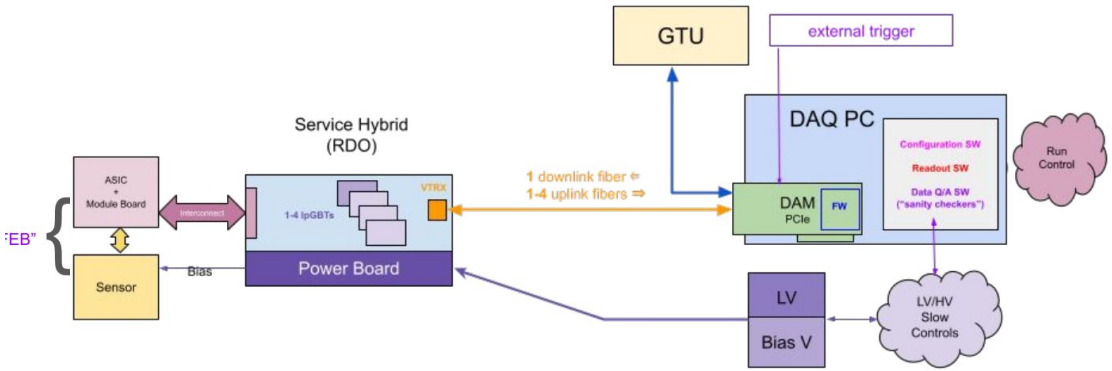
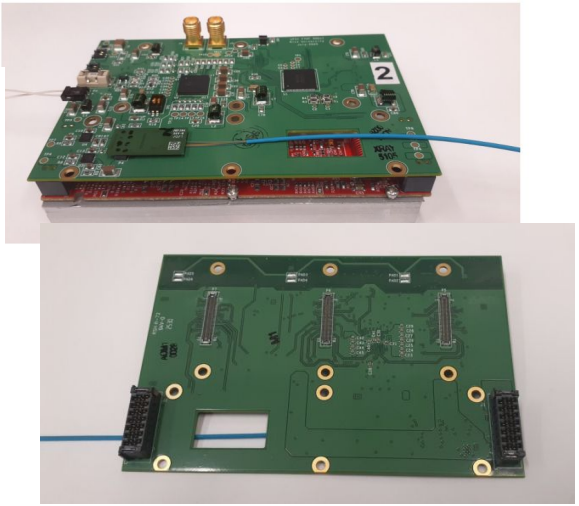
Status of the AC-LGAD Readout Chain PED

- “Previously…”
  - an LPGBT based Readout Board (RBv1) manufactured and tested (6 pieces)
  - Power Board (PBv1) Manufactured and tested (1 piece; more forthcoming)
  - Readout Chain FW & SW working apart from an ASIC





Current News

- obtained 10 bPOL48 ASICs from Norbert (Thanks!)
  - plan to populate additional 3 Power Boards → ongoing
  - …and test them
  - ⇒ 1 to Rice, 1 to BNL, 1 to LBNL
- EICROC1 test board integration
  - met with the Far-Forward Group to discuss the immediate needs
    - BNL is expected to assemble the new EICROC1 Testboard from OMEGA once it is available
      - wire bond EICROC1 signals
      - bump bond AC-LGAD sensors
      - (similar to what was done for EICROC0)
    - BNL will get a set of the AC-LGAD readout chain components from Rice
      - Receiver Board RBv1
      - Power Board PBv1
      - DAM test board AXAU15
    - …and setup a test system in the lab (with TL)
    - start measuring various clocks and clock jitter while waiting for EICROC1
- FF BNL group will continue to use the RBv1+PBv1 to develop their own stave design and, importantly, to test the signal propagation issues using a long(er) cable
  - with possible test beams in CY26

Next Year's PED

- We would like to continue this work in FY26 with BTOF-specific RB and PB
  - BTOF will use the FCFD ASIC
  - BTOF RB will need to contain 2x lpGBTs (perhaps 4x)
  - BTOF PB will need voltages adapted to the FCFD ASIC (e.g. likely a 2.5V feed)
  - BTOF will use a very long Flex PCB for signals to/from the ASIC ⇒ this needs careful evaluation
- Possibly also for the Far Forward (Roman Pots, B0, …)
  - we know they will use lpGBT & EICROC and we know they will try to adopt FTOF-based readout but they will likely need different footprints of the RB & PB
    - and different stave design and ASIC placement
    - as well as cable interconnect between ASIC and RB
  - to be further discussed with the Far Forward Group
- How do we approach this? When do we submit? (questions to Fernando)