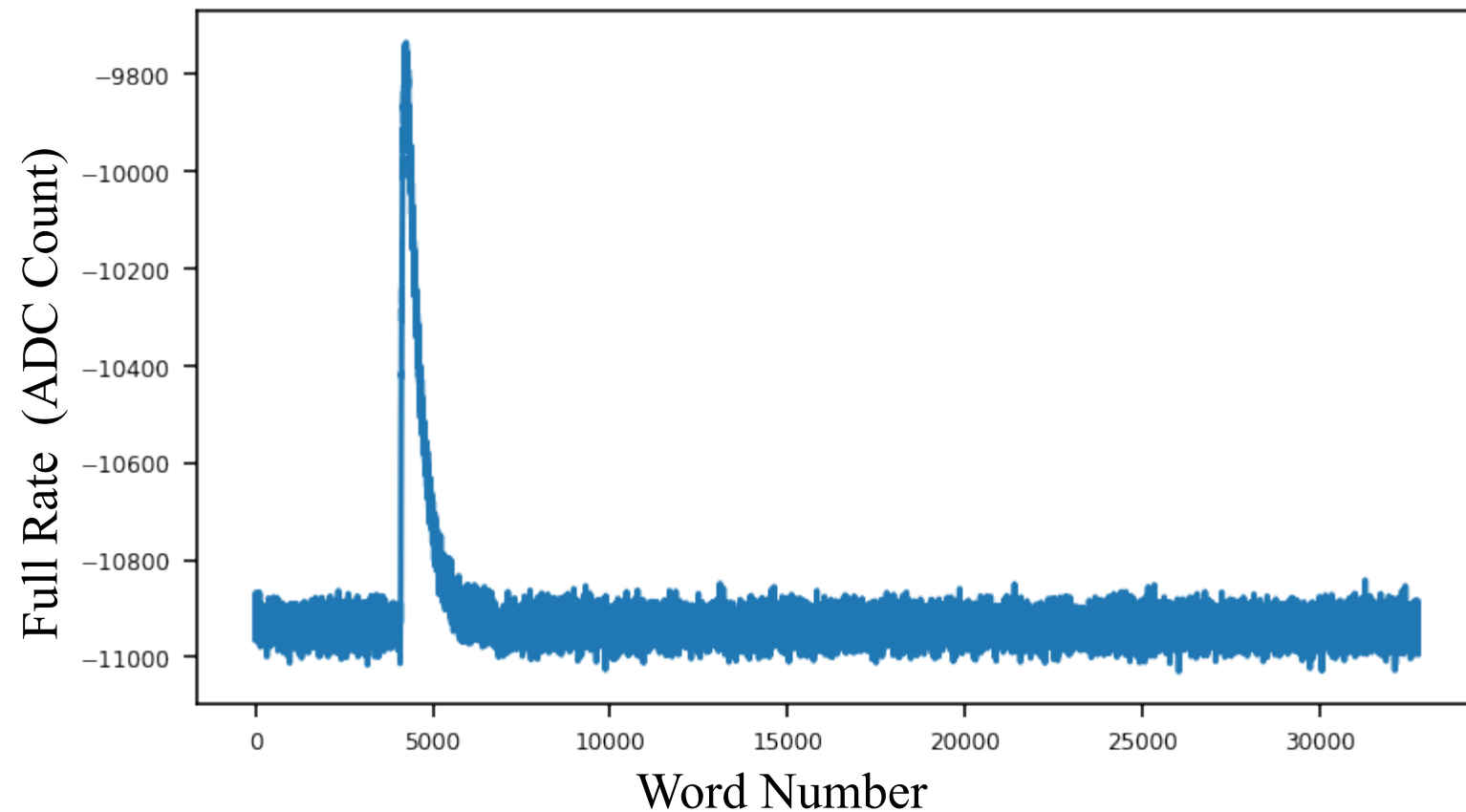


HYBRID READOUT AND MICROCONTROLLER VERSIONS

DAQ/Trigger Meeting
Elham Azadbakht
December 5, 2019

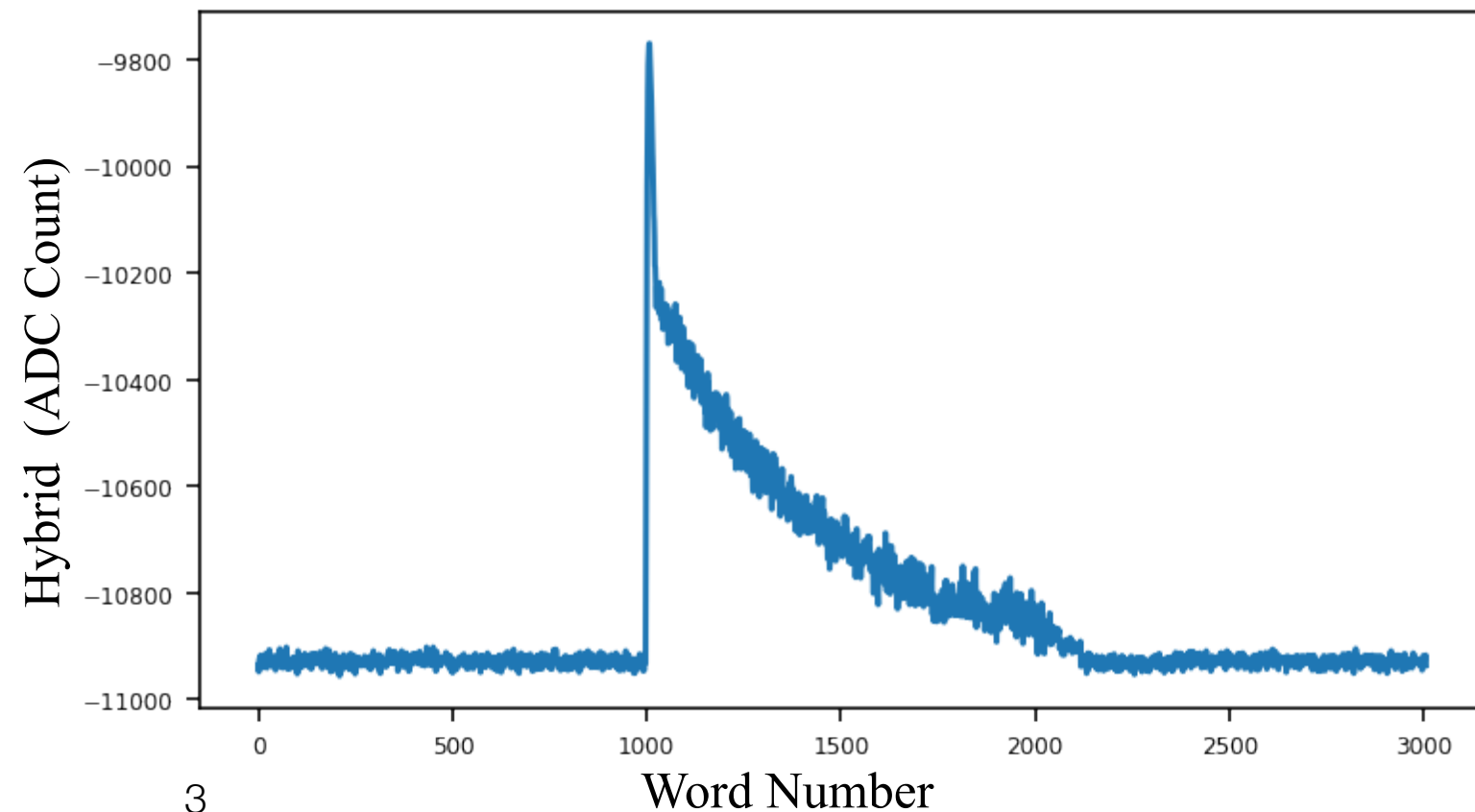
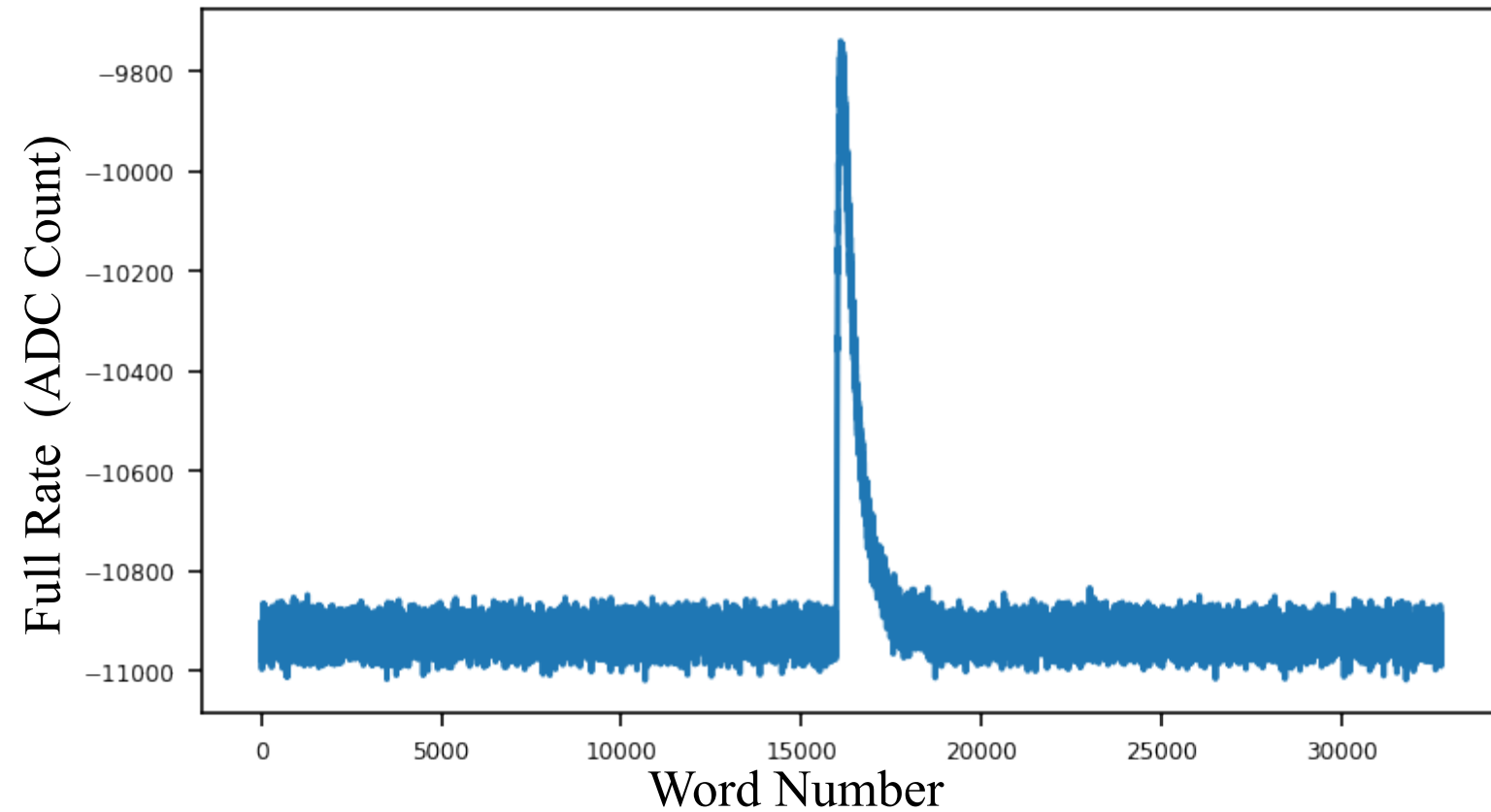
Hybrid Readout Test with v2.07

- ▶ Simulated Phonon Pulse Ejected by a Waveform Generator
- ▶ PrePulse = 1024
OnPulse = 1024
PostPulse = 960
- ▶ Zeros show up in the beginning of the readout



Hybrid Readout Test with v2.09

- ▶ Same test with v2.09
- ▶ PrePulse = 1024
OnPulse = 1024
PostPulse = 960
- ▶ It works perfectly!



Updated Status of Hybrid Readout and Microcontroller Versions

- ▶ Microcontroller needs to have a working wait function. Otherwise we get zeros in hybrid readout mode.
- ▶ v2.08 is totally broken. It doesn't pass the regular noise tests.

Microcontroller Version	Wait Function
2.05	Works
2.06	Broken
2.07	Broken
2.08	Broken
2.09	Works

Discussion on Updating the Microcontroller Version



- ▶ We should make sure all DCRCs have Microcontroller v2.09
- ▶ [Confluence Page](#) that links the binary images and instructions
- ▶ Microcontroller programming can be done with [USB](#) and [JTAG](#)
- ▶ USB didn't work on SN21 at TAMU
- ▶ Terry can use USB for Microcontroller programming at FNAL

Missing on Confluence Page

FPGA	Link to Firmware Code	Link to Executable
Small FPGA	??	??
Large FPGA	RevD_FPGA	
	RevE_FPGA	FPGA_Firmware
Microcontroller	RevD_Microcontroller	
	v2.05	Compiled binary image
	v2.06	
	v2.07	
	v2.08	Compiled binary image 16MHz Compiled binary image 25MHz
	v2.09	Compiled binary image 25MHz

The instructions for uploading the executables onto the boards can be found at the following pages.

- Microcontroller programming with [USB](#) and [JTAG](#).
- FPGA programming with a [python](#) script and USB.

The instructions for turning the FPGA firmware into an executable that can be uploaded can be found **here** (add link)