

# Electronics, Readout and DAQ WG meeting (5/4/2023)

The ePIC restructuring was endorsed and announced by the Collaboration Council Friday 4/28.

John Lajoie asked us to hold a Hand-Off meeting:

- Discussed the Collaboration re-organization at the last meeting (4/20/2023)
- Held a conveners hand-off meeting earlier this week
- Today
  - Discuss some details of the reorganization
  - Go over some of the activities over the coming months
  - Solicit input regarding activities planned, overlooked, and/or priorities from members of the group

Welcome to Convener Roles: Fernando Barbosa, Jin Huang, Jeff Landgraf

Thank you for past and future efforts: Chris Cuevas, Jo Schambach, Alexandre Camsonne

- Jo Schambach will continue to help organize the timing Subgroup.
- The Software Subgroup is subsumed into the “Software and Computing Streaming DAQ Working Group” (conveners Marco Battaglieri, and Jin Huang w/my help during the RHIC run)

# Organizational Items:

1. Mailing List, indico, wiki, matter-most channels stay the same
  - All of these are available both on the Wiki and on the preamble for every Electronics, Readout and DAQ meeting's indico page
2. Meeting times, for now, will stay the same. If anyone has problems with the time we may issue another poll once the collaboration meetings times have settled.
3. We plan, among the conveners, to specialize topics more than in the past. (Electronics, Real-time architecture, Streaming) but will continue to have a rough round-robin scheme for topics.
4. The full name of the working group is "Electronics, Readout, and DAQ", but we will try to use at least Electronics & DAQ working group in order to stress the importance of the electronics and also to reflect the split in the project CAM structure.
5. New Detector Decisions have been made
  - Status is somewhat indeterminate still. The collaboration decision to begin the change control process is made, but the change control still needs to occur, we may have some role in this...
  - Imaging Calorimeter (astropix imaging layer + SciFi/PB calorimeter)
    - Does this affect MPGD?
    - We need to understand Astropix operation / implementation of Stave structure / etc...
  - Backward RICH selected as pFRICH with LAPPD/HRPPD
  - Question: Has DIRC readout gone to LAPPD/HRPPD?

## Organizational Items:

5. Contacts for detectors will need to be updated to reflect the new DSC collaboration structure. We'd like to ask the current detector representatives to help determine the new DAQ contacts for the DSCs, and present a short description of the changes in their represented working groups for the 5/11 DAQ WG meeting

# Driver For Priorities:

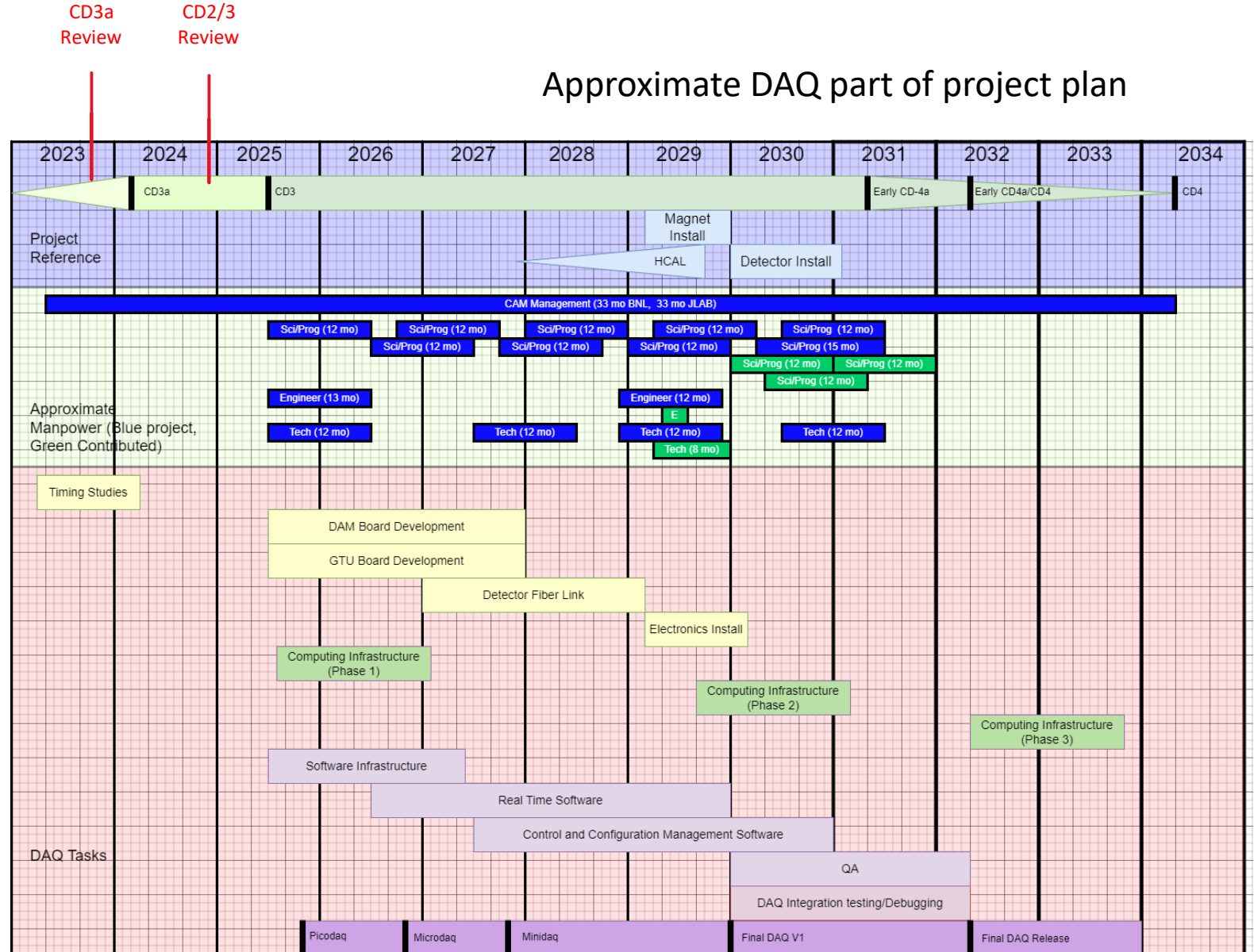
## CD3a Review (~August 2023)

- Focus is long lead (SiPM Sensors)
- But need as much progress towards the TDR as possible
  - Long lead items need a convincing framework to be placed in.
  - There won't be any lee-way to fail the CD2/3 Review in 2024

## CD2/3 Review (Fall 2024)

- Full TDR (80% design)

## Approximate DAQ part of project plan



# Priorities:

- Gather more input from WG members
  - Please speak up to suggest topics, and/or suggest priorities
- Ultimate Goal for the next two years is the TDR
  1. More detail in the RDO/ASIC interactions
    - Understand the segmentation / grouping / location of sensors&ASICS
      - We have lots of detail in some detectors (TOF/MAPS/pfRICH/DIRC) , but less, or no detail in others
    - Understand the specific needs of each ASIC.
      - Need to verify that we understand the streaming capabilities of each ASIC in detail
      - We expect there will likely need to be variations in the RDO for different detectors. We need to determine if that is true, and what the variations will be.
    - Our role here needs to be better defined as it becomes more shared with the detector groups as we move closer to the detectors, but at the very least we must know what is going on and understand the interfaces to the RDO for each detector.
  2. More definition of the readout solutions.
    - The calorimeters have two separate schemes. We need to push for decisions (perhaps calorimeter by calorimeter)
    - Very little detail and/or lots of uncertainty (far back, far forward)

# Priorities (Continued):

3. Timing, synchronization, DAM/RDO/GTU protocols
  - Timing groups work is critical as an input to TDR
  - Currently the focus is the reconstructed clock vs dedicated clock lines, but for the eventual TDR we will need to address details of the protocol.
4. (Interpret) Backgrounds & Simulations of detector data for rates, and radiation effects
5. DAQ architecture and how we track/manage data through the system
6. SRO WG
  - Define scope and responsibilities between DAQ / Software and Computing
  - Specify calibration support, tasks needed within DAQ local computing
  - Specify QA tasks, support needed within DAQ local computing
  - Specify reconstruction support needed with DAQ local computing
  - Interface to provide information needed within DAQ from the computing centers
  - Provide input on the nature of the streaming data to the groups studying reconstruction