Report on the DAPHNE activities at CERN.

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October 4, 2022

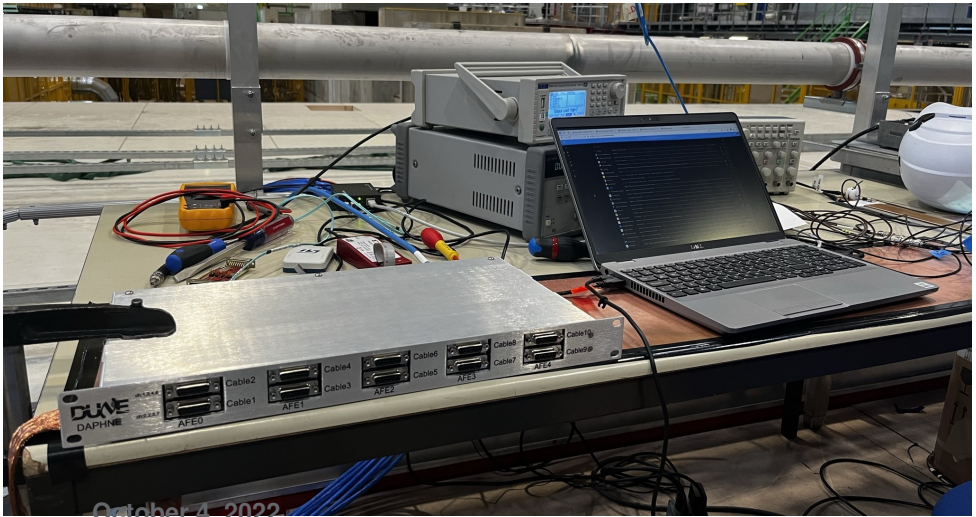
UNIVERSIDAD EIA
Ser, Saber y Servir

DUNE

Introduction

- DAPHNES version 2A are at CERN
- Coldbox of APA 3 Preparation and plans
- VD Activities

DAPHNE V2


DUNE
DAPHNE
AFE0
AFE1
AFE2
AFE3
AFE4
Cable1
Cable2
Cable3
Cable4
Cable5
Cable6
Cable7
Cable8
Cable9
Cable10

DAPHNE V2

- I've recieved 2 V 2A DAPHNEs in a Pelican Box.
- Inside I found 2 DAPHNES #1 and #2, power cables and media converters.
- DAPHNE 1 Serial Communication + Bias set OK.
- DAPHNE 2 Serial Communication OK, BIAS is not working properly in AFE 1 (It's always 72V)

I Didn't found the printed schematics of the new board.
Checked EDMS page but the document is from July.

DAPHNE V2

Micro controller programming OK

- Digital Programmable oscillator.
- AFE alignment
- Streaming readout.

From David Christian who is comming next week

1. uC general tests.
2. Ramp Test
3. CCM - ZeroMQ Only supported by Linux.
4. Self trigger algorithm

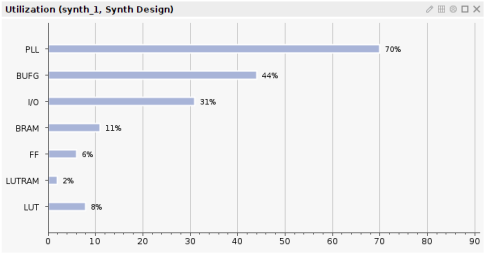
DAPHNE V2 Gateware

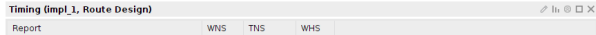
- I've downloaded V.2A repository, but I'm not able to synthesise the project because IP Cores are locked.
- For this a binary file of a zipped copy of the project to generate the IPCores would be useful.

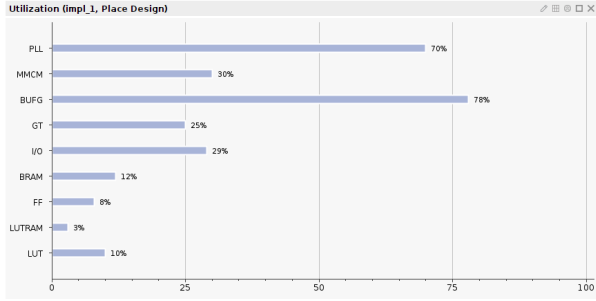
AFE Mapping

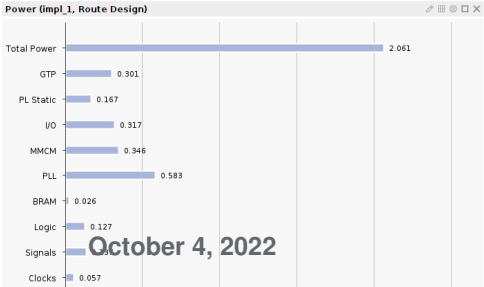
1. **I strongly recommend to remap the AFE channels in Fermilab's gateware to something compliant with the microcontroller configuration.**
2. **It may be really easy to BIAS the PD modules with the wrong Voltage, or measure the wrong channels.**

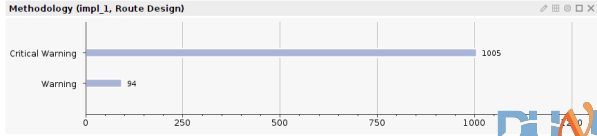
DAPHNE V1 Gateware for Integration: Self trigger + FELIX











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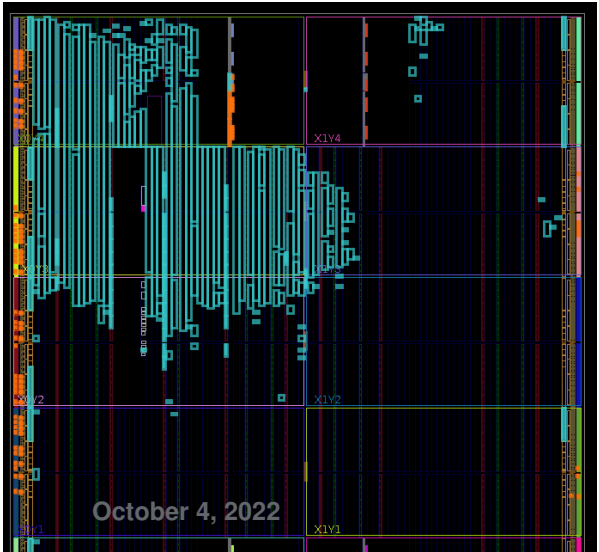
DAPHNE V1 Gateware for Integration: Self trigger + FELIX



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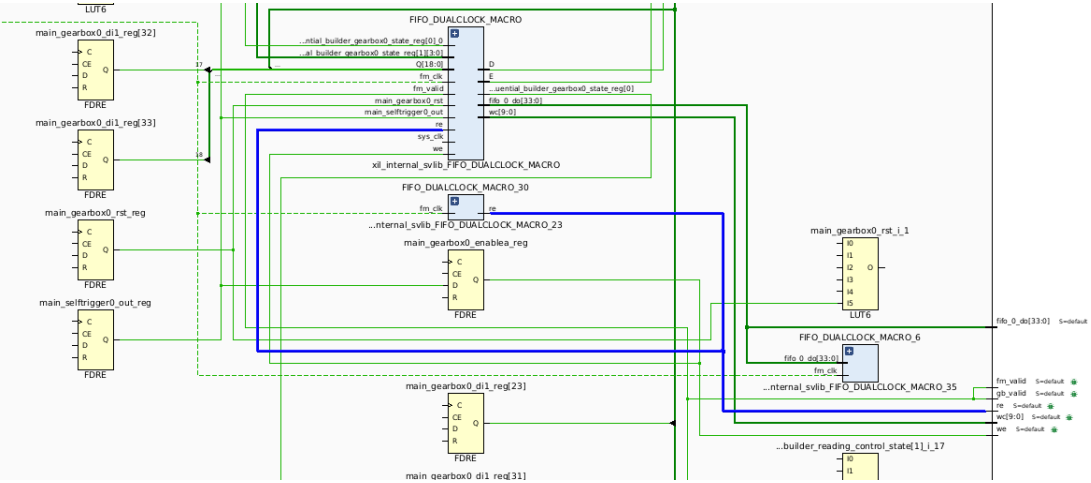


APA3

- In preparation for ColdBox 1 of APA3 we have tested continuity after installing cold cables in front of the Cold box, before and after closing.
- All modules are connected and healthy. BIAS Voltage seems very dispersed.

Acquisition Plan

1. Usual data acquisition with DAPHNE V.1
   Also using a wider range of BIAS to estimate Breakdown Voltage.
2. Same run with DAPHNE V.2A
3. Full stream of one channel using V.1. Noise Studies:FFT.
4. Full stream of one channel using V.2A. Noise Studies:FFT.
5. DCR, Self Trigger, moving average algorithm $\tilde{1}6$ ADC Counts.
6. If Fermilab Gateware is on time for the test, I'll also test the self trigger for V.2A

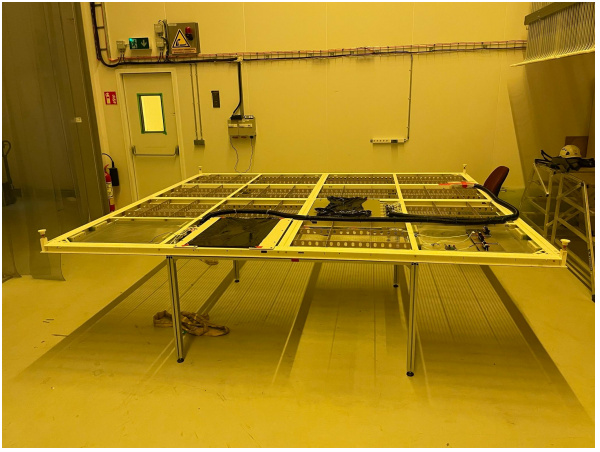
VD

- I've spent 2 days preparing the readout for VD Coldbox apparently there is an issue with the proxy in the VD computer, so I installed CAEN software locally.
- I've delivered the Package from Wei to mail office at CERN.
- Iowa boxes were picked by Chris, and they are been assembled.

From Ryan Rivera

1. We will need to install fibers on Friday once the Cathode is in Cold box.
2. Data acquisition is going to take place next week.
3. Need to install boards from Niccolo.

VD



DEEP UNDERGROUND
NEUTRINO EXPERIMENT