# HD PDS Hardware Database

## PDS Mini-Workshop

Nov 15 2022

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QC/QA Working Group

DEEP UNDERGROUND NEUTRINO EXPERIMENT

Unifal MG

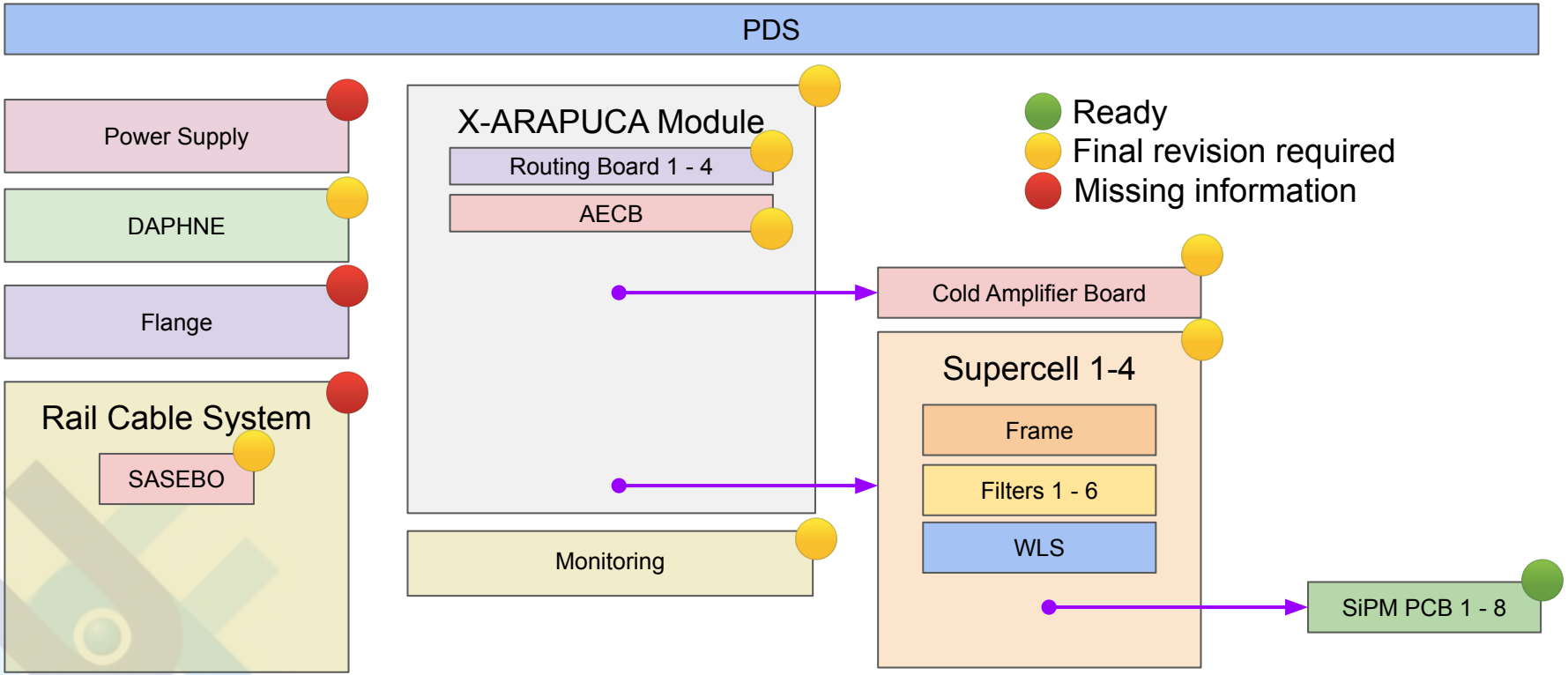
INSTITUTO DE CIÊNCIA E TECNOLOGIA

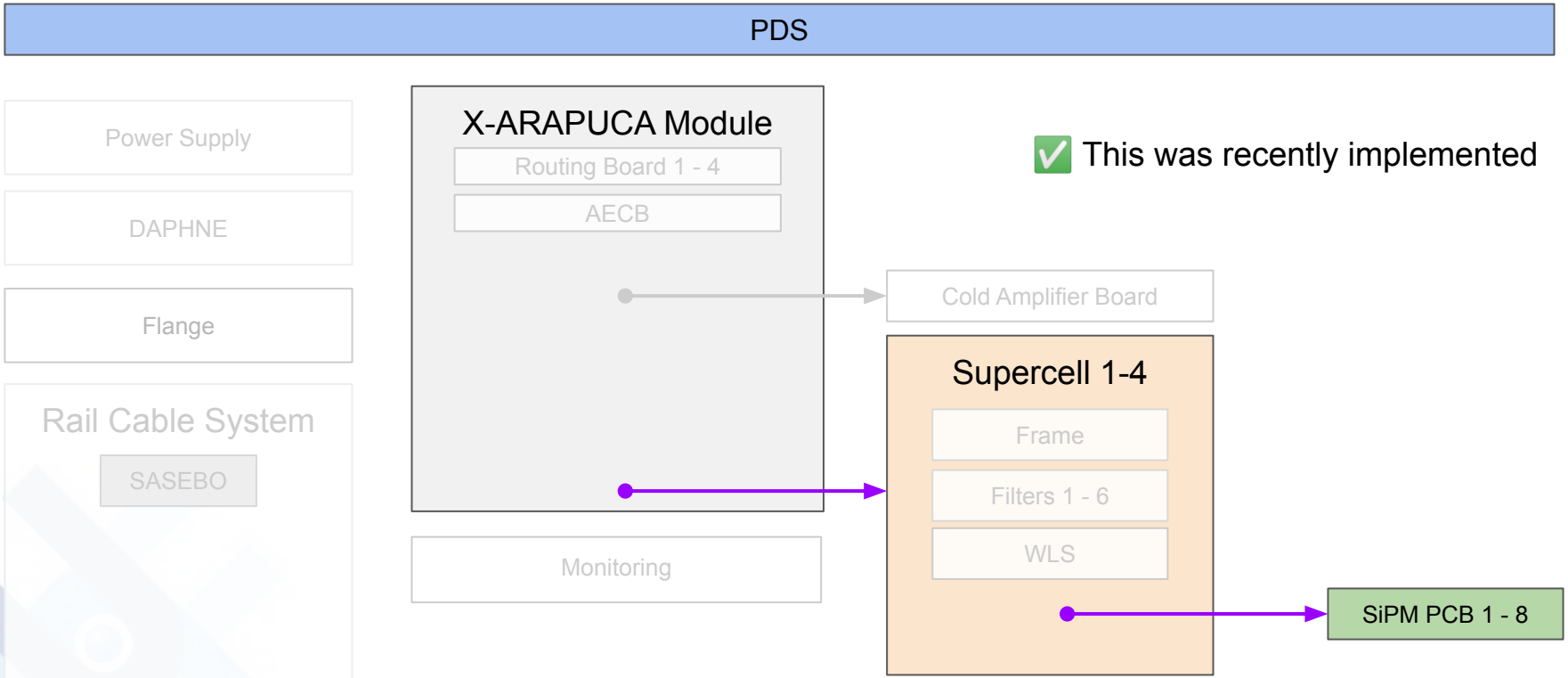
# Overview

- The QC/QA working group is focused on build the hardware database schema for the PDS.
- Workflow consisted on classifying the parts as serialized or not, build the relational tree and suggest both common and particular data fields for each part.
- The major constraint to work around is that, despite the DB being version controlled and able to the updated, change the schema is discouraged and should be seen as a last resort.
- Ideally, all tables for every subsystem should be implemented at once, due to the relational nature of the DB. However, each subsystem was in a different stage of maturity regarding hardware tasting and QC in general. These are the steps:

Initial Proposal → DB Conformity → Group Approval → DB Implementation

- The most advanced one is the SiPM group, which is already performing mass tests and needed the DB to store the results ASAP.


PDS
Power Supply
DAPHNE
Flange
Rail Cable System
SASEBO
X-ARAPUCA Module
Routing Board 1 - 4
AECB
Monitoring
Ready
Final revision required
Missing information
Cold Amplifier Board
Supercell 1-4
Frame
Filters 1 - 6
WLS
SiPM PCB 1 - 8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✅ This was recently implemented

# Hardware DB

## SiPM DB Status
(by Maritza Gonzalez)

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Home

Batches

Cable Structures

Component Types

Items

Geographic Locations

Images

Manufacturers

Subsystems

ADD NEW...

| Project_id | System_id | Subsystem_id | Subsystem_name | Component Types | Creator | Created | Comments |
|---|---|---|---|---|---|---|---|
| D | 4 | 1 | FD1 completed PDS | | James Stewart | 2022-10-14 13:10:45UTC-05:00 | Complete FD1 photon detector system |
| D | 4 | 2 | X-ARAPUCA Module | | James Stewart | 2022-10-14 13:11:38UTC-05:00 | Fully assembled X-ARAPUCA module |
| D | 4 | 3 | supercell | | James Stewart | 2022-10-14 13:12:35UTC-05:00 | |

- The component type has been completed and the test types and item specifications have been defined.
- We have finalized the structure of the tables and redefined the keys.
- Alex Wagner and Hajime Muramatsu have carried out different tests with the App (successfully) using the structure of our tables with real data.
- In the last few days, we set up the environment of my computer to install and run the app (REST API) .

# Proposed minimal table

| PartID | key | auto generated |
|---|---|---|
| Serial Number | integrer | |
| Current Location | string | Works as a traveller note |
| Date Arrived | date | |
| Assembled At | string | Assembling |
| Assembled Date | date | |
| Assembled By | string | |

- PartID already codifies country and Institution of origin.
- With a few more fields, we can track the parts from its origin, working as traveller note.
- Keep in mind that the DB records the used that does edit the entry.
- The assembling section may feature in most parts as well.
- Alternatively, each subsystem can propose its own traveller.

# Supercell Table

- PartID already codifies country and Institution of origin.
- With a few more fields, we can track the parts from its origin, working as traveller note.
- Keep in mind that the DB records the used that does edit the entry.
- The assembling section may be feature in most parts as well.

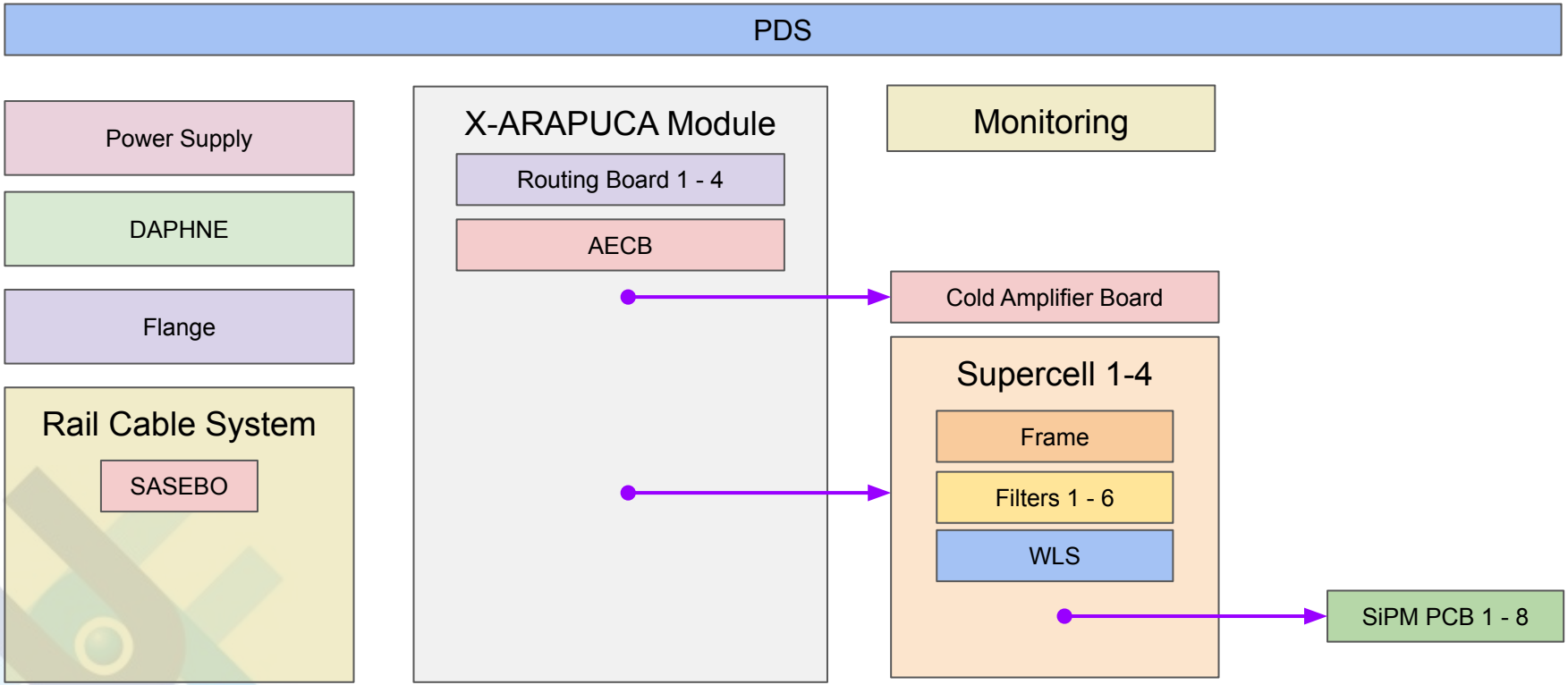
| | | |
|---|---|---|
| Assembled At | string | Assembling |
| Assembled Date | date | |
| Assembled By | string | |
| Frame Manufacturer | string | Frame |
| Frame Lot Number | string | |
| Frame Production Date | date | |
| Lightguide Manufacturer | string | Lightguide |
| Lightguide Lot Number | string | |
| Lightguide Production Date | date | |
| Filter 1 Box Number | string | Deposited filters are organized in boxes and labeled according to its batch, uniformity (visual inspection) and position in the evaporator. |
| Filter 2 Box Number | string | |
| Filter 3 Box Number | string | |
| Filter 4 Box Number | string | |
| Filter 5 Box Number | string | |
| Filter 5 Box Number | string | |
| Filter 6 Box Number | string | |
| Cold Tested At | string | Cold test |
| Cold Tested By | string | |
| Cold Tested Date | date | |
| Cold Test Results | spreadsheet | |
| Cold Test Approved | bool | |
| SiPM Board 1 | PID | Database linking to each SiPM passive board |
| SiPM Board 2 | PID | |
| SiPM Board 3 | PID | |
| SiPM Board 4 | PID | |
| SiPM Board 5 | PID | |
| SiPM Board 6 | PID | |
| SiPM Board 7 | PID | |
| SiPM Board 8 | PID | |

# Points for discussion

- Today is the day to go through the larger DB schema and settle on the details.
- Despite the fact that all subsystems presented their ideas, they need to translate them to the proper DB fields and greenlight it so we can implement it (by "we" I mean hopefully I won't do it by myself).
- A spreadsheet was created for organizing each subsystem's needs
  https://docs.google.com/spreadsheets/d/11zc8tagaWGwTmjtRixf97i_qpVXEEOa7FeeuH5_YTmk/edit?usp=sharing
- Video training and slides are available.

Action List

| Subsystem | Initial Proposal | DB Conformity | Group Approval | DB Implementation |
|---|---|---|---|---|
| Rail cable system | | | | |
| Power supply | | | | |
| Monitoring | | | | |
| SASEBO | | | | |
| DAPHNE | | | | |
| AECB | | | | |
| Cold Amplifier | | | | |
| Routing board | | | | |
| Module | | | | |
| Supercell | | | | |
| SiPM | | | | |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# Subsystems and parts