

# Cathode FE Board Calibration

BUCKEYE has internal shift register which controls calibration

## JTAG Shift Register Modes

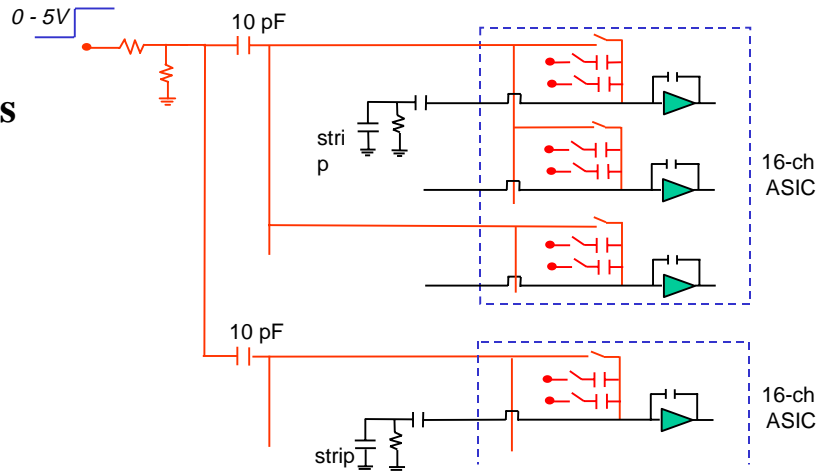
Normal

Precision Ext. Cap (<1%)

Int. Cap Small (1x)

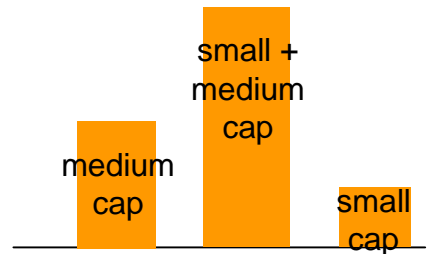
Int. Cap Medium (2x)

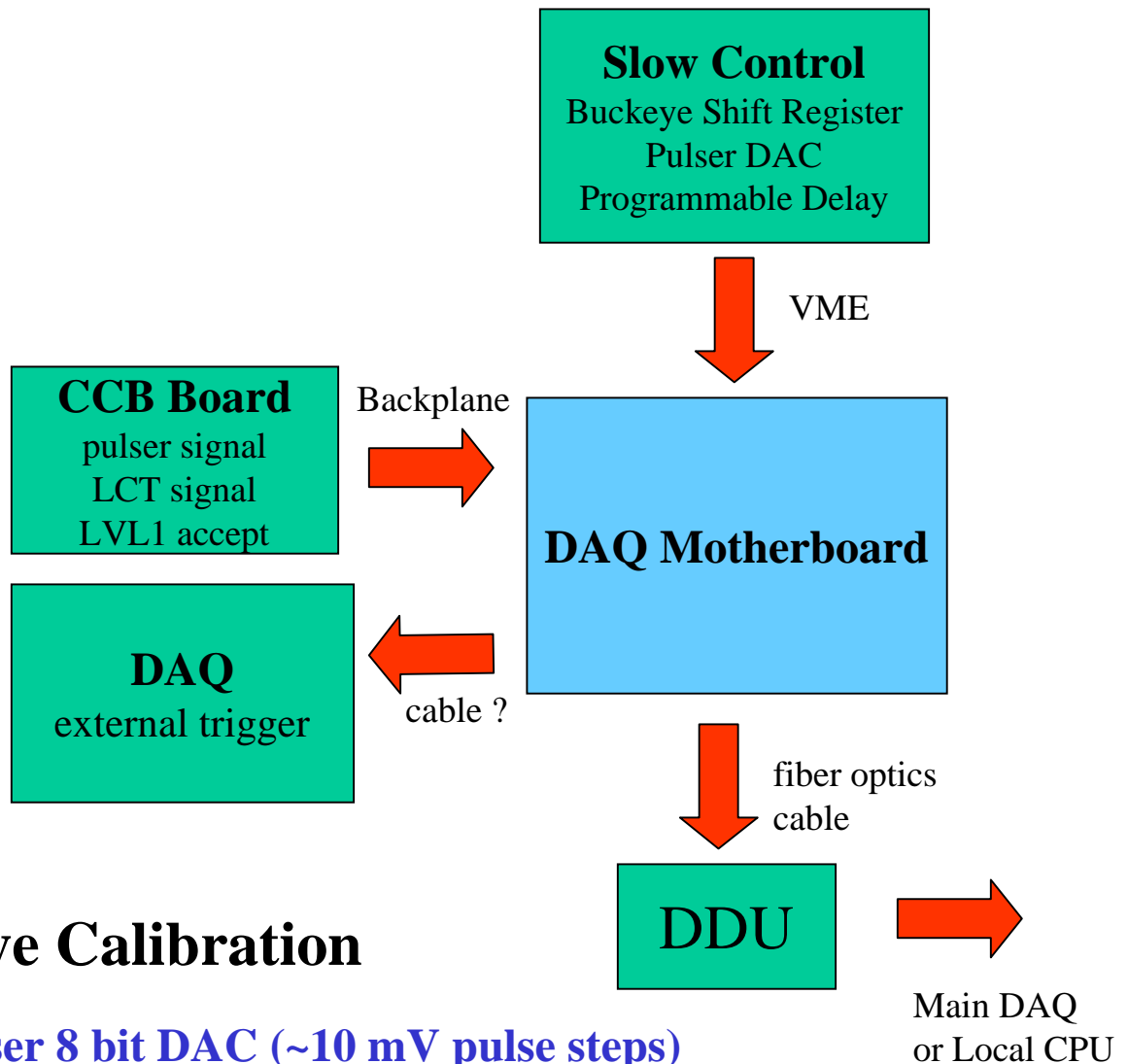
Kill



## Precision DAQ and Delay on Motherboard Control Pulsing

- CCB board generates pulse, LCT, and LVL1ACC signals
- Precision Ext Cap. Allows gain, linearity, crosstalk, timing measurement. Oscilloscope-like output for each channel.
- Any channel can be selectively killed
- Trigger logic and thresholds can be checked using small and medium cap





## Buckeye Calibration

pulser 8 bit DAC (~10 mV pulse steps)  
time delay 7 nsec steps

## Trigger

threshold 12 bit DAC 0-2.5V (~.6 mV steps)

## Data Volume

$$\begin{array}{ccccccc}
 & & \text{channels} & & & & \\
 & & & & & & \\
 8 & \times & 96 & \times & 1728 & = & 1.3 \text{ million words/pulse} \\
 \text{time} & & & & \text{FE boards} & & \\
 \text{samples} & & & & & & 
 \end{array}$$

# Trigger Comparator

- DAC(thresholds) output is monitored by Slow Control
- Pulser can crudely check if comparator working (10 mV steps)
- Rate vs Threshold plot
  - randomly trigger 2500 events

8 samples x 50nsec = 400 nsec

noise rate = number observed (KHz)

$\sigma_{\text{noise rate}} = \sim 1 \text{ KHz}$

