ALCOR - dRICH Readout

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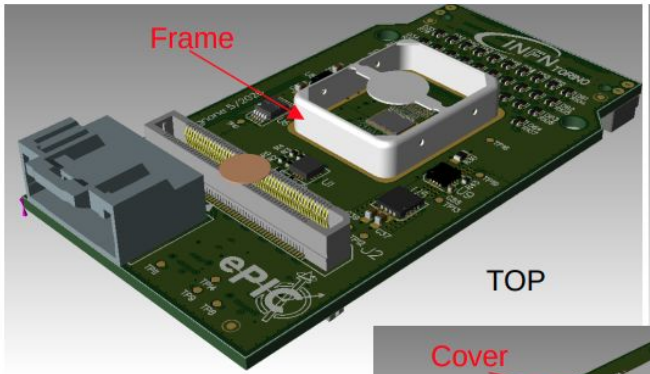
ALCOR-64 updates

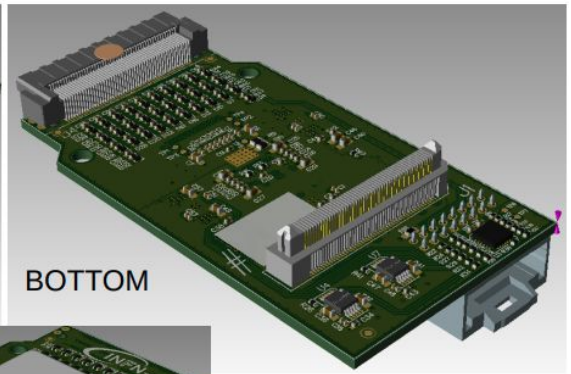
- **Issues on ALCOR-64 packaging**: short-circuits due to UBM layers extending beyond the bump pads, covering additional areas of the chip surface above the passivation layer
    - UBM process managed by packaging vendor via different OSAT
    - UBM issues confirmed by packaging vendor (FIB dissection + SEM/EDX analysis and pad impedance measurements)
- Alternatives for UBM process → found IMEC OSAT supporting **UBM** + **bumping**
    - **UBM + bumping on single dies** from MPW
    - **Quotation and lead-times estimates received last week**
    - Final checks ongoing to confirm this process can be performed on our current design → no modifications needed on ALCOR-64 pinout and package
    - INFN administrative work to cover new MPW costs and finalize PO for **MPW run on 11th Sep 2026**

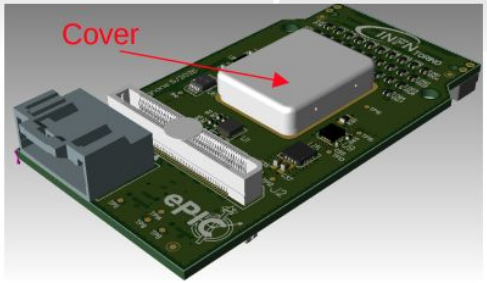
ALCOR-32 FEB

Design of a new FEB for ALCOR-32 (wire-bonding):

- Fallback solution while waiting for ALCOR-64
- Laboratory tests and detector integration tests
- Firmware/software development
- QA setup development
- System demonstrations







Design constraints:

- Use the same LDO power regulation scheme as the standard FEB
- Maintain the same signal pin out and interface logic on the ALCOR bus
- Include the annealing circuitry for all SiPM channels
- **Main limitation**: support **32 SiPMs only**, rather than the standard 64 SiPMs

Design almost completed, final verification ongoing