# Test Setup

- Fe55 source on top of the GEM chamber
- One VMM test board connected to the chamber
- The 2nd VMM board needs a converter
- Continuous mode, self triggering
- 10-bit ADC
- VMM channel gain was set to 3.0 mV / fC



#### **Test Results**

• One VMM board covers about 25.6 mm length (64 channels X 0.4 mm pitch)



### **Pulser** Test

- Purely to test electronics, no GEM detector
- Use internal pulser (CKTP) to assert a pulse to each channel's input capacitor
- The pulse was set to 300 ADC using the VMM's DAC to convert to amplitude

h evt 18 chip 0

30

20

40

50

h\_evt\_18\_chip\_0

Entries

Mean

RMS

60

VMM channel index

70

80

64

30.79

17.9

- Try different gain
- Seems with gain = 3 mV/fC, no extra amplification



## Signal

- Fe55 signals from GEM chambers
- Set a overall threshold, channels with ADC < threshold have no output
- A few signals



#### ADC, Timing Distribution Per Strip

h2DTimingVMM0 h2DAdcVMM0 h2DTimingVMM0 h2DAdcVMM0 Timing gounts 00 00 Entries Entries Mean x 17.58 17.58 0 Mean x Mean y 114.5 **Timing over Threshold** Mean y RMS x 11.23 11.23 0 RMS x RMS y 26.54 RMS y 114.4 = 100<sup>L</sup> VMM channel VMM channel

n

### ADC distribution for VMM channel 12

hADCDistributioinVMM0\_Ch12



# Next Steps

- Calibration (Timing and Threshold)
- 6-bit ADC readout (go higher than 4MHz per channel)