

EPICS @ ILCTA @ FNAL

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- Cryo controls have most complete definition and top-to-bottom system working.
- Outside of Cryo, focus has been on creating support for individual boards, which will be used for multiple test-stands (experiments).
 - e.g. Klystron interlock system, Simcon 3.1 card.
- Have imported one SNS LLRF system (EPICS VME IOC and GUIs)

Some Projects/boards

- Simcon 3.1 (VME)
- DESY 8channel Mhz ADC (VME)
- DESY DAC (VME)
- Timing Receiver IP177 (VME)
- FNAL Instrumentation ADC (VME)
- Klystron Interlock cards (VME) (6 different cards with very similar VME interfaces).
- Modulator Interface (initially onboard eCOS, moving to Linux IOC with private TCP protocol)
- PLC Interface

Simcon 3.1

- DESY Developed, VME-based LLRF controller card.
- Tasks to Epics implementation:
 - Understand design of card, “internal interface description,” memory map.
 - Understand DESY-built Matlab interface
 - Emulate Matlab and new DOOCS interface

Simcon 3.1

- Implemented automatic PV generation from IID description file.
- Created additional PVs by hand for commonly used process variables (filltime, flattop, gain factors)
- Implemented table (FF, FB, SP) GenSubs.
- EDM GUI replicating most of Matlab/DOOCS functionality
- Still working on poorly documented multiplexed digitized waveform read-outs

EXIT Mode: Controller

INIT Timing: Internal

Control Parameters

SET POINT

Amplitude

Phase

FF OFF Ratio:

FF ON OffsetI OffsetQ

FB OFF Gain

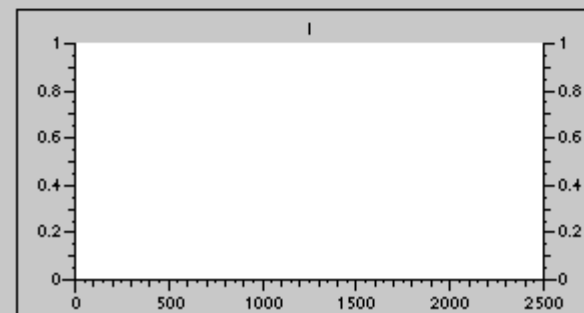
FB ON

Prefill Delay Filling Time Flattop us

Exception handling

Error Numbers Error Value MV

Channels: 1



Output Matrix

Ampl Trigger us

Phase deg ADC Averaging: ADC Sample

Controller Input

Gain x Phase deg

ADC1

Offs Gain Phase deg IQStar

ADC2

Offs Gain Phase deg IQStar

ADC3

Offs Gain Phase deg IQStar

ADC4

Offs Gain Phase deg IQStar

ADC5

Offs Gain Phase deg IQStar

ADC6

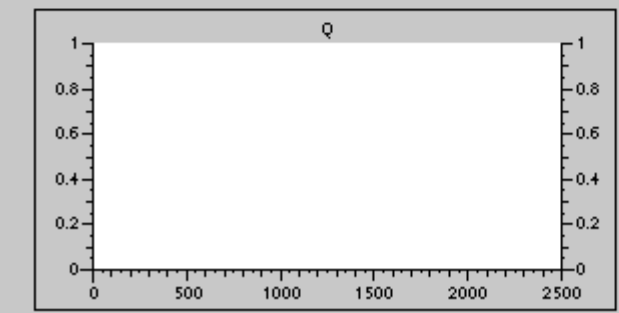
Offs Gain Phase deg IQStar

ADC7

Offs Gain Phase deg IQStar

ADC8

Offs Gain Phase deg IQStar



Remaining work

- Still a large need for pulling all the subsystems together (using archiving tools, etc.)
- Need to begin considering archived data/waveform management and databases.
- More GUI/applications.
- Plenty of work, we're still Epics newbies.
- Training May 2-4.