

Next Steps....?

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# Activities...

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## ▶ Front-End

- FELIX/PBM HW
- TP & SSD tests

## ▶ Backend / artdaq

- ▶ Tests at protoDUNE

## ▶ Dataflow tests

- v0 design, tests at protoDUNE?

## ▶ Data Selection Algorithms

- Studies with protoDUNE data
- Simulation studies ?

## ▶ DAQKit

- Integration, SW releases

## ▶ Timing

## ▶ Infra/safety specification

## ▶ CCM spec/design & online coordination

## ▶ CISC interface/data model spec

# Questions

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- ▶ **Do we understand what we plan to test in protoDUNE this year ?**
  - SW TP, FW TP, FW readout, self-trigger???
  - How many people do we need to run protoDUNE ?
  
- ▶ **For things activities away from protoDUNE, what is the plan ?**
  - What test stands do we require? Where? What hardware ?
  - How many DAQKits do we need, and on what timescale ?

Backup

# Workshop Discussions - High Level

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- ▶ **What system issues/orchestrates calibration commands ?**
  - There should be a Trigger Manager in MLT that knows what triggers are being issued and can take care of this.
- ▶ **How are calibration commands distributed ?**
  - Via Timing

# Workshop Discussions - Front-End

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- ▶ **How do we use timing information in the DAQ Front-End ?**
  - Resolved - no timing connection between Timing & FE
- ▶ **Do we need a special interface to FE buffer to accommodate non-standard requests (debugging, calibration) ?**
  - Open question
- ▶ **Question about time-ordering requests for data orchestration**
  - Need a specification for trigger command interface to BE
- **Questions about what software functions live in what physical boxes**
  - Should result from future optimisation; including question of FW/SW TPs. For now, define interfaces without answering this. Requires well defined online environment...

# Workshop Discussions - Back-End

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- ▶ **What does data management mean ?**
  - Physical & policy interface to computing
- ▶ **Is MONET replacement in BE scope ?**
  - No, CCM
- ▶ **Do we need a back pressure signal from DFO, and where does it go ?**
  - Yes, to the final stage of DS (aka Trigger Manager)
- ▶ **Where does dead time accounting happen ?**
  - In the TM
- ▶ **Does DS know about partitions?**
  - Yes.

# Workshop Discussion - Data Selection

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- ▶ **What do we do with PDS input ?**
  - Have a separate path, perhaps come together at module level
- ▶ **Identified beam interaction triggers that could be tested in protoDUNE.**
  - We should test them.
- ▶ **Does the TP stream go through an EvB ?**
  - To be discussed.
- ▶ **How do TPC get the time ?**
  - NTP
  - We should define the timestamps that are inserted in the data.



# Workshop Discussion - Data Selection

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- ▶ **What happens when DS can't keep up with incoming data?**
  - Need a way of monitoring.
- ▶ **How do we know how DS came to it's decision ?**
  - Include a board reader in each piece and figure out what to write out ?
- ▶ **How do we make sure data selection algorithms are compatible with MC/ offline ?**
  - Some options - tbd
- ▶ **When do we decide FW or SW TPs ?**
  - Must have decided by EDR. Continue pursuing both until end of 2019.

# Workshop Discussion - Data Selection

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- ▶ Radiological background model needs fixing in the simulation
  - ▶ Simon will fix this ?!
- ▶ Is there are reason why TP->TC or TC->MLT connections should be many-to-many, rather than many-to-one ?
  - ▶ Probs not

# Workshop Discussion - Co-Processor

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- ▶ **When do we decide which FPGA ?**
  - Before the EDR
- ▶ **Additional functionality. Induction wires? Ar39 calibration?**
  - We should study this
- ▶ **What does dev board send to FELIX ?**
  - For TP test, dev board just forwards raw data, so FELIX is unchanged
  - When we include compression & buffering, we will send TPs and then triggered raw data. Need to properly specify this test.

# Workshop Discussion - CCM

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- ▶ **What functionality is missing from our current tools that we need for short term tests ?**
  - Expect with protoDUNE we stick with what we have. DAQKit etc. can use command line.
  
- ▶ **What is the CCM development timeline ?**
  - Should be able to pin down requirements, interfaces, & technology choices by end of year.