

# Status of the padplane

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# Overview

Overview over the Padplane

Dimensions

Routing of first connector

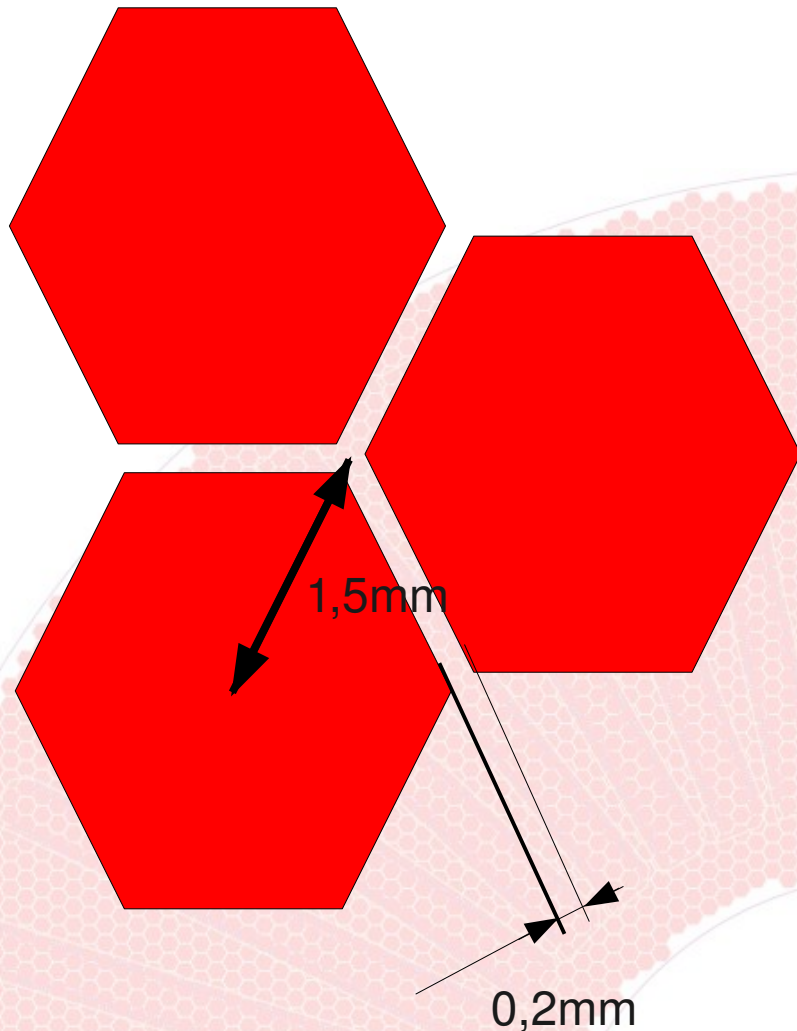
Routing of remaining connectors

Tracklength distribution

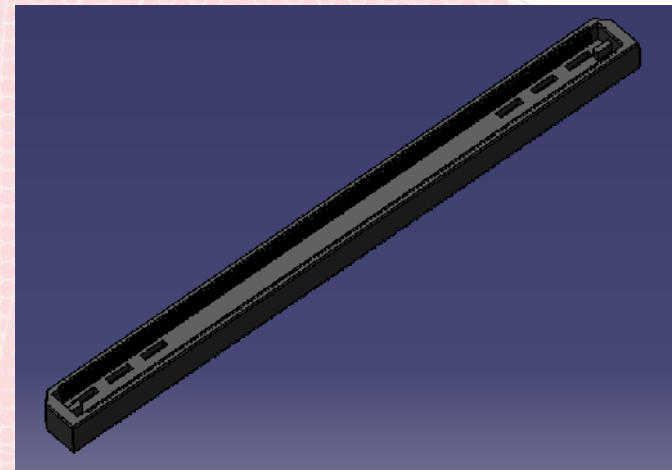
What is to be done

# Overview of the padplane

## Dimensions of the pads



- 42 Frontend cards
- 4 T2K Chips per card
- 64 Channels per chip
- ➔ 10752 channels
- 10296 pads are on the padplane

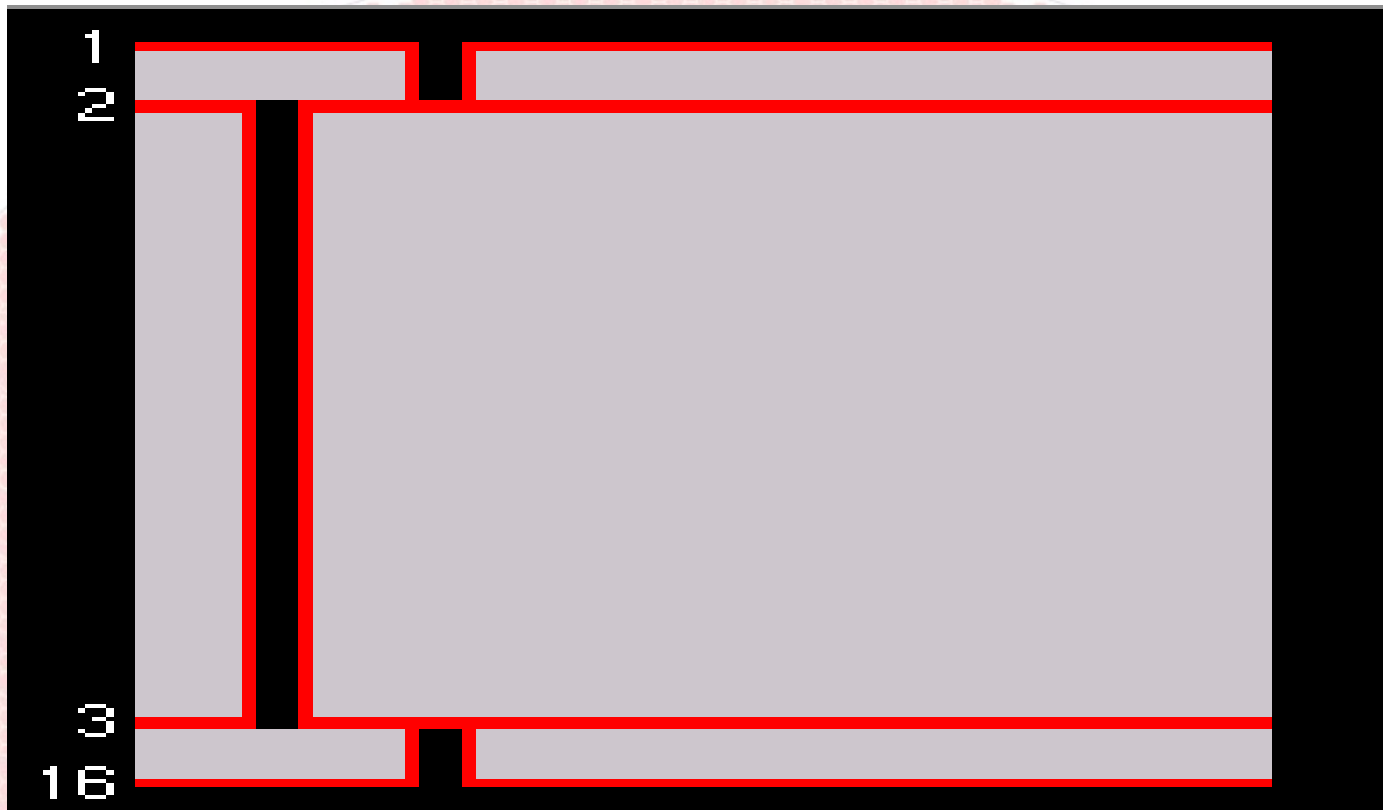


The connector used for the frontend cards is a BTH-150-XX-X-D-A from Samtec with 300 pins and 0.0197mm pitch.

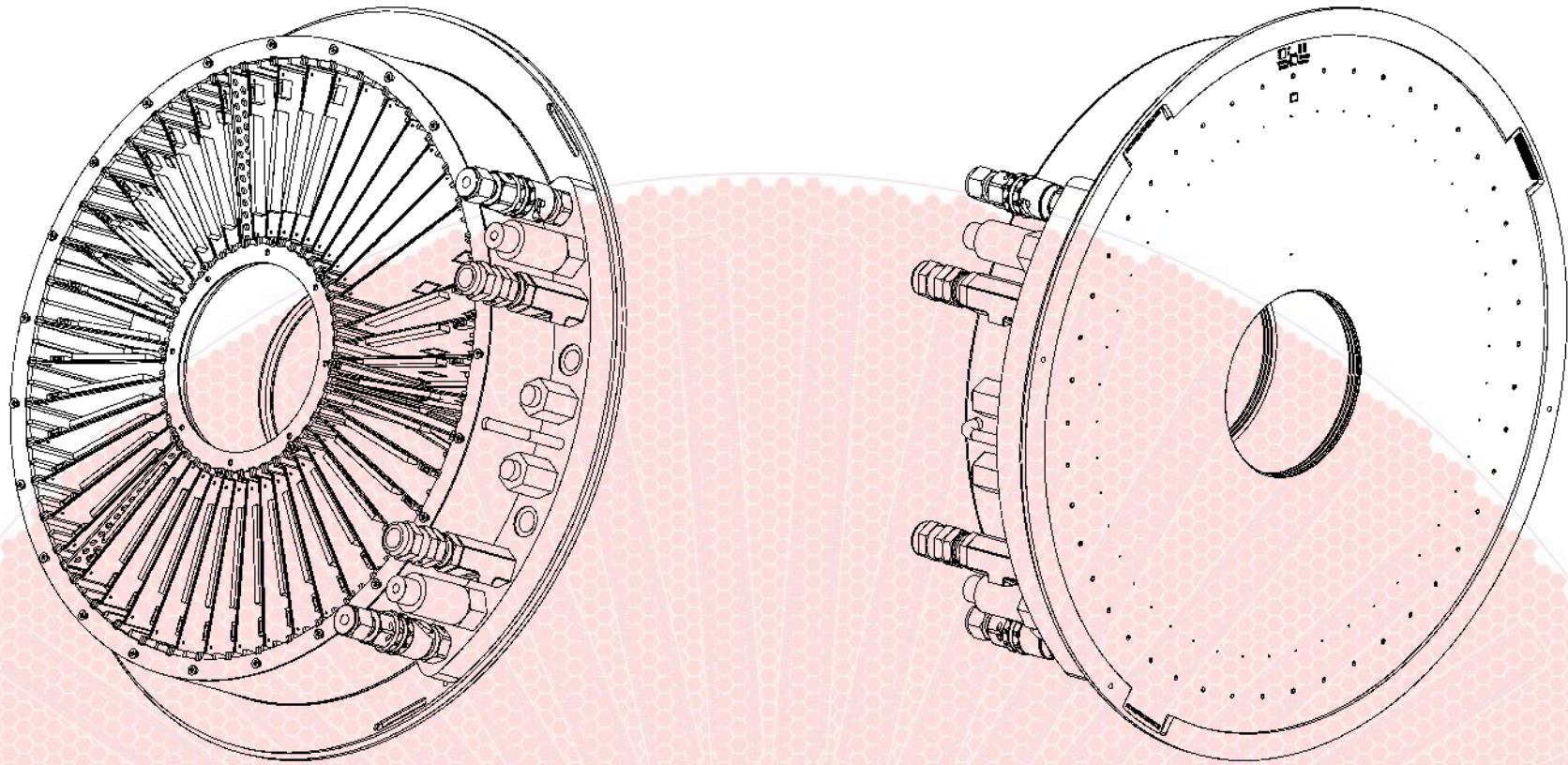
# Overview of the padplane

The board has to be gas tight, so a 4 layer layout was chosen:

- The top layer for the pads (1)
- Two layers inside for the tracks (2,3)
- The bottom layer for the connectors and tracks (16)



# Overview over the padplane



# Scripts

The padplane is designed with the “Altium Designer”.  
Altium provides different languages to write scripts where one can use a lot of objects and functions of the Altium Designer.

The provided languages are:

- Delphi script
- Visual Basic script
- Jscript

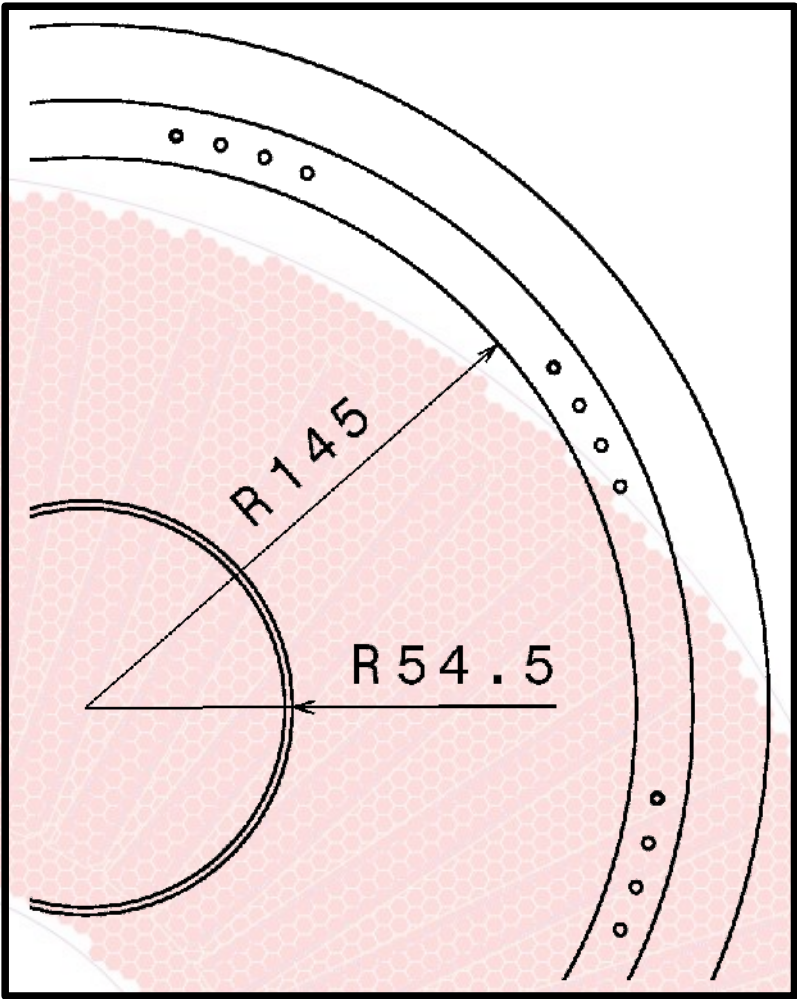
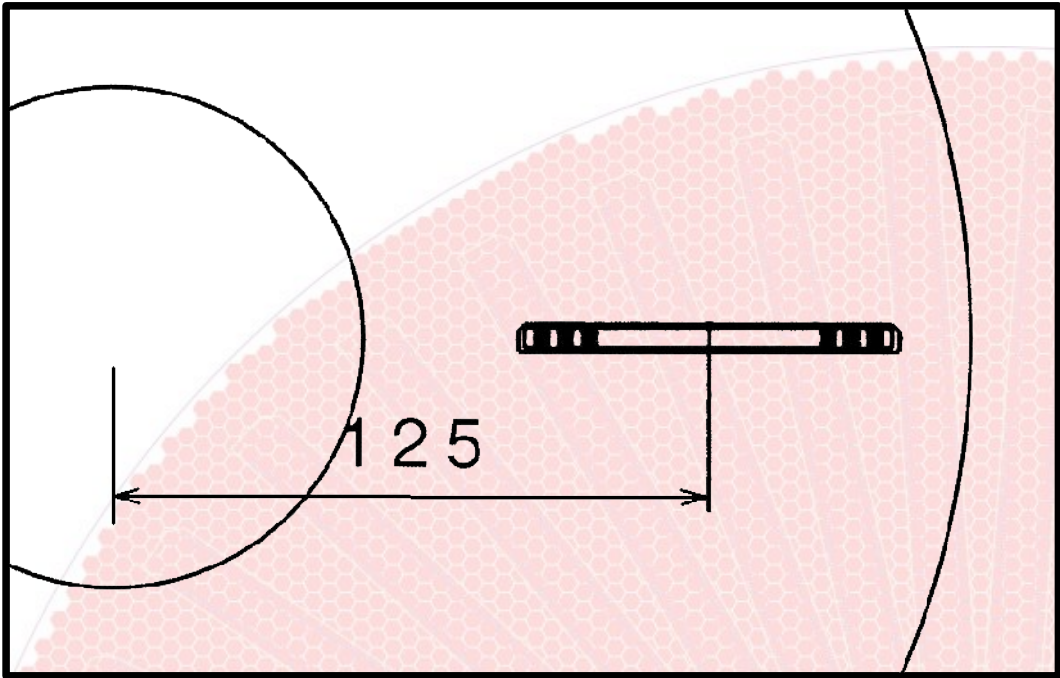
For the padplane delphi script is used.

# Scripts

Scripts which have been written for different purposes (all scripts are kept generally):

- Generating the library entry for the pads
- Placing the pads
- Placing the connectors
- Mirroring and copying the tracks and vias
- Checking the connections
- Generating tracklength distribution
- Changing track width

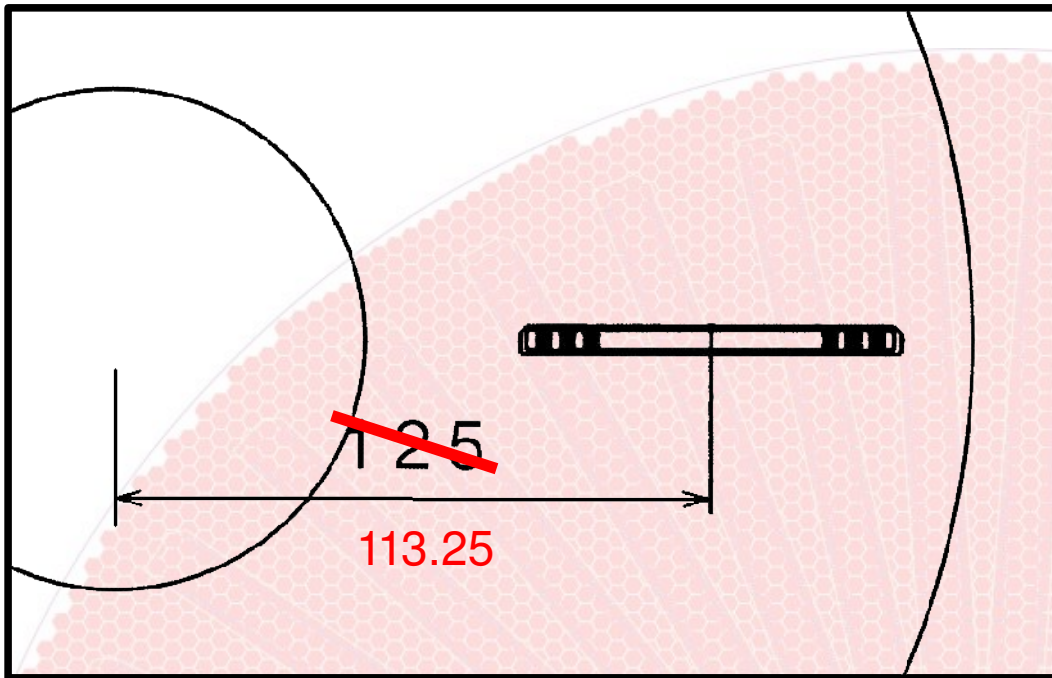
# Dimensions



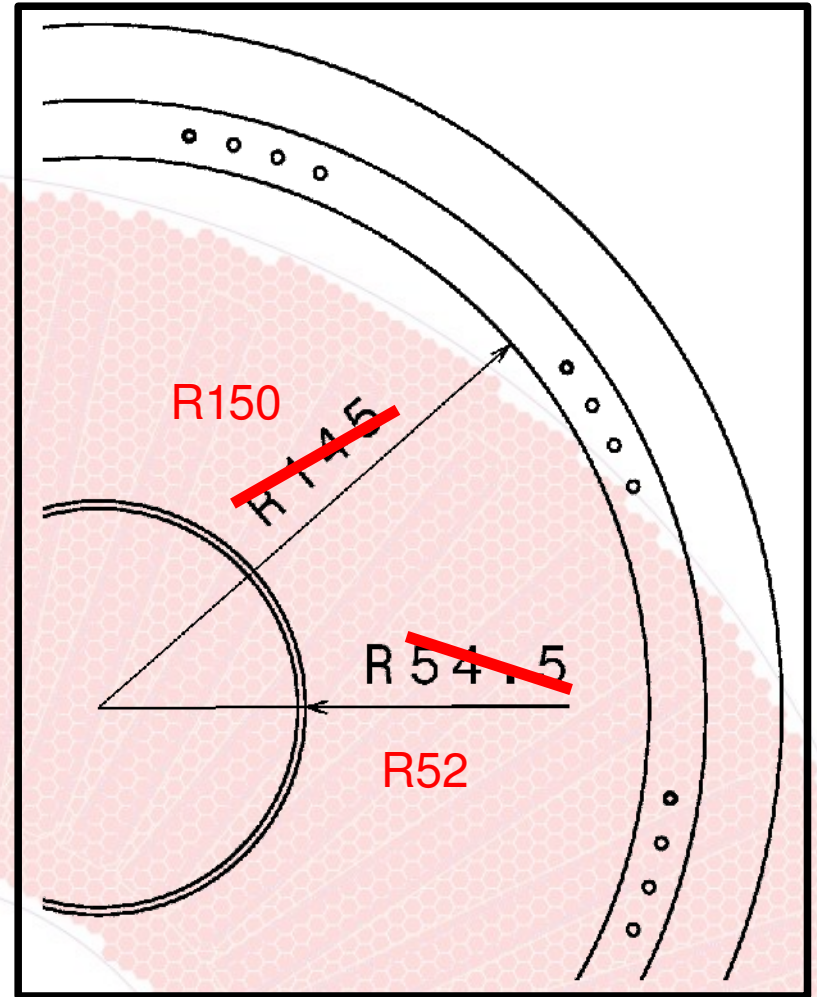
42 Connectors, equidistant  
Wrong dimensions!!!



# New Dimensions

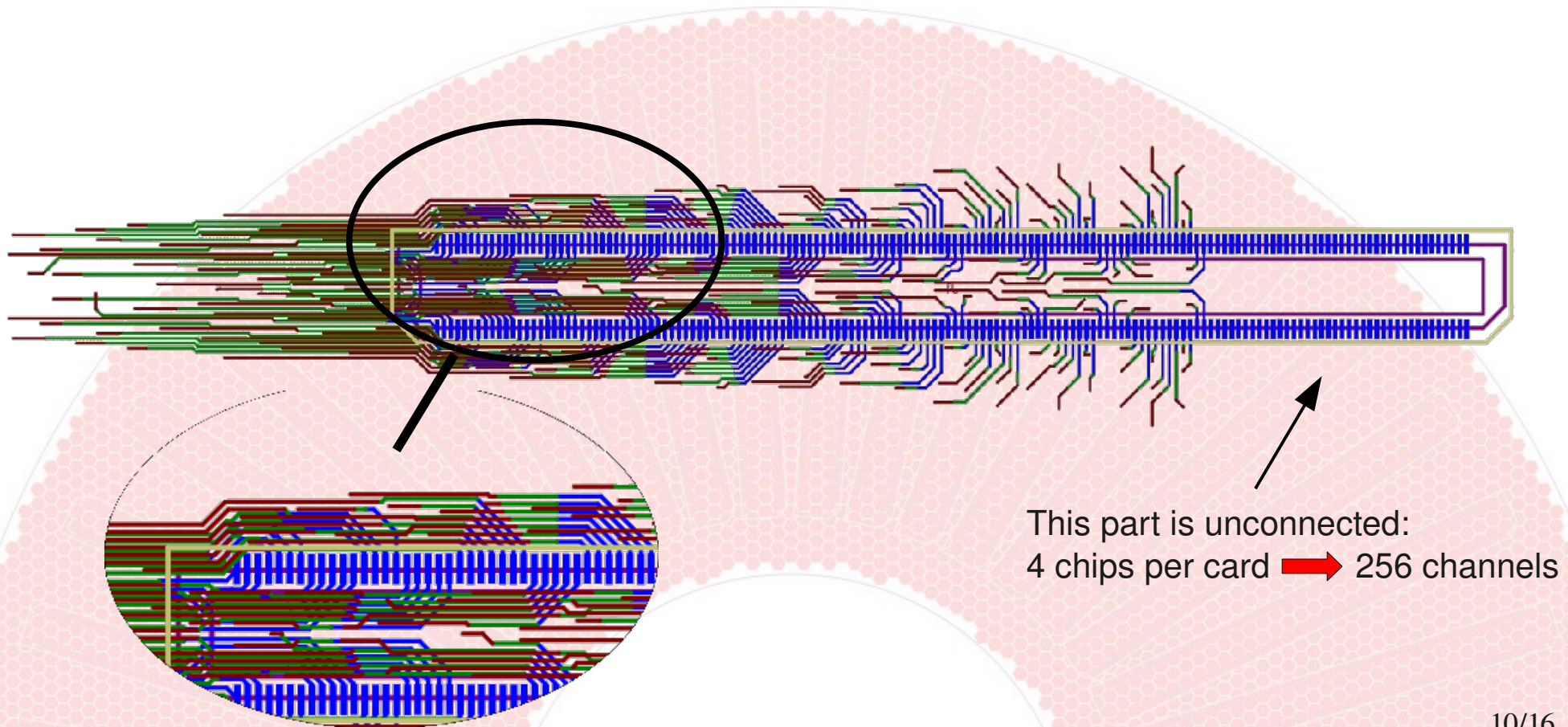


42 Connectors, equidistant



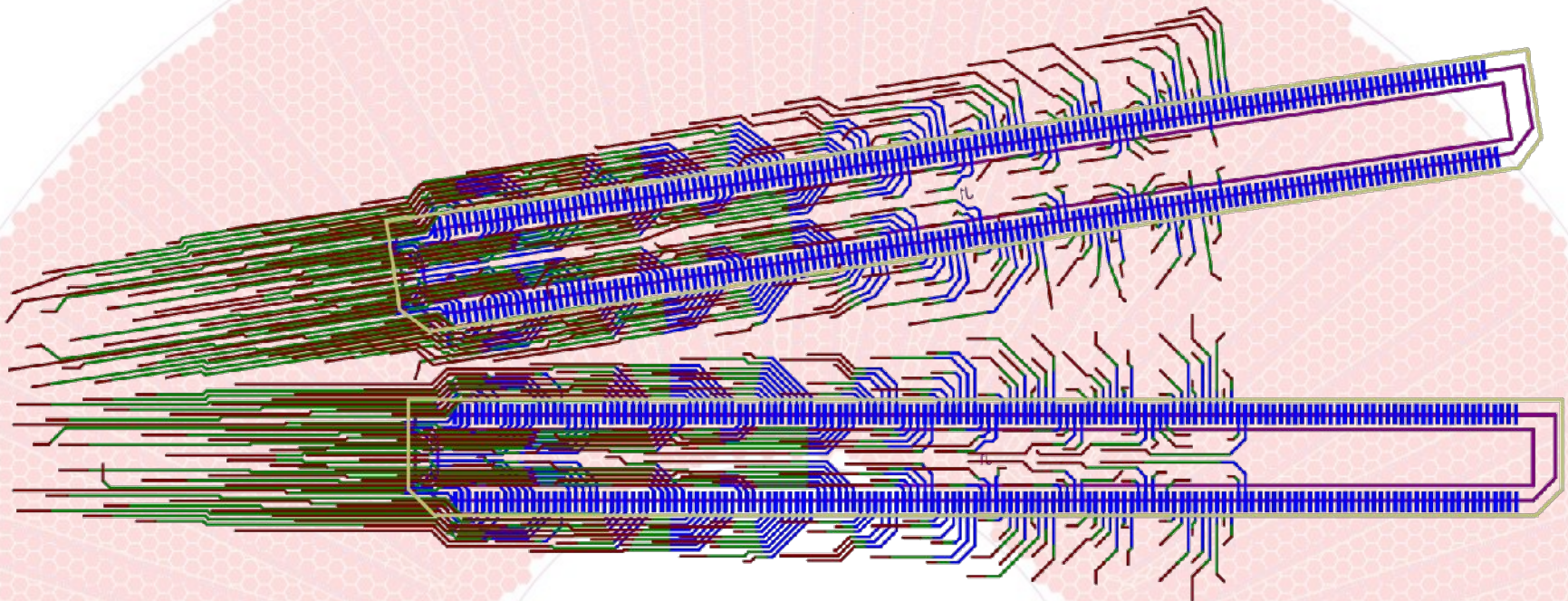
# The first connector

One half of the connector designed by hand. The second half was just mirrored and changed to fit to slight different pad positions.

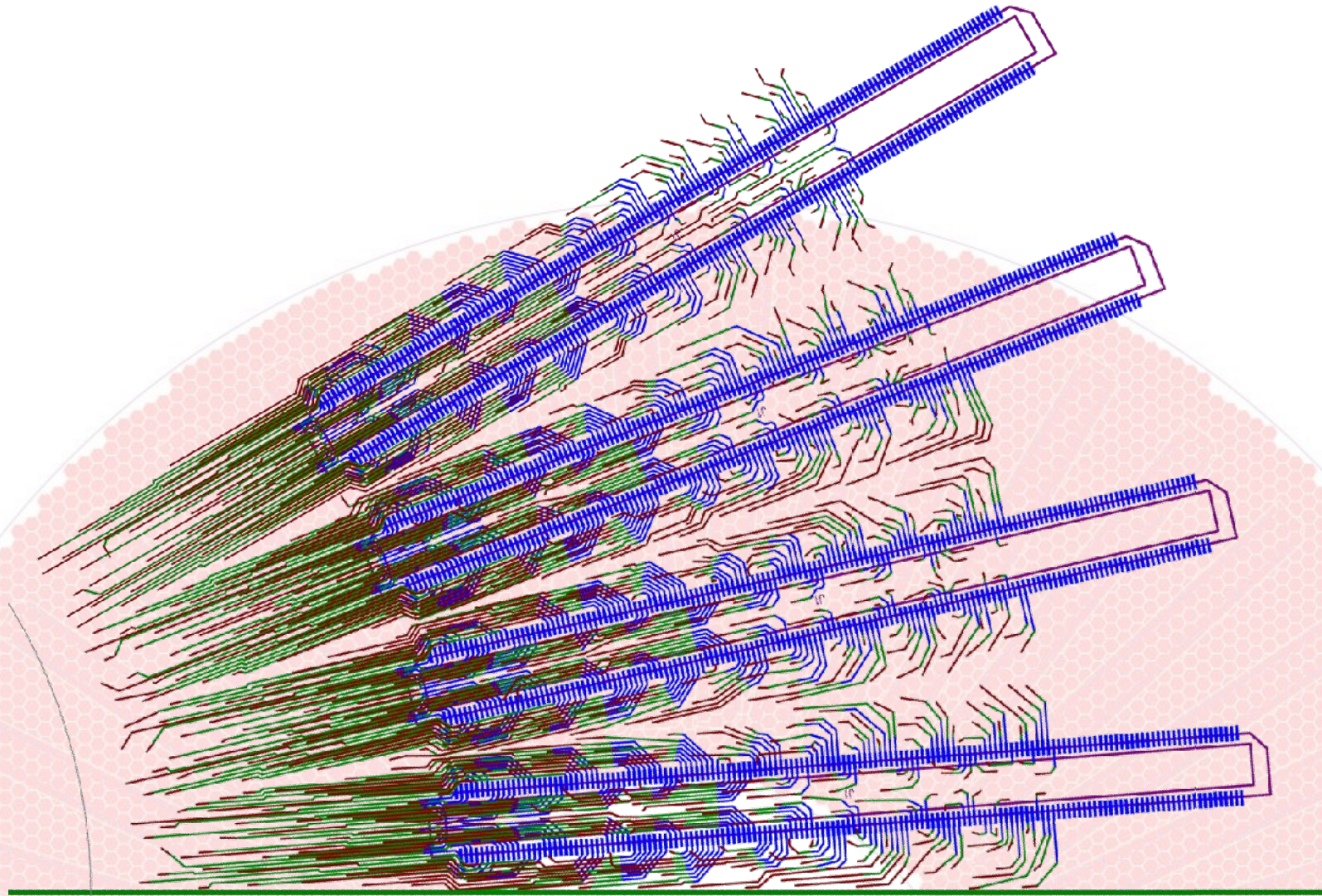


# The second connector

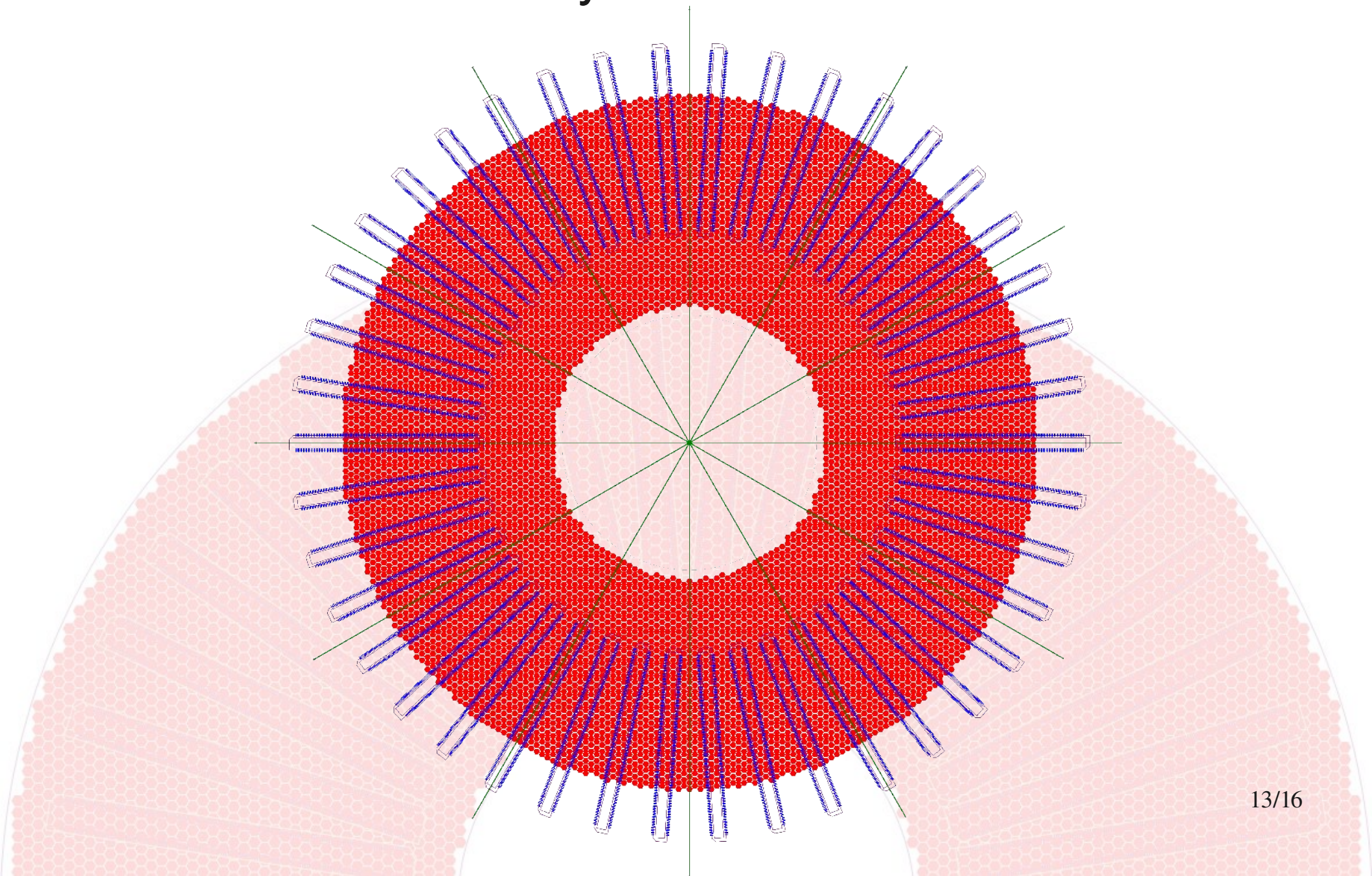
The second connector is in first place a copy of the first one, but to fit to the different angle there are major changes. Especially for the positions of track ends (connection to pads).



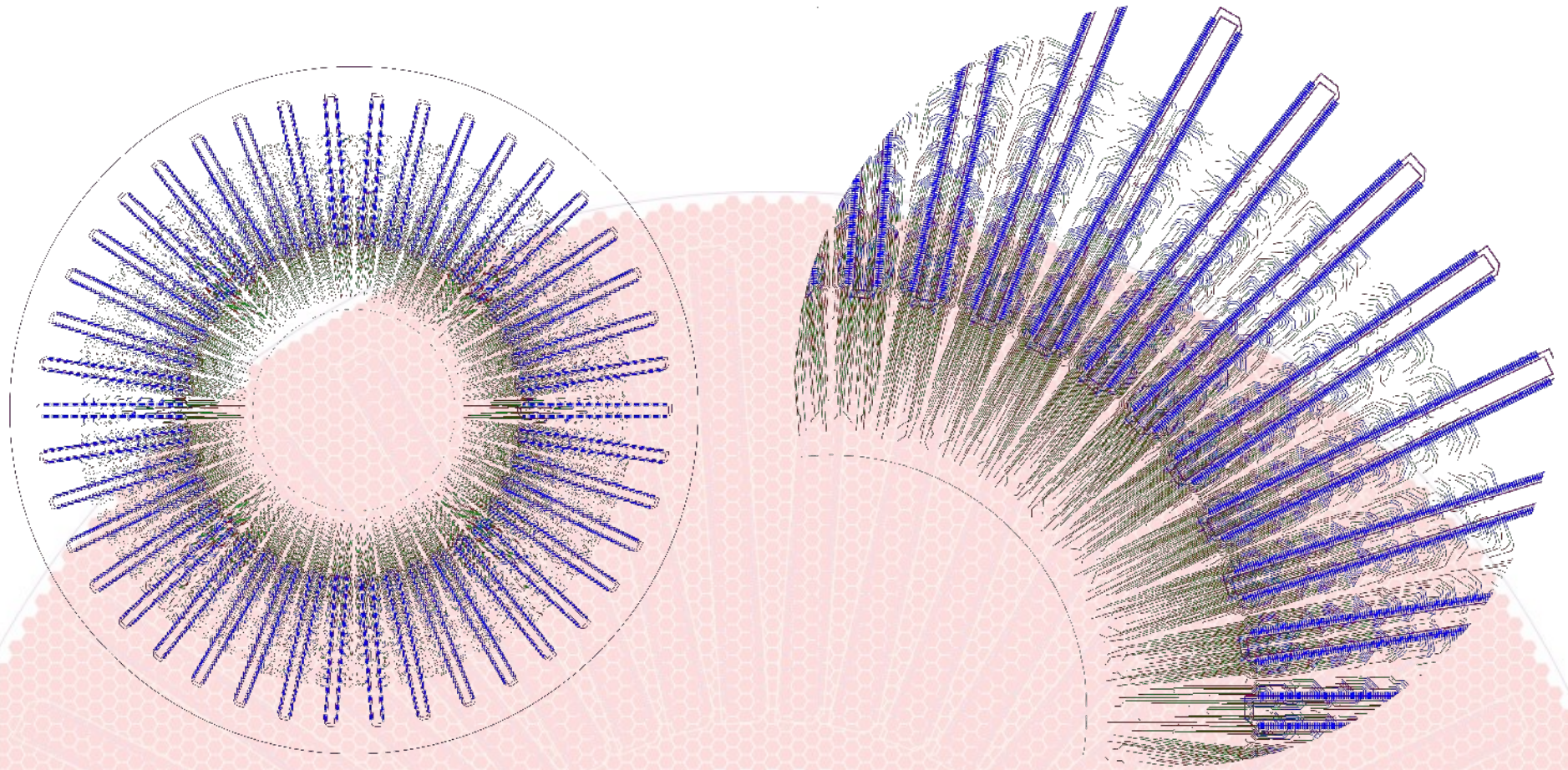
# The other connectors



# Symmetries

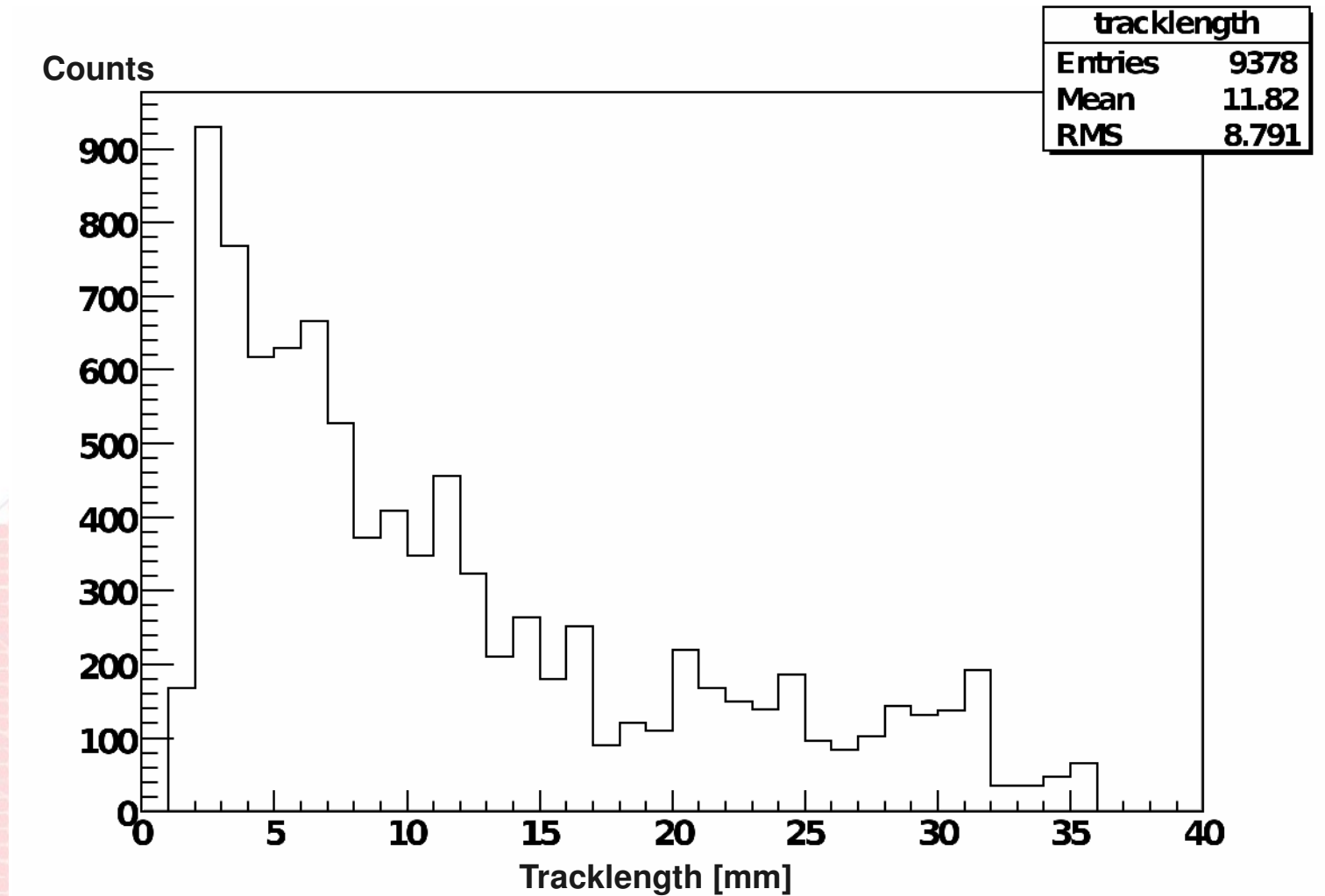


# The complete padplane



1108,37 m of tracks

# Tracklength distribution



Differences in length around  $\pm 15$ mm shouldn't induce much more noise.  
The new dimensions will shift tracklengths to smaller values.

# To do

- Completion of script for mapping file (2 hours)
- Fit tracks to changed positions of the connectors (3 days)
- Add new tracks for new pads (1 day)
- Add holes (1 day)
- Add copper areas at the borders to keep field homogeneous (1 day)
- Changes for the manufacturers (unknown)

Should be ready to order around end of next week



# Thank you

