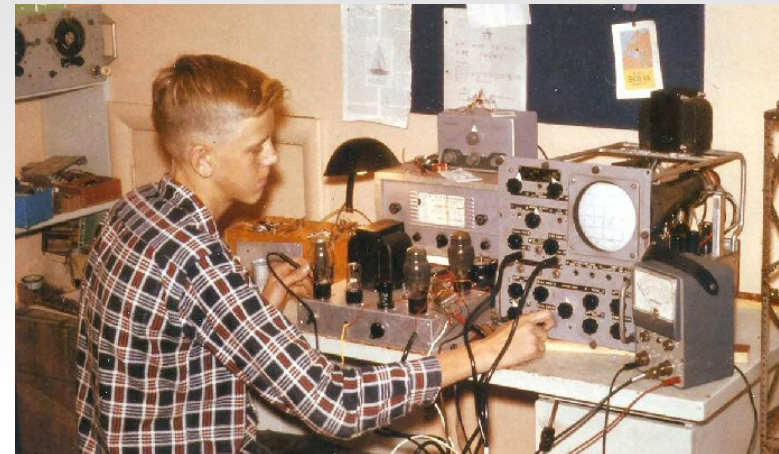
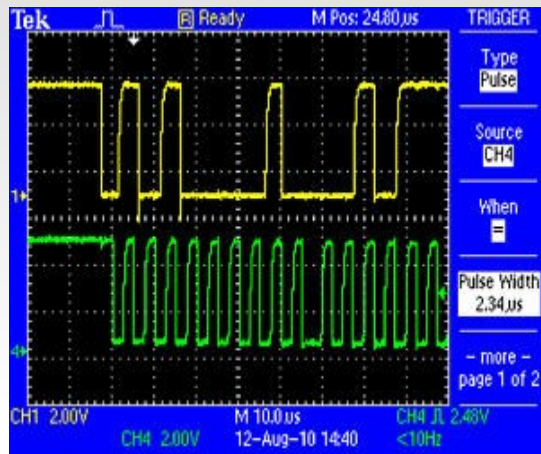


FPGA-Scope

An FPGA Implemented Oscilloscope

Anartya Mandal
Kevin Linke
6.111
November 17, 2011

Oscilloscopes:



- Observe periodic voltage waveforms

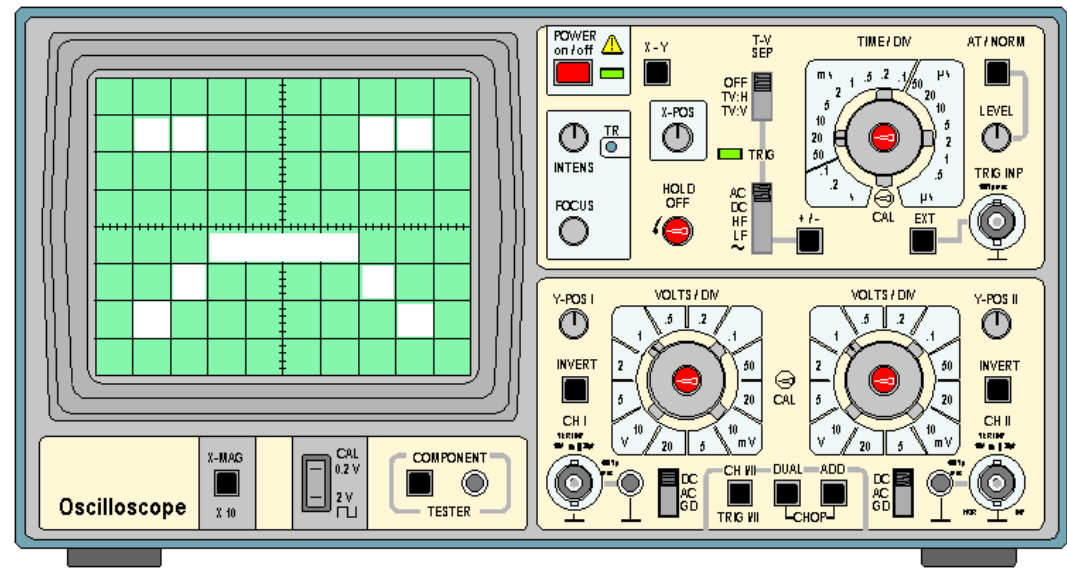


- Measure electrical outputs and test circuits
- Basis for electrocardiography

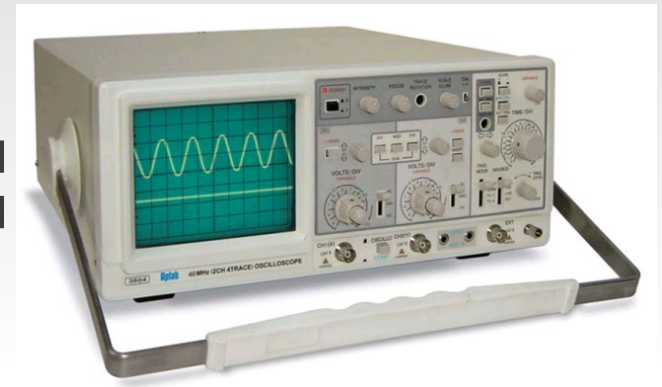
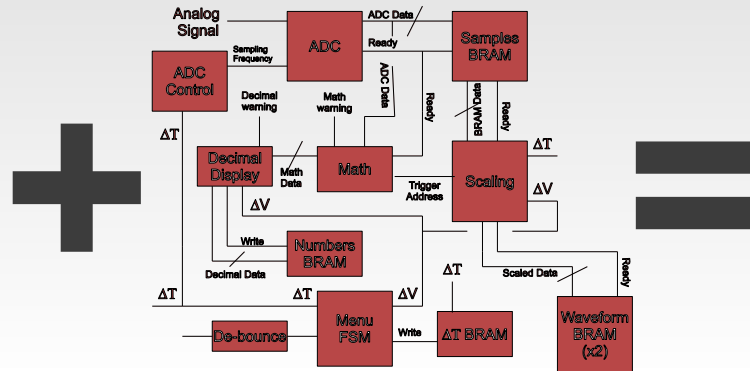
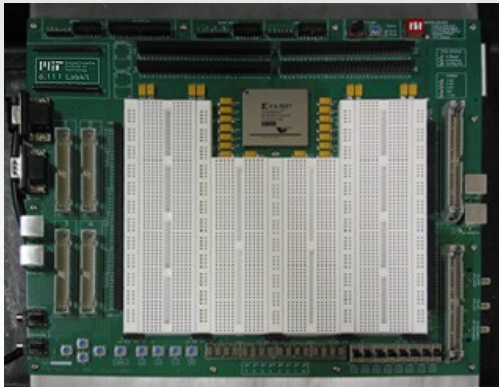
Oscilloscopes:

Oscilloscopes lack scalability:

- Fixed number of input channels
- Limited bandwidth
- Upgrading is costly



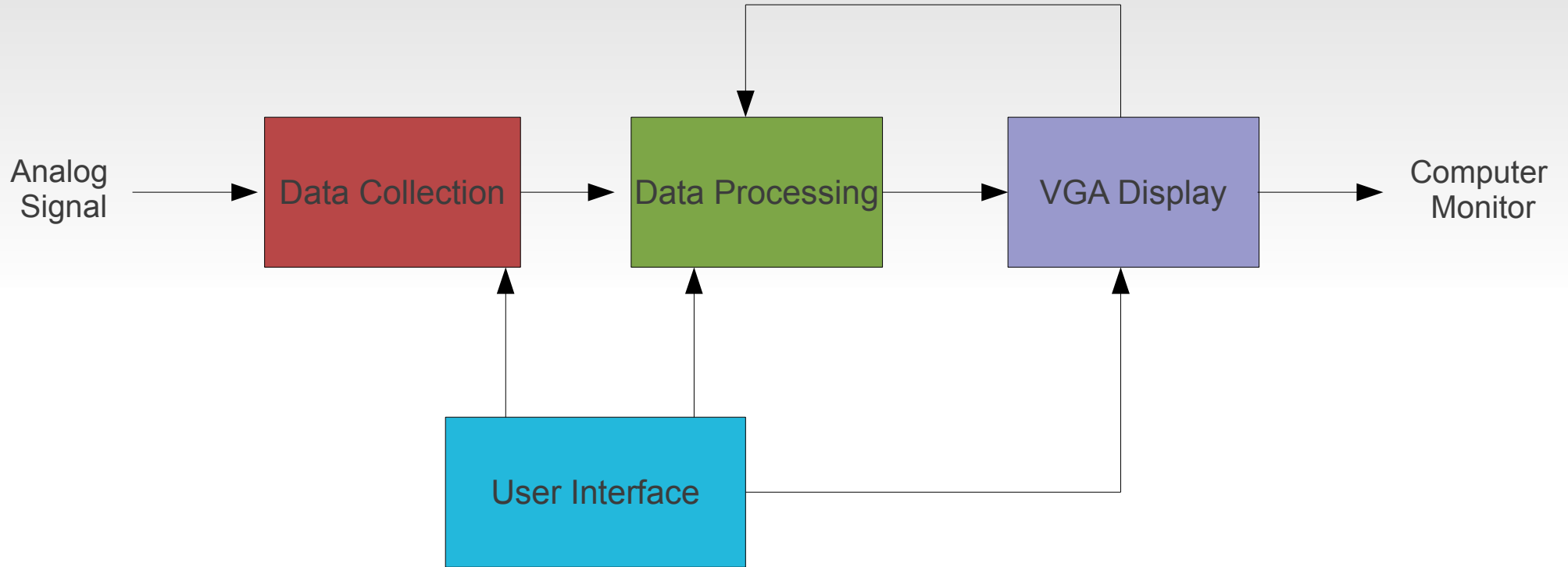
FPGA-Scope:



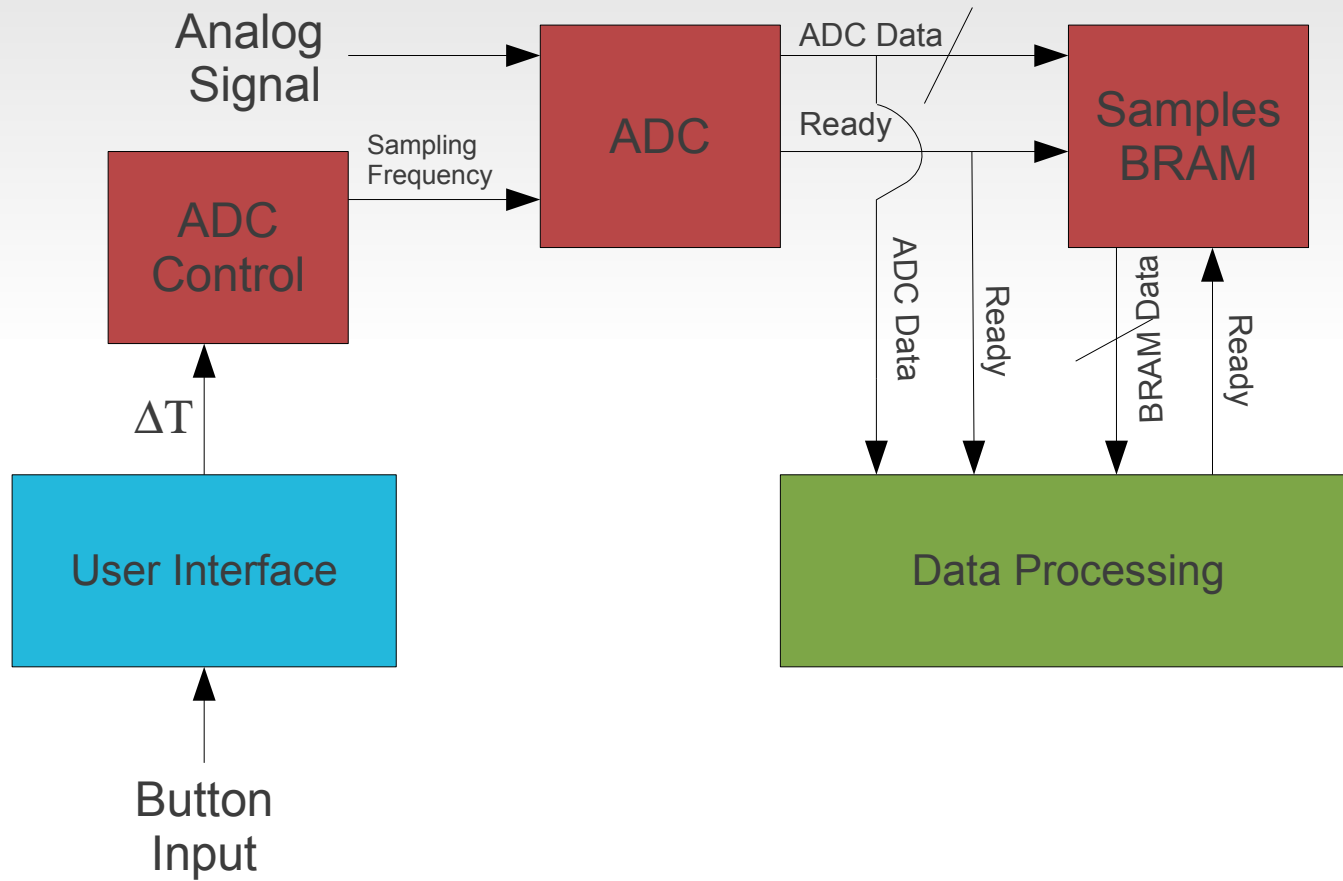
Pros:

- Number of input channels scales with memory
- Bandwidth and accuracy scale with ADC
- Avoid cost of upgrades

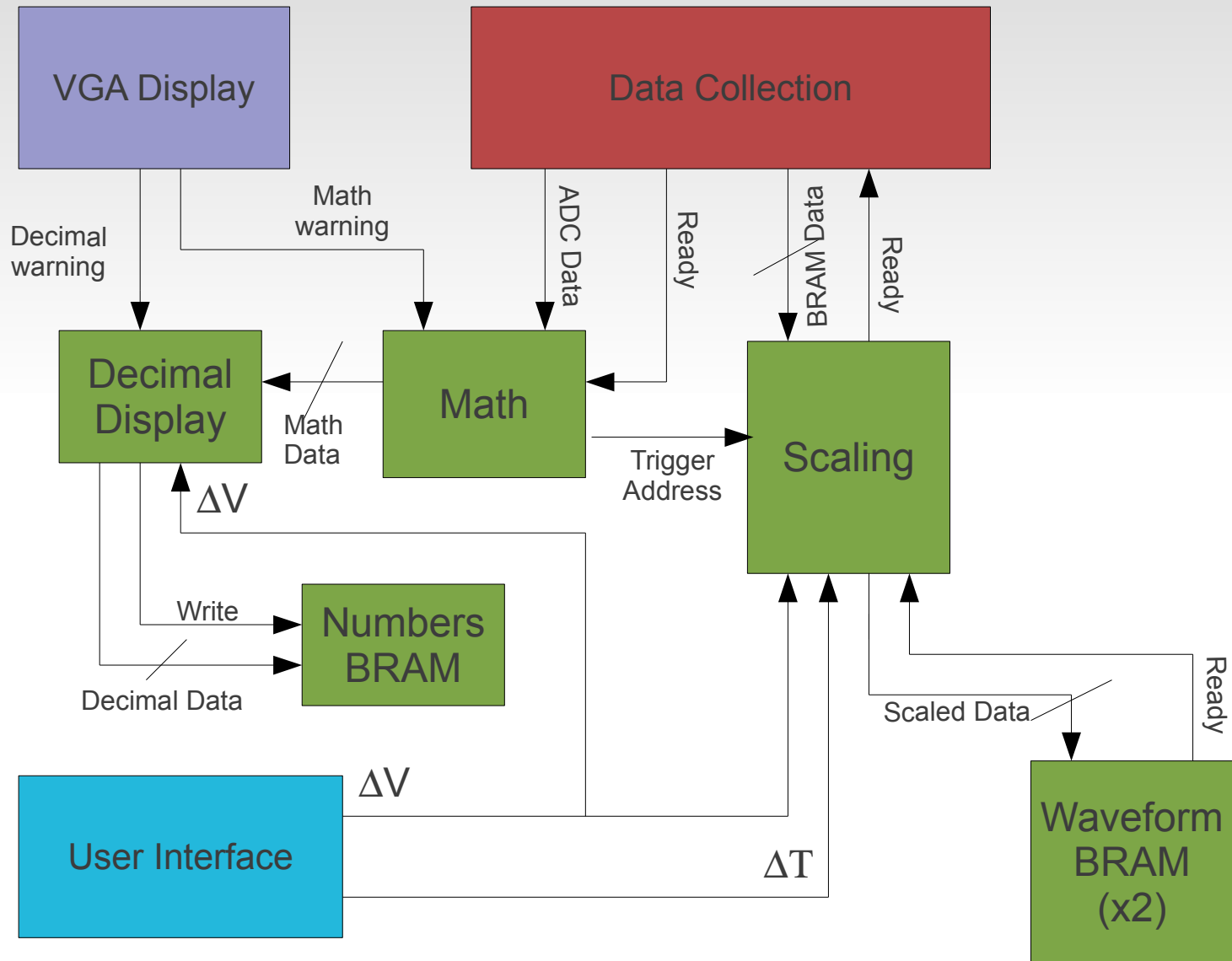
Block Diagram:



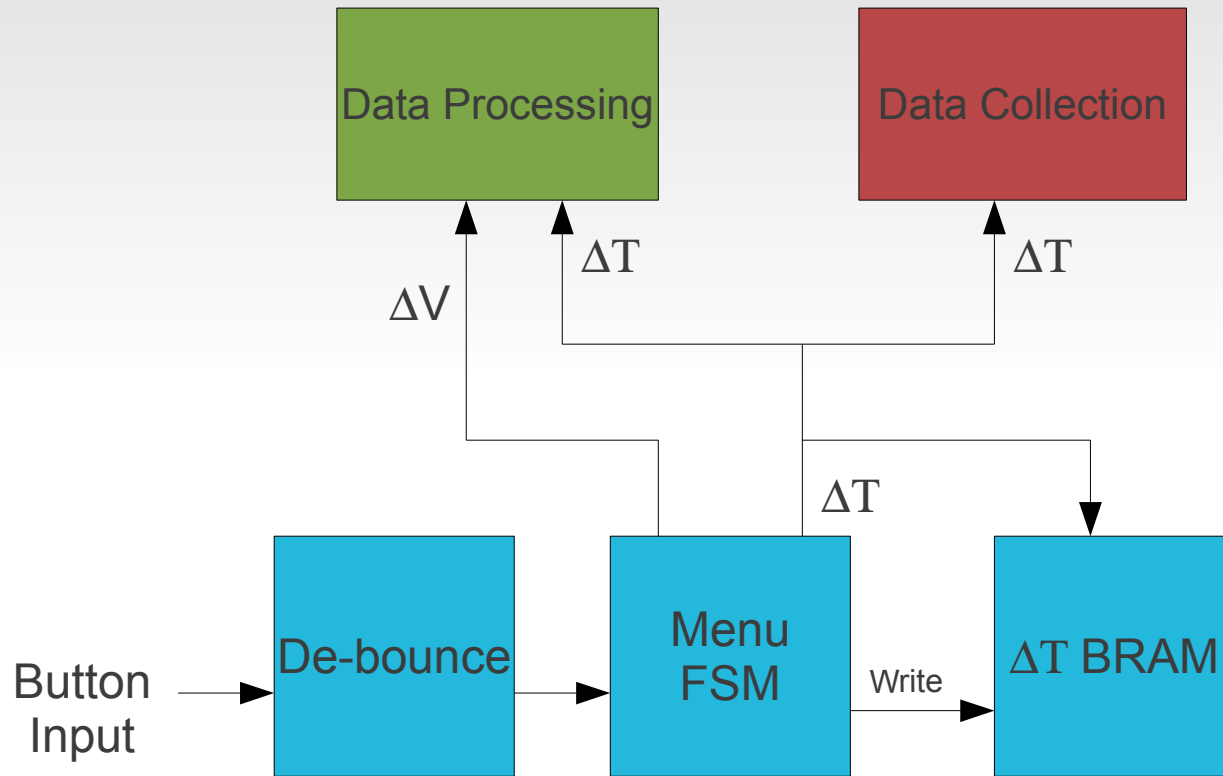
Data Collection:



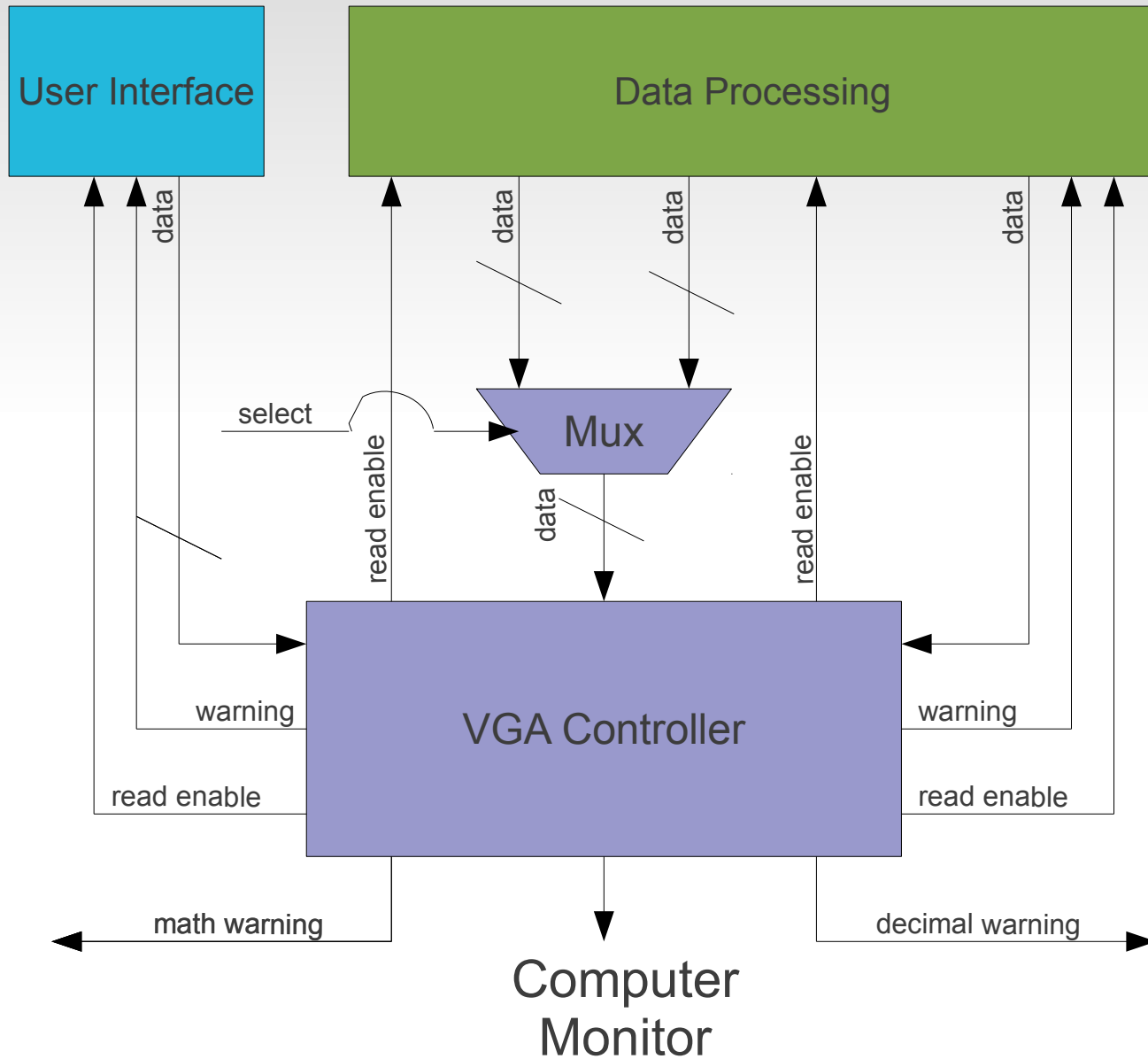
Data Processing:



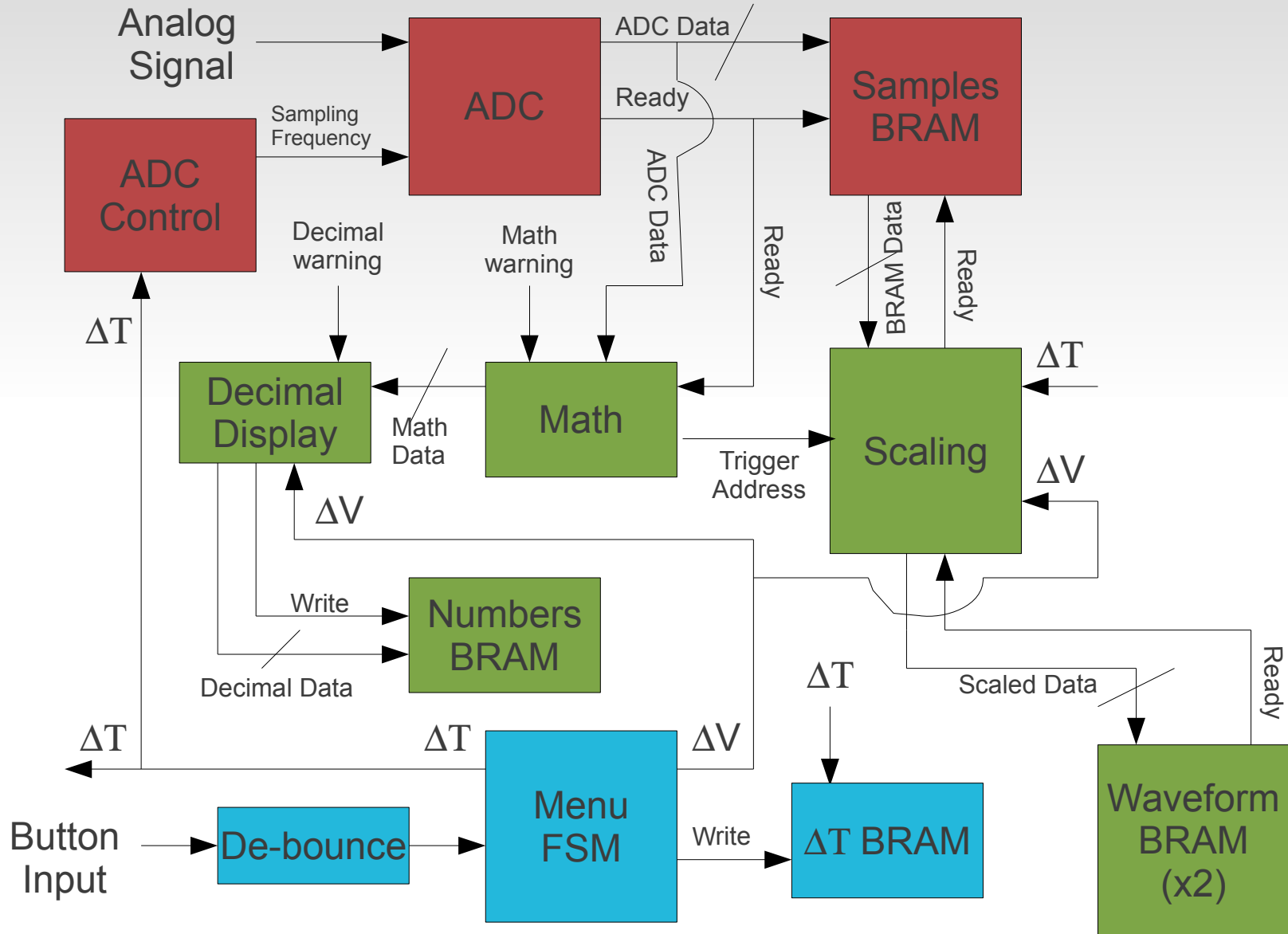
User Interface:



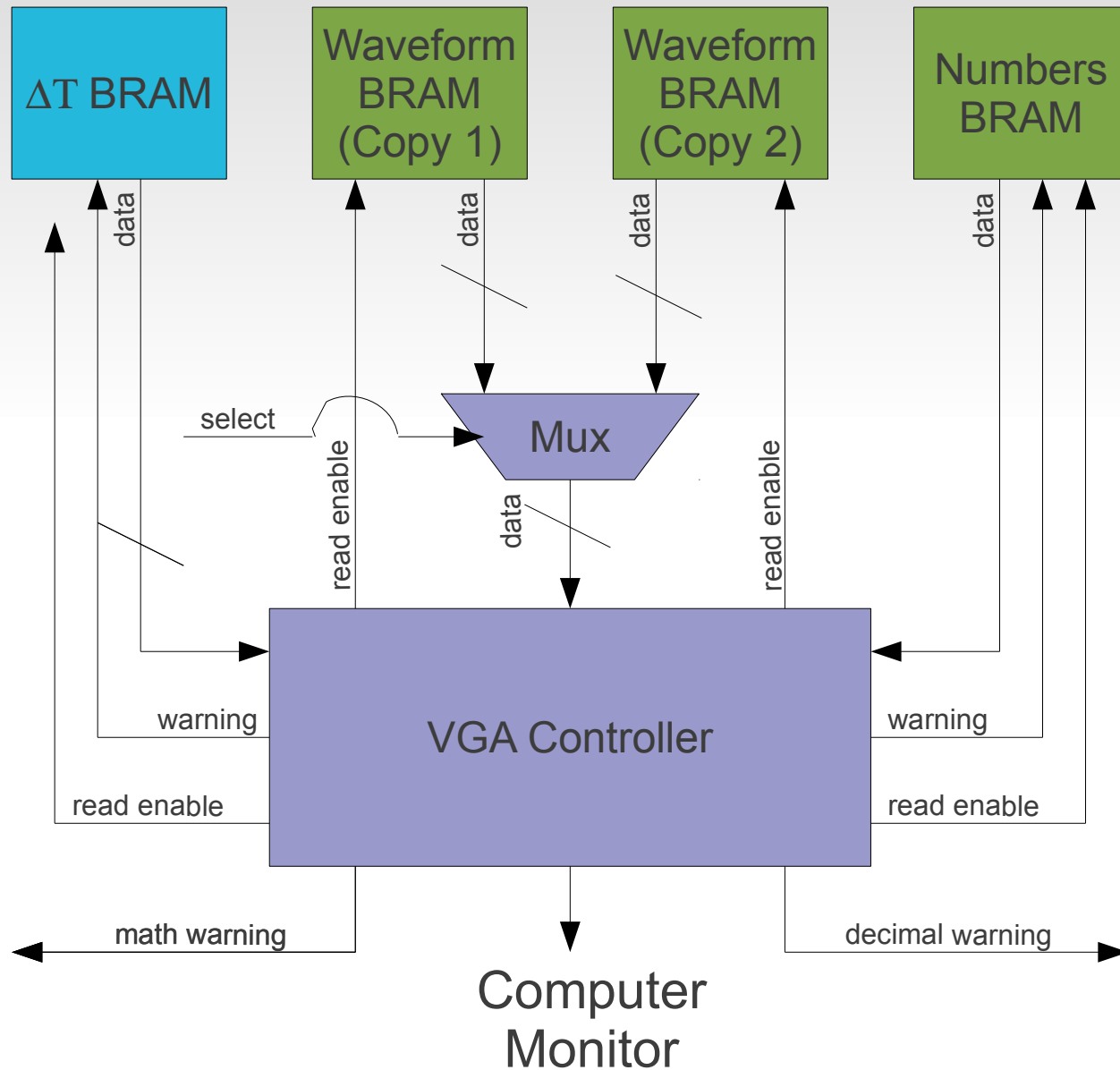
VGA Display:



Block Diagram:



Block Diagram:



Timeline

Week of	Anartya	Kevin
Nov. 14	ADC/ADC Controller	Decimal Module/Numbers BRAM
Nov. 21	Samples BRAM/Math Module/Scaling Module	User Interface/VGA Display
Nov. 28	System Integration/Testing	
Dec. 5	Finishing Touches, Additional Features, Checkoff	

Questions?