TileCal-IFIC Upgrade Project Meeting

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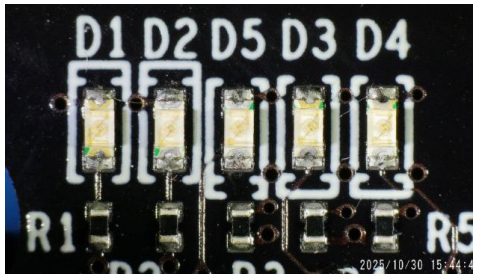
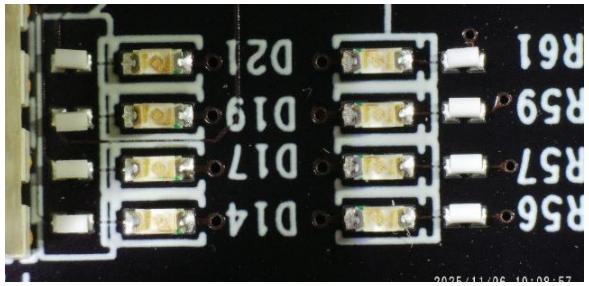
Carrier Batch 23-1025-005 to 008 Validations

Common Findings Across the Batch

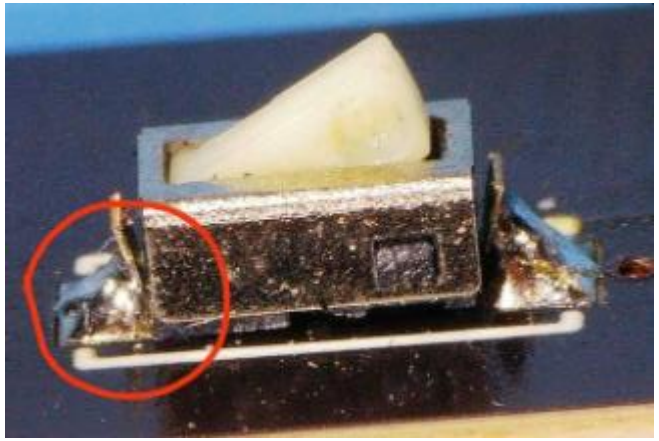
- ✅ Mechanical assembly performed and verified.
- ✅ **No shorts detected** between power rails and GND.
- ✅ All electrical rails OK (12V, 3V3, 3V3_IPMI, 1.8, 1.2).
- ✅ Ethernet validated with ATCA link boards and gigabit switch.
- ✅ TileCom boot verified (Linux via UART).
- ❌ Power and PHY LEDs assembled *reversed* → corrected by rotating LEDs.





Handle Switch (SW13) Issue

- Metallic housing touches pads when misaligned → IPMC interprets handle as *always closed*.
- Symptoms:
  - Blue LED always ON.
  - FRU state oscillates: **M1 → M2 → M1**.
  - 12V payload never activates.
- Confirmed same issue in previous carrier version.
- **Fix for next PCB revision:** reduce pad size + adjust alignment pin hole (Alberto was notified).



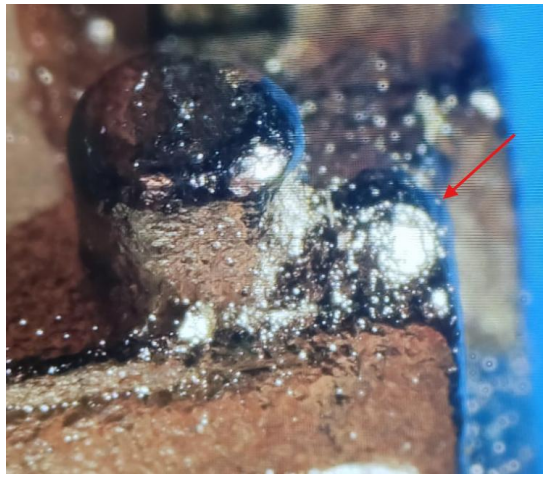
- **Conlusions**:
  - Based on the carrier test results, the new carrier assembler performs much better than the previous one, with far fewer errors, except for the LED issue.

IBER Tests on the Carriers

- To verify the links of each carrier, an **IBER test** is being performed, **checking all links** of every slot for 3–4 hours per link.
- During these tests, a **power loss** issue was observed in TDAQI and CPM.
- A **Grafana** setup with InfluxDB was deployed to monitor possible errors in the current and temperature sensor readings.
- After analyzing the data, the issue was identified as a **firmware problem** in the MMC (according to Fernando), not a hardware failure.
- For the tests we are doing now, this problem can be fixed by **loading an older firmware** version.
- The Grafana structure is useful for monitoring the carriers without relying on TileCom, and all monitoring actions are performed with **ipmitool commands via the shelfmanager**.

Front Panel Machining Issues

- Several front panels were sent for machining, but the Mechanical Workshop at IFIC made the incorrect holes position and lower dimensions, and the pieces had to be remanufactured.
- The lower holes also needed an additional **0.2 mm** on each side to ensure the parts could fit properly.
- A locating pin was also found to interfere with the correct assembly of the pieces, and it must be filed down before mounting.
- After applying all these modifications, the final part fits correctly and all components assemble as expected.



Future Work

- Validate the new CPM version.
- Develop a support system to test the CPMs on the bench
  - for future production
  - as automated as possible.
- Program the **Config ID** in the MMC of each CPM.
- Fix the pending issue with the TileCom Ethernet interface when the new units are received.