Digital Oscilloscope Implemented on Labkit FPGA

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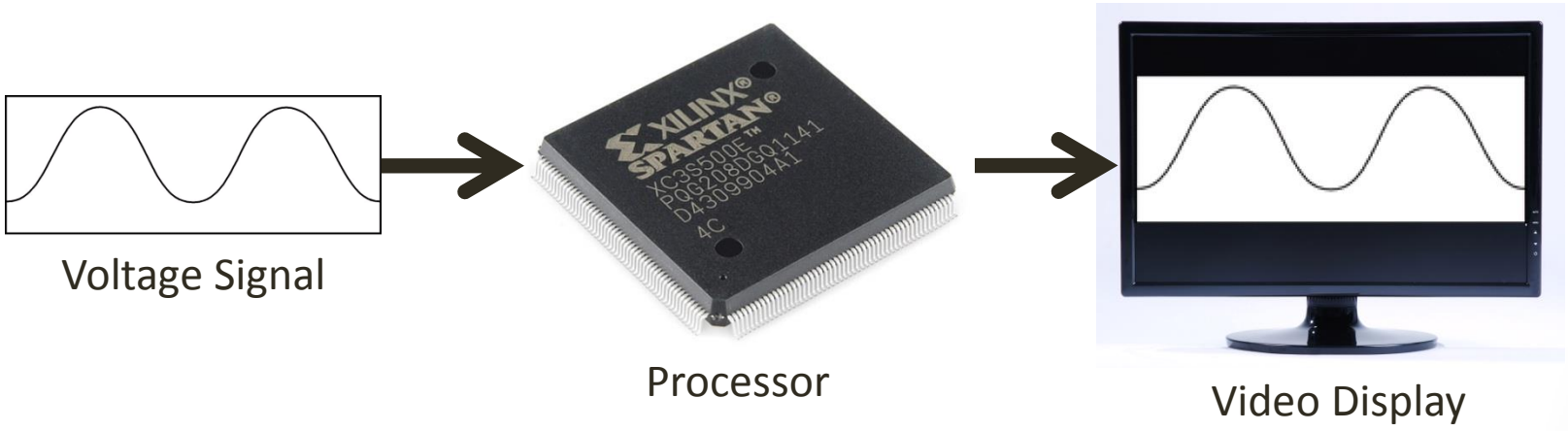
6.111 Final Project

What Is A Digital Oscilloscope?

Electrical waveform measuring device



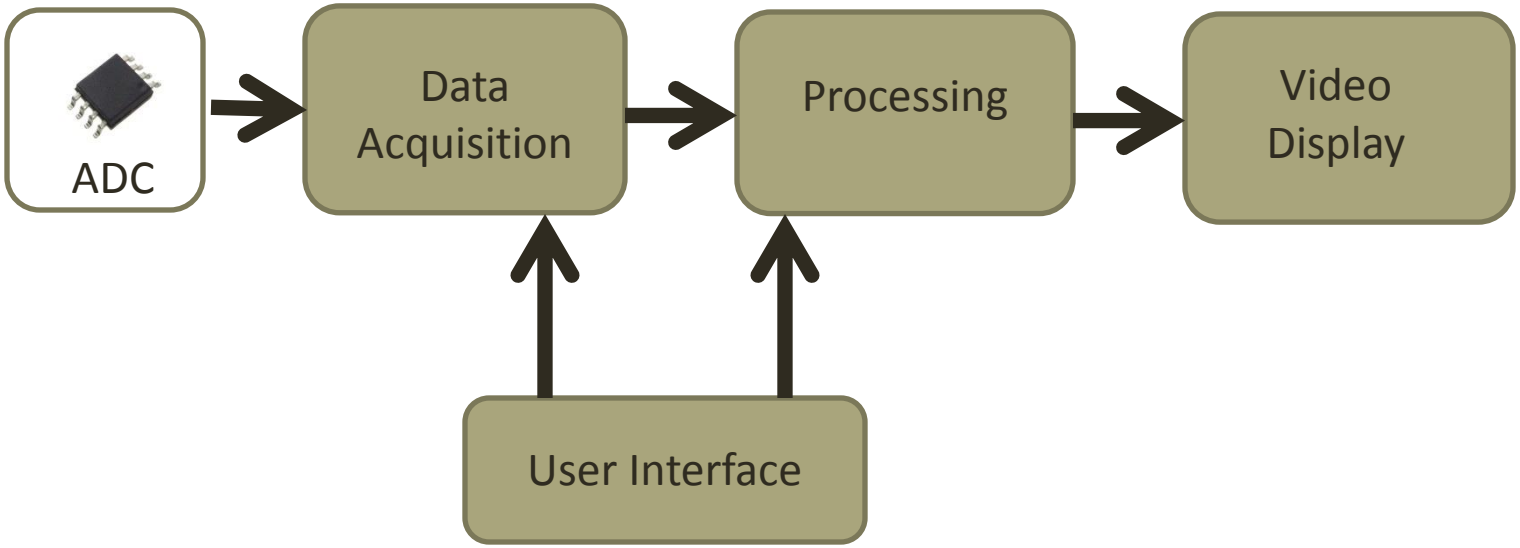
Voltage Signal

Processor

Video Display

Sampled waveforms are stored in a computer and then displayed on an output screen

System Architecture



Analog Sampling And Storage

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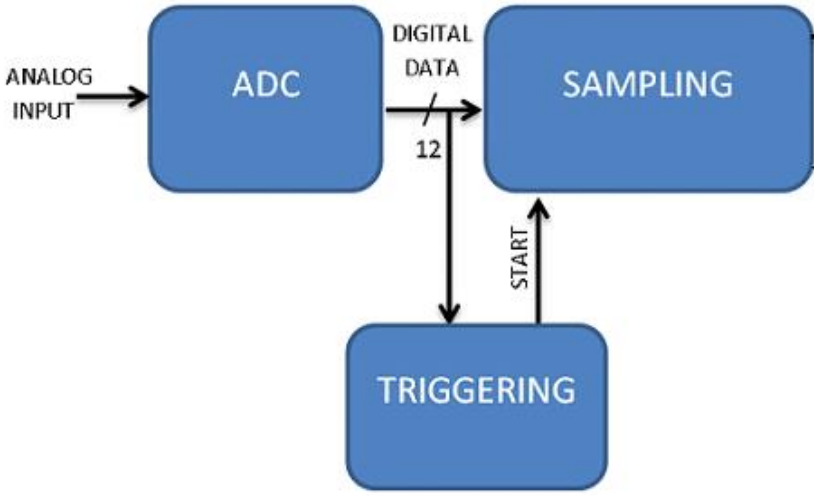
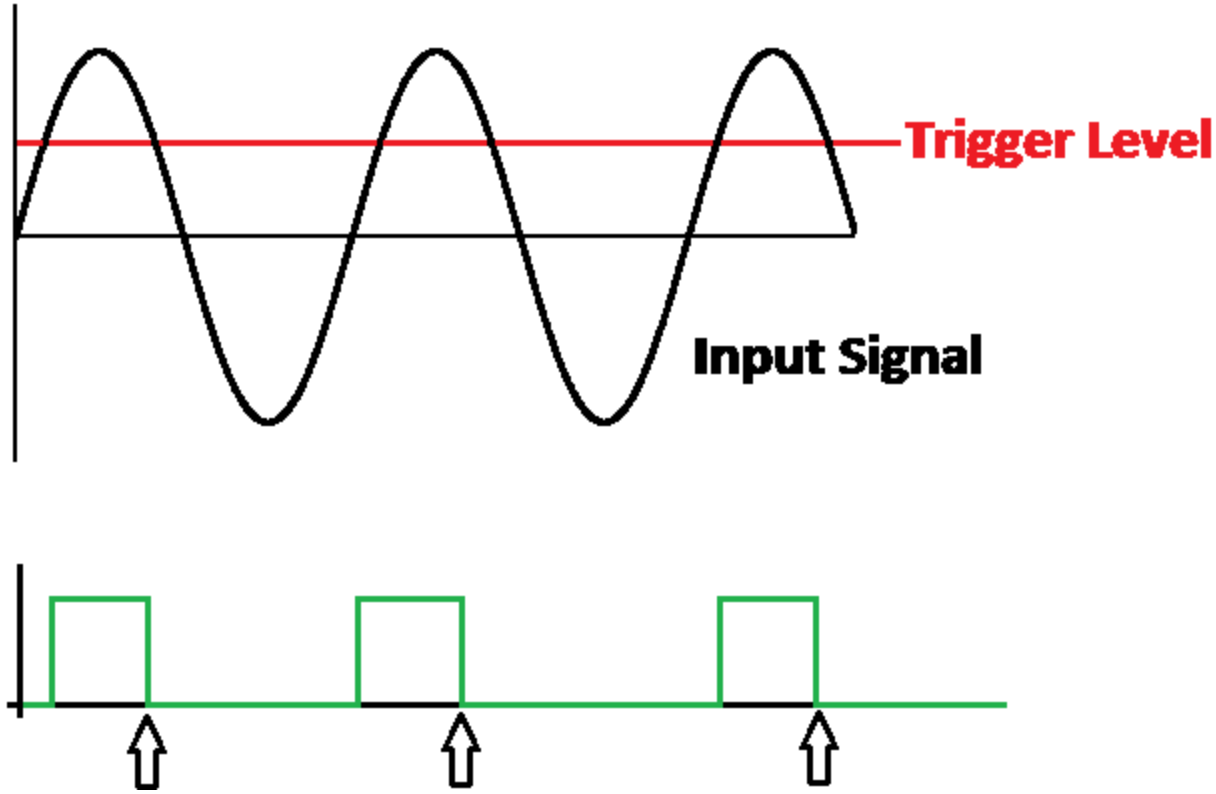
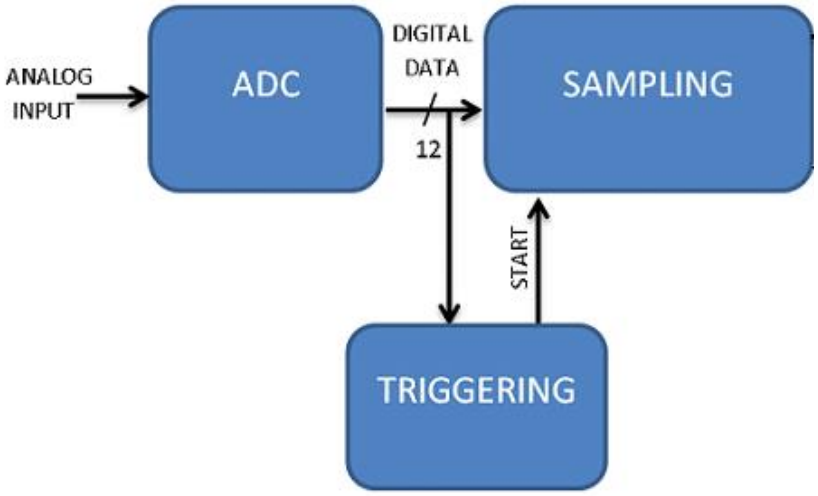


Triggering Module

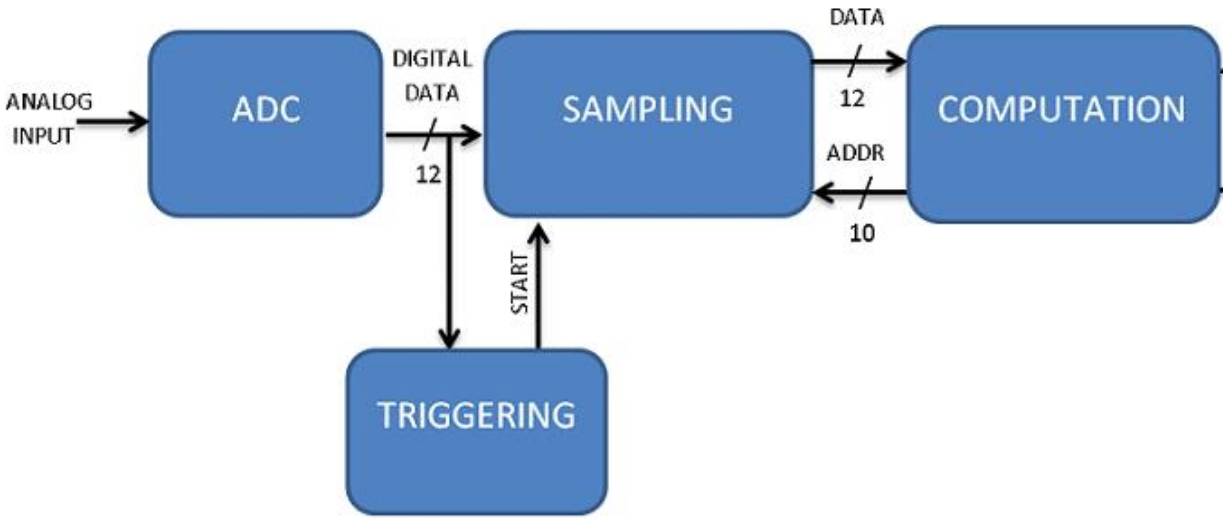


Triggering events on edges

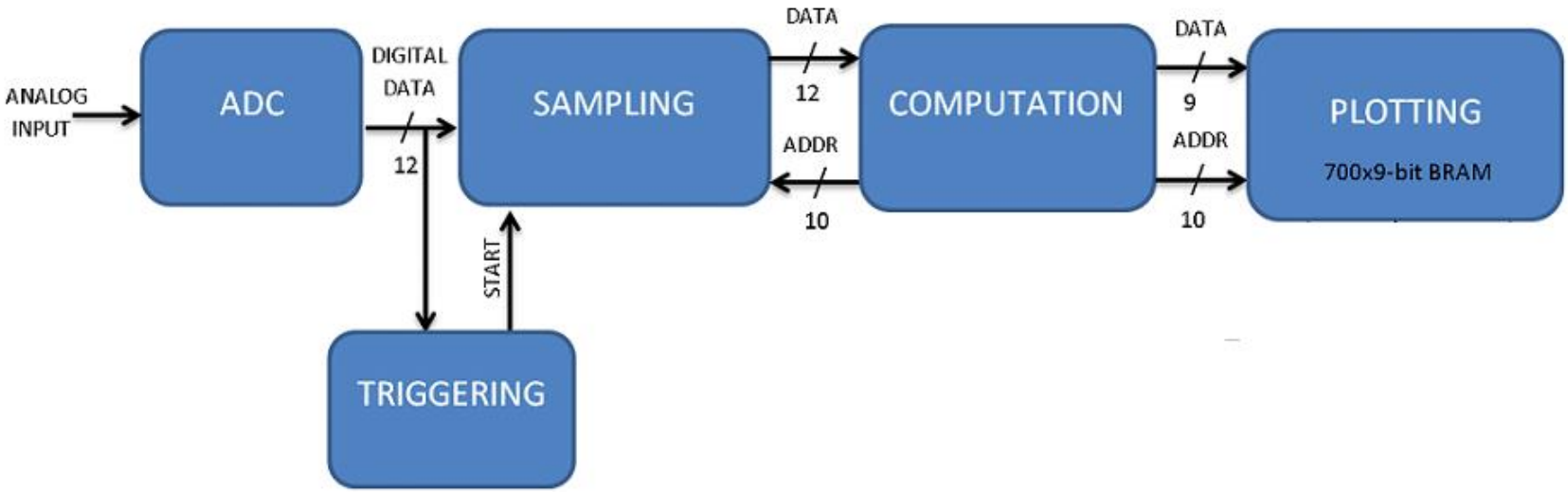
Analog Sampling And Storage



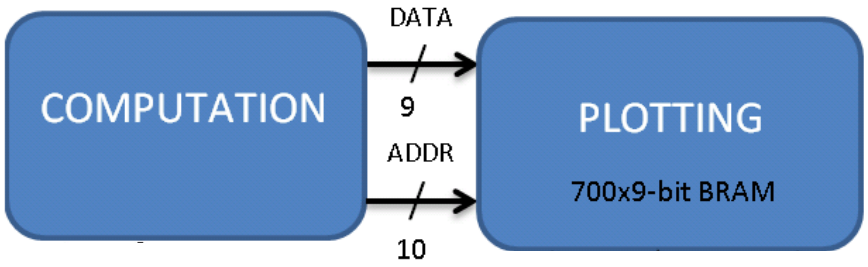
Data Computation



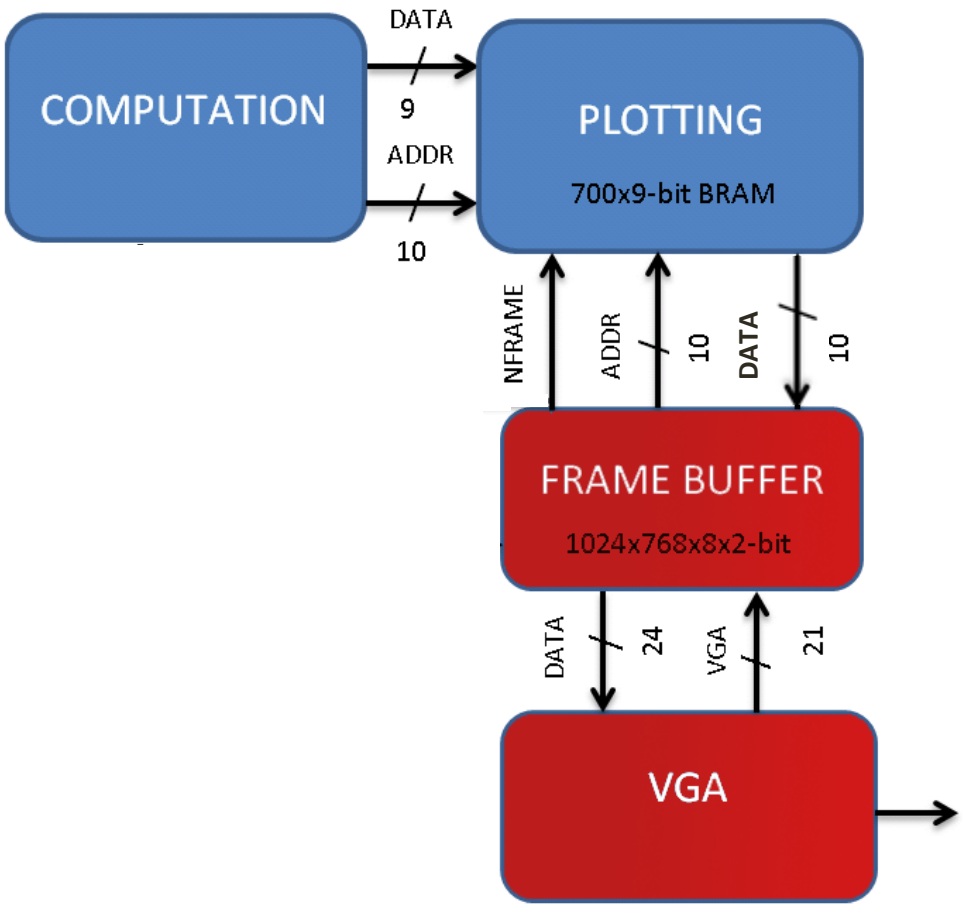
Data Computation



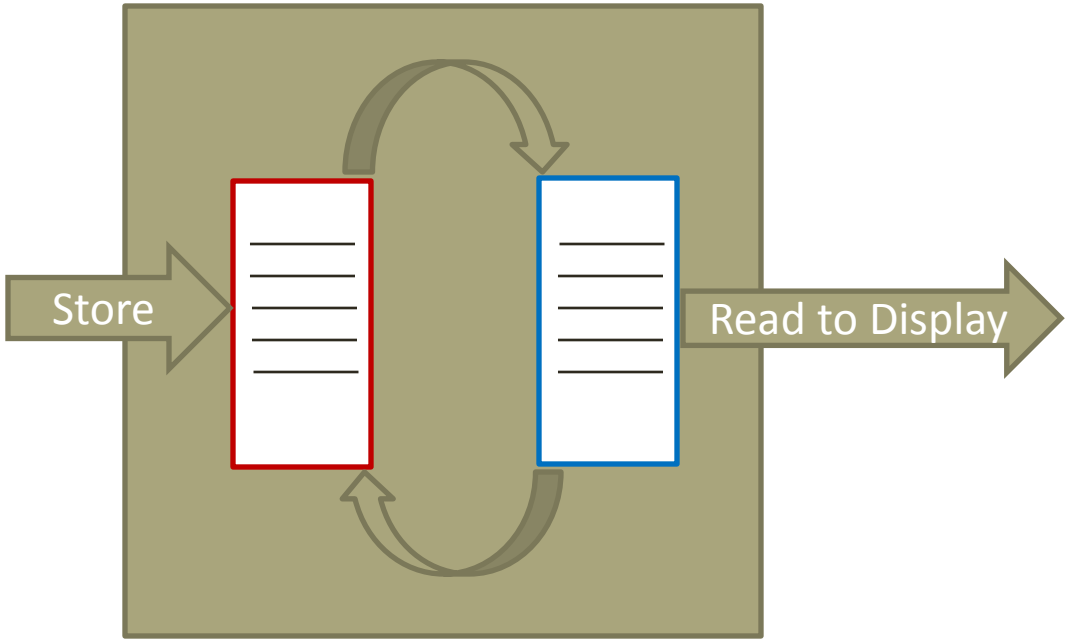
Video Display Output



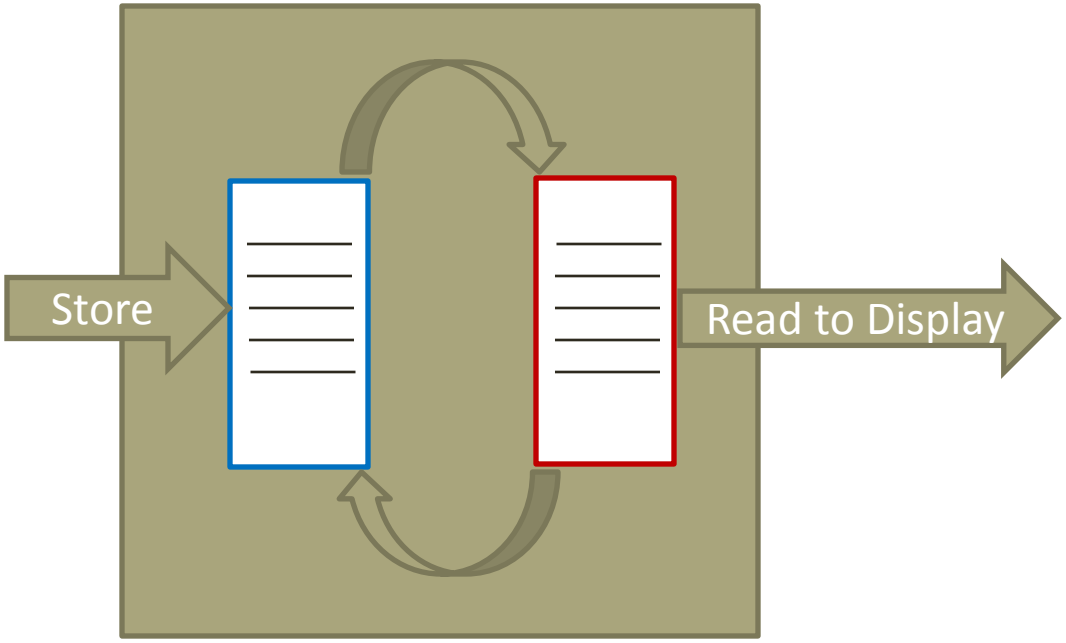
Video Frame Buffer



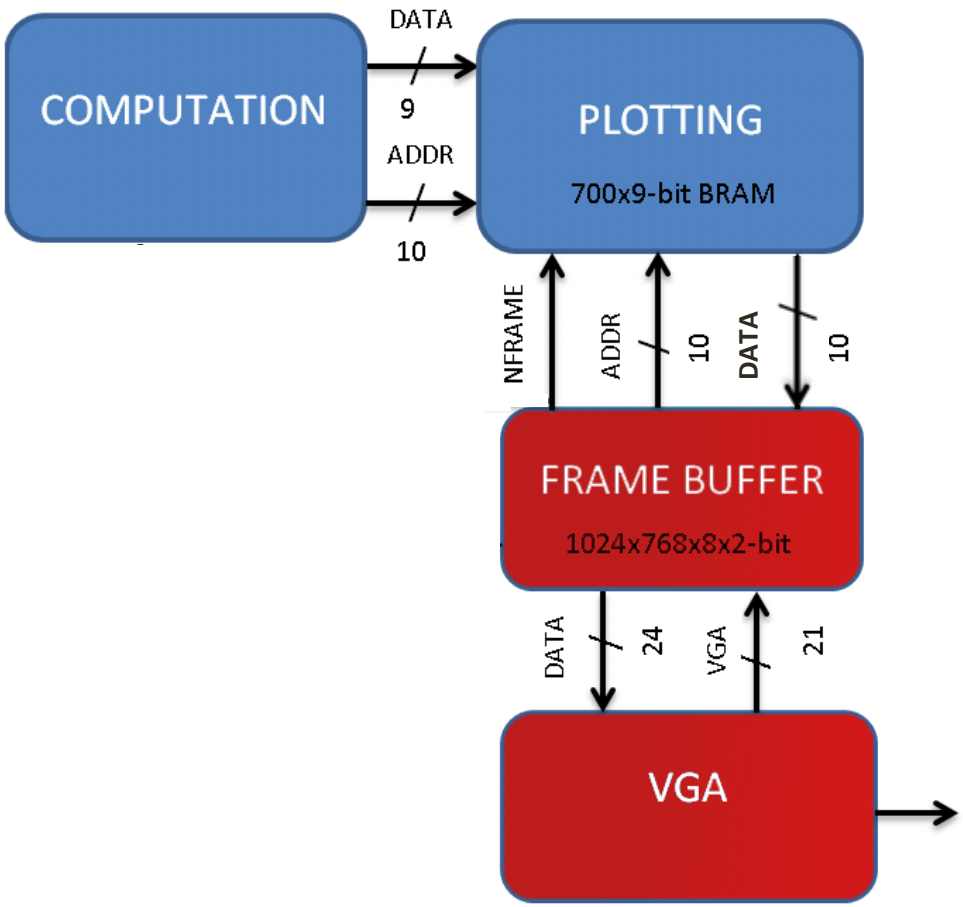
Frame Buffer Operation



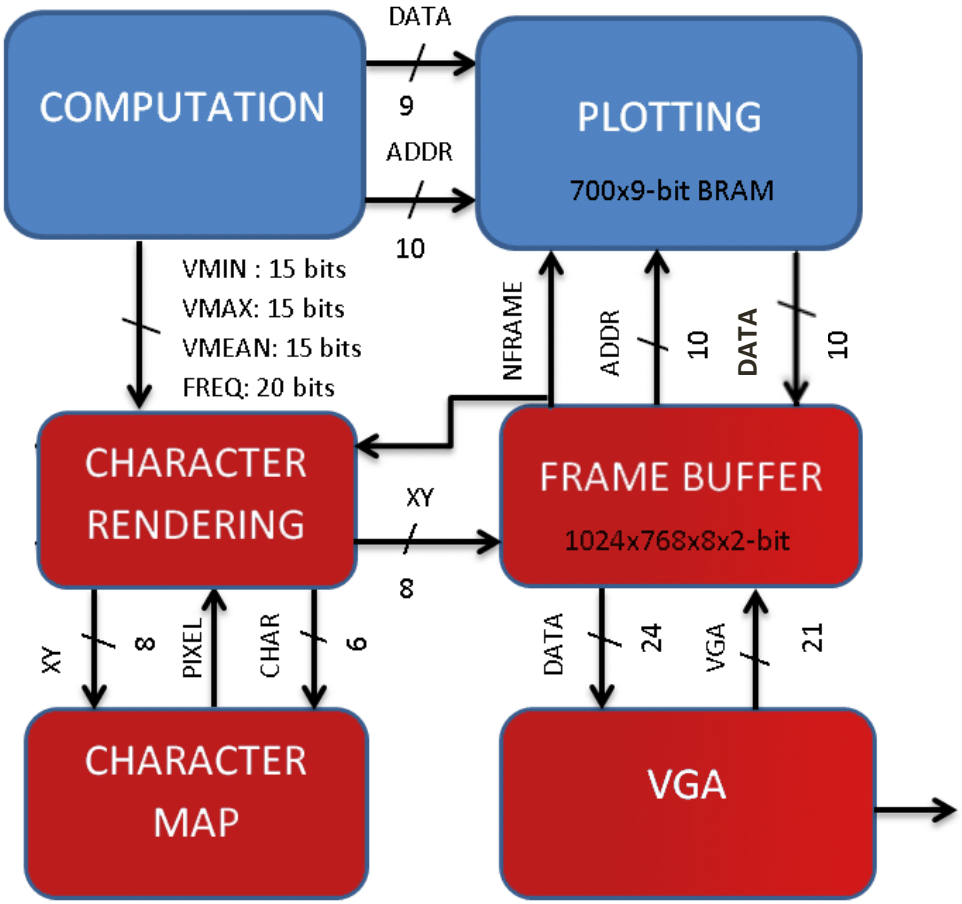
Frame Buffer Operation



Video Display Output



Video Character Rendering



Timeline

- 11/15:
  - Input: ADC Board, Sampling, Triggering
  - Display: ZBT Buffer, Character Display
- 11/22:
  - Input and Output units completed to simulated testing
- Combine modules, perform debugging, complete by week after Thanksgiving