

# LAr – Notable Findings (I)

- Recommendations from previous meeting addressed
  - May 2022: LA-7-1: documentation for the LASP, specifying requirements on TDAQ,
    - ~complete version for LASP PDR part 2, May 28
  - May 2022 LA-7-2: slice test programme for HEC.
    - Two of the miniseries prototype FEB2s for the half-crate test will have preshaper/shaper chips
  - November 2022: LA-8-1: Slice test of the full 128 channels,
    - There is the 128-channel FEB2 test, followed by the “half crate test” at BNL (12 FEB2, 1 LTDB, 1 ca board), and in parallel with that a 128-channel FEB2 + LASP testboard test at the EMF at CERN
  - May 2023 FEB2 schedule
    - The FDR can only happen after the final prototypes are confirmed to work as required in the half crate test. This includes the final design for the LV mezzanine.
    - The half crate test is expected to be complete in late 2024

# LAr – Notable Findings (II)

- Schedule Floats
  - FEB2: 68 days
    - The schedule has one year between FDR and PRR – which is conservative. Likely the FDR will move into early 2025, but the PRR will not need to move
  - Calibration board: 1 day
    - Current PDR date in schedule is over-pessimistic, this review is expected in the Fall of 2024, regaining ~ 100 days
  - FEC LVPS: 5 days
    - The schedule has a single production task, whose duration will be revised once the tender responses are known
  - LASP: 38 days
    - The current schedule has "prototype available" at the end of December 2024, current best estimate is mid-October, recovering 40 days. Firmware engineering shortage has been resolved
- Summary: The P2UG is confident that these floats do not currently represent the actual situation, and LAr will recover reasonable schedule float as the project progresses

# LAr – Detailed Findings

- LAr-specific ASICS
  - All in production with good yields
  - QC robots taking longer to commission than planned, but no impact on final schedule
- FEB2
  - Impressive progress in all areas
  - The remaining 48V FEB2 powering scheme has 2 options under development, both based on CERN bPOL48V and bPOL12V, with a few different optimizations
    - 2 options have equivalent noise performance. A detailed plan exists to make a full comparison and take a decision in the coming months

# LAr – Comments

- The half-crate test at BNL with all the parts (12 FEB, 1 LTDB, 1 calibration board) and including the latest TDAQ hardware will be a major step for the completion of the project
  - And hopefully featured in the report of the LAr team in November

# LAr – Recommendations

- Keep up the momentum