AHCAL LDA Concept

André Welker

Bruno Bauß, Volker Büscher, Reinhold Degele, Lucia Masetti, Uli Schäfer,
Rouven Spreckels, Stefan Tapprogge, Rainer Wanke

CALICE Collaboration Meeting
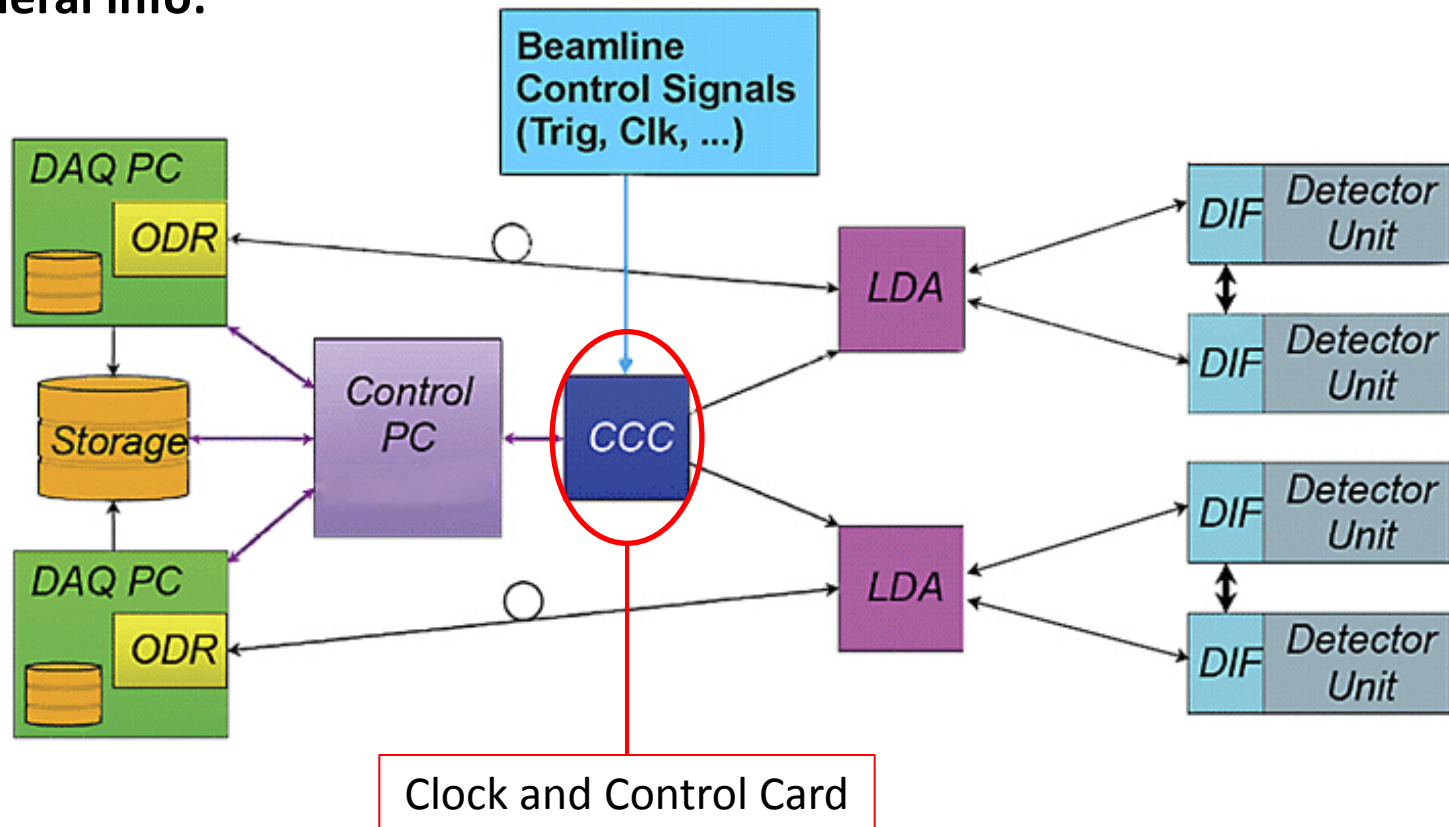Cambridge, Sept. 18, 2012
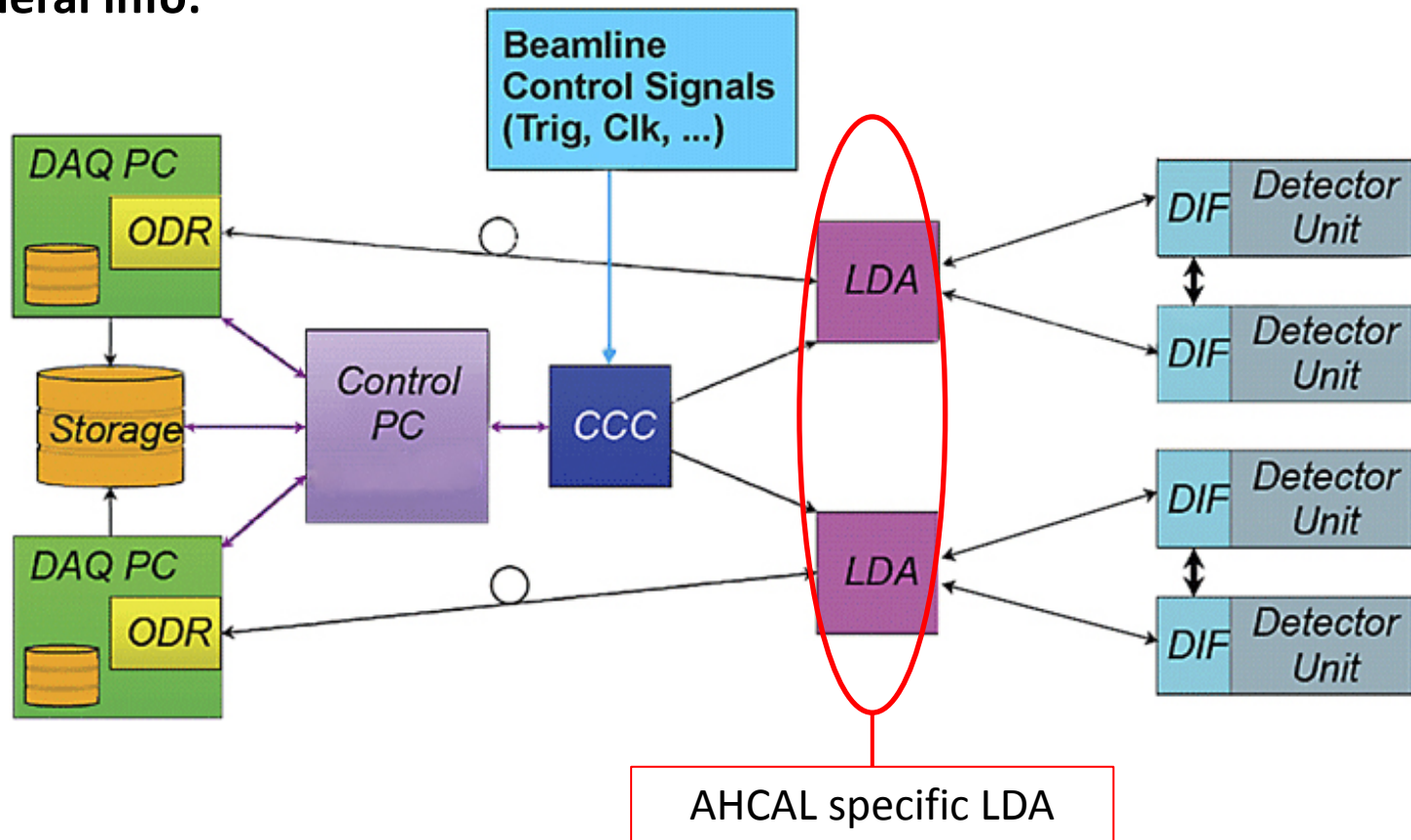
JG|U

JOHANNES GUTENBERG
UNIVERSITÄT MAINZ

PRiSMA

Readout chain

General info:

Clock and Control Card

Readout chain

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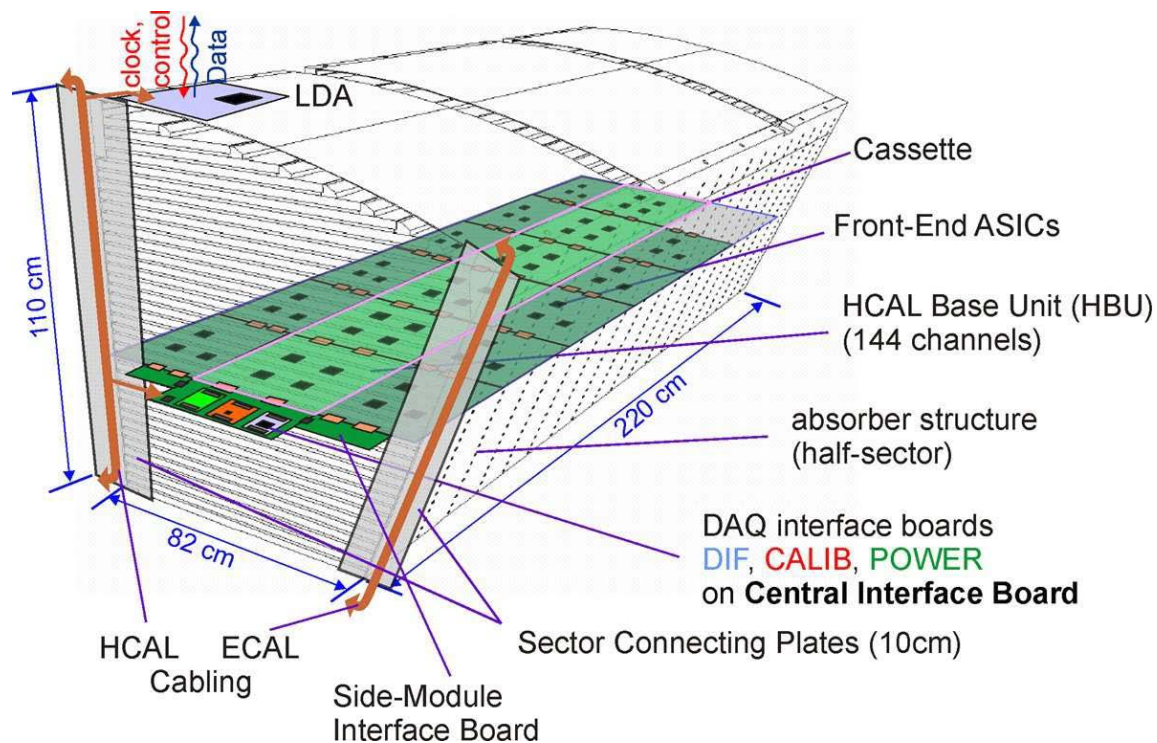

AHCAL specific LDA

Matsumoto Meeting March 2012

Disadvantages of the current layout:

Matsumoto Meeting March 2012

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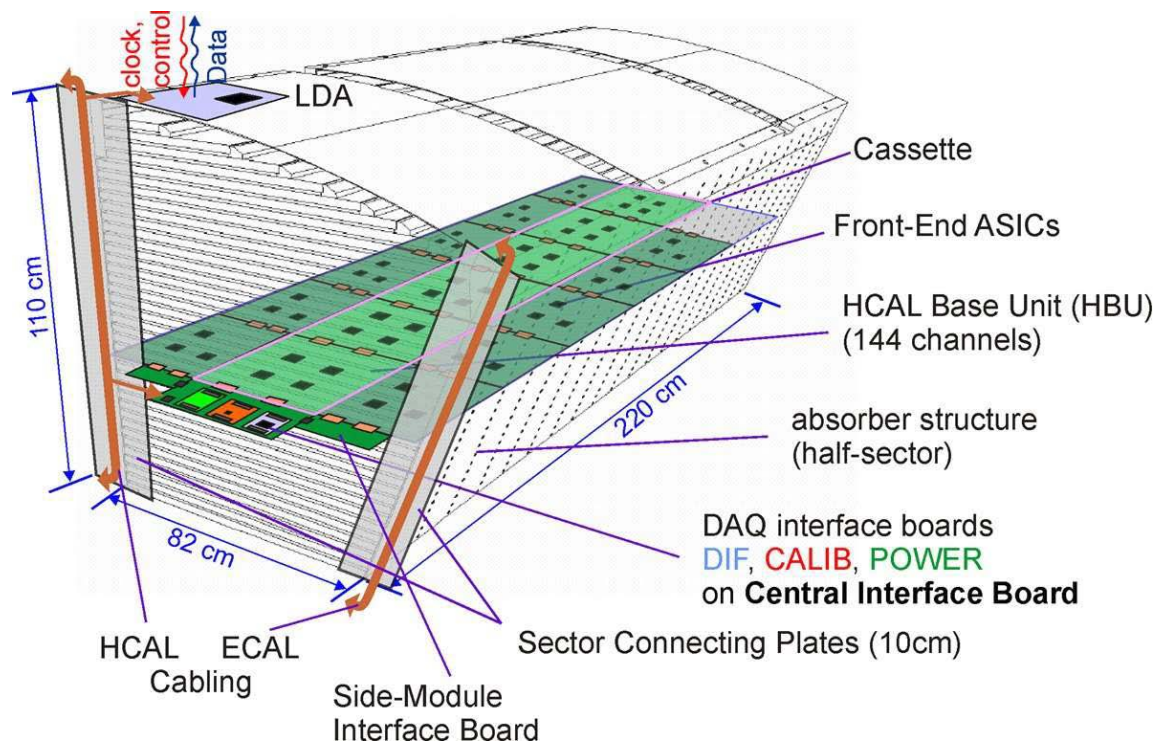1. **Very limited space between AHCAL and coil for the LDA:**

Matsumoto Meeting March 2012

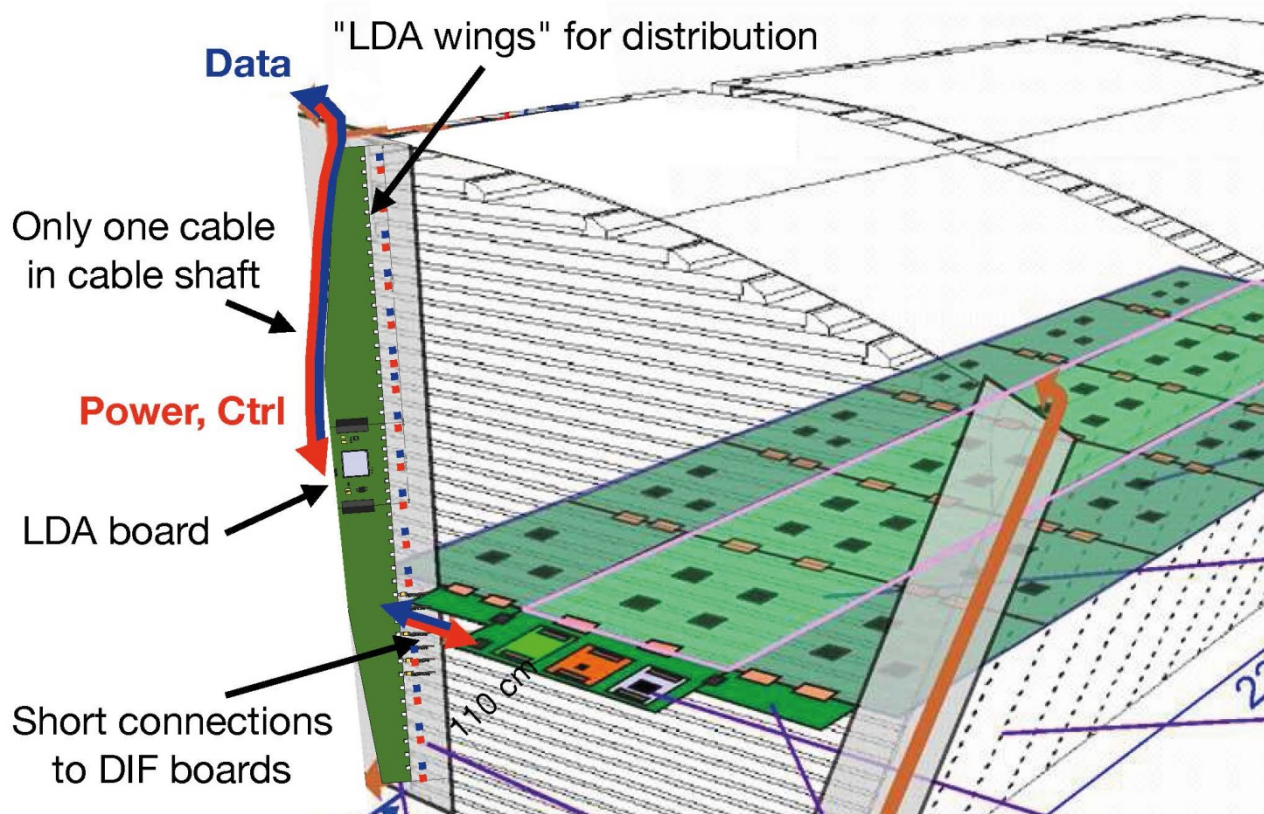**Disadvantages of the current layout:**

1. **Very limited space between AHCAL and coil for the LDA:**

2. **Many HDMI cables need to be routed through the cable shaft:**

Matsumoto Meeting March 2012

Proposal: Put LDA board inside or on the top of the cable shaft:

New specific LDA for the AHCAL

Consists of four separated parts:

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1. **Three passive PCBs:**

   the 48 HDMI-connectors are on these three PCBs.

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   mezzanine to simplify upgrades of FPGA/processor.

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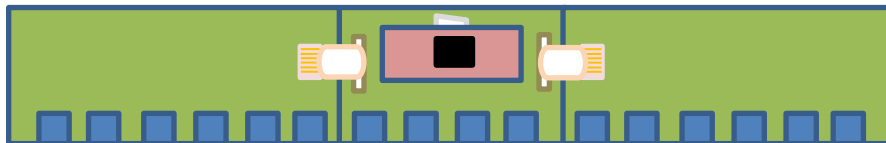1. **Three passive PCBs:**

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PCB interconnect: two options:

1. **LDA with flex ribbon cable:**

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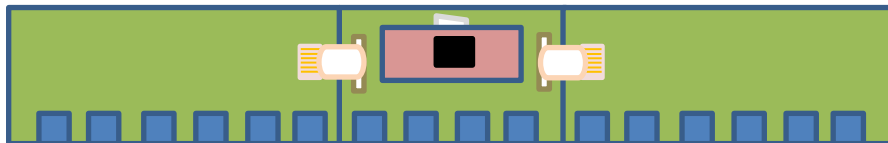1. **Three passive PCBs:**

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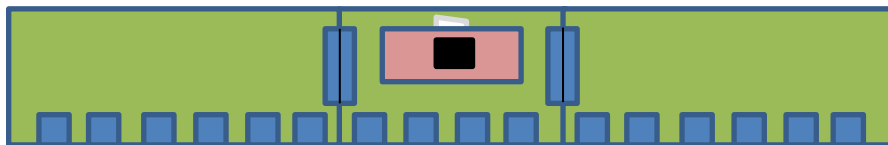
2. **One active PCB:**

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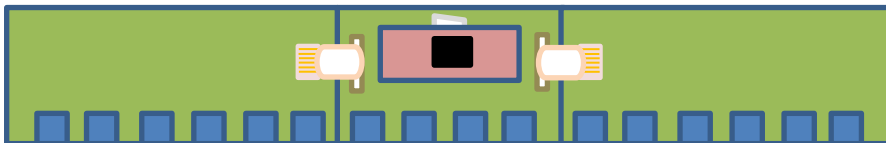**Consists of four separated parts:**

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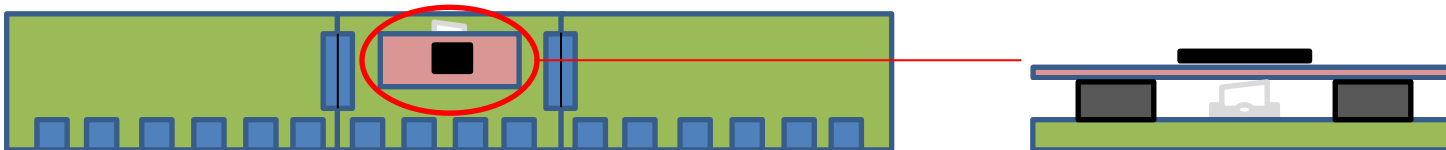2. **One active PCB:**
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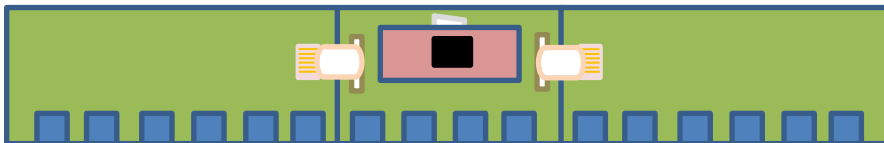**Consists of four separated parts:**

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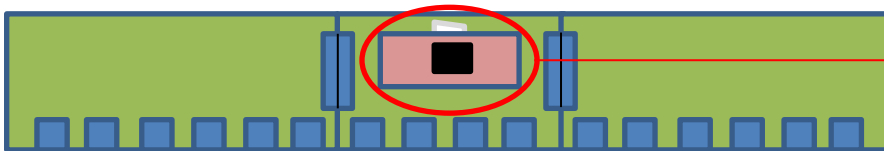2. **One active PCB:**
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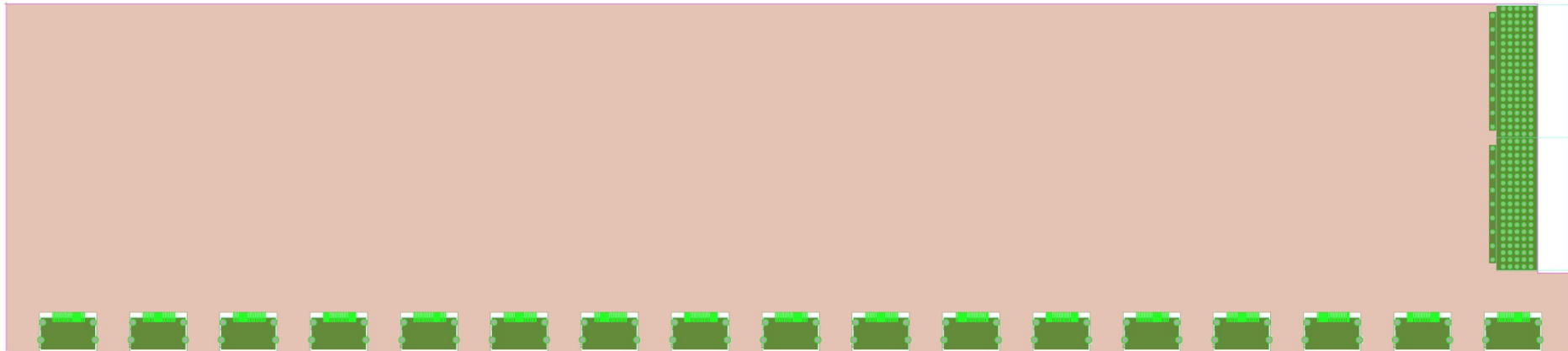1. **LDA with flex ribbon cable:**

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Wing-LDA

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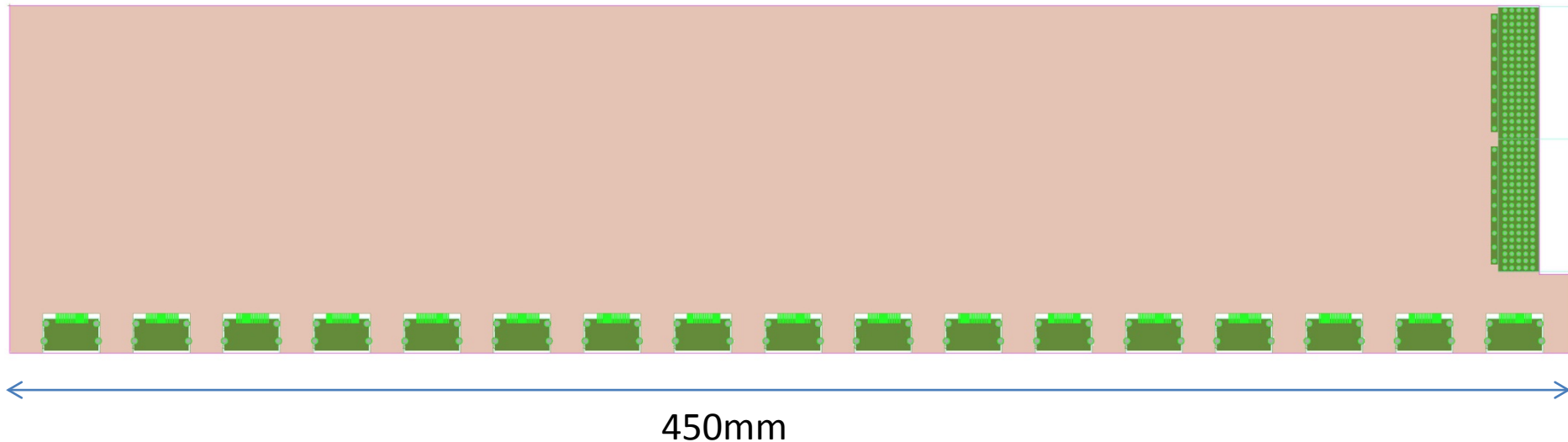
1. **Wing with 17 HDMI-connectors not routed:**
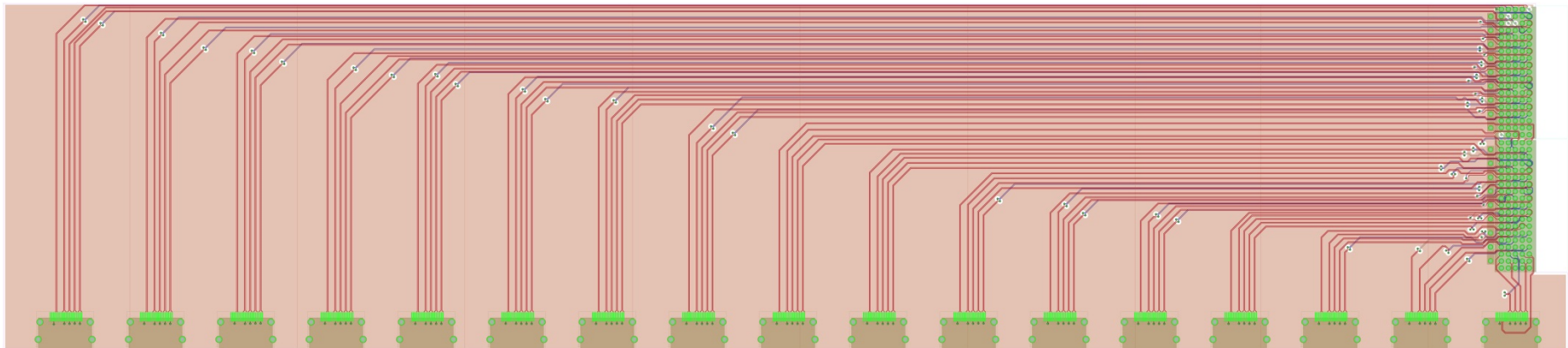
Wing-LDA

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450mm

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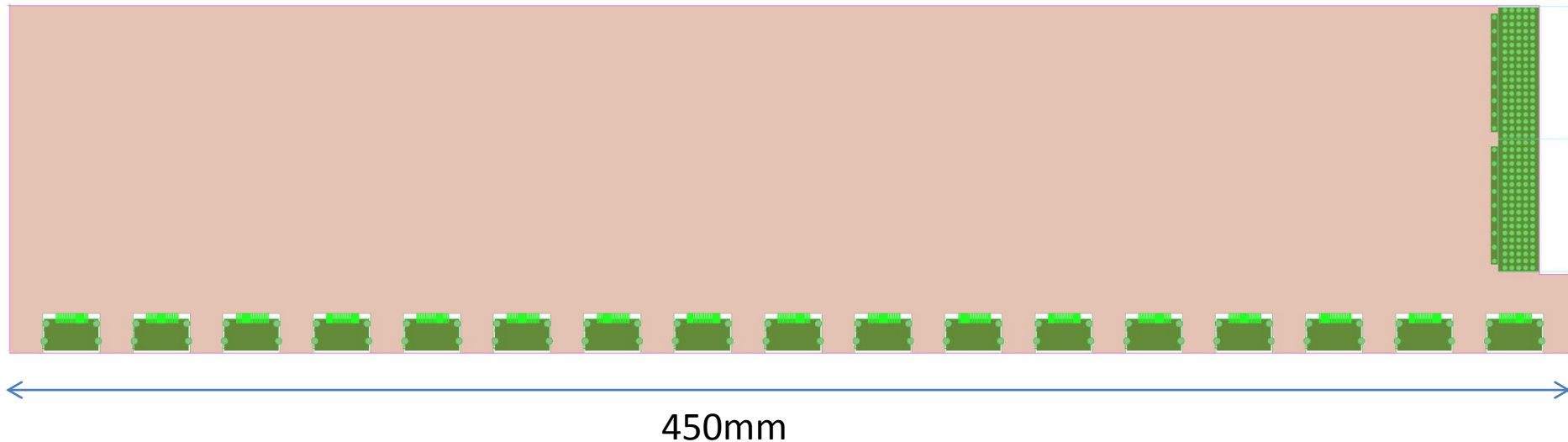

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Wing-LDA

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Wing-LDA

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Wing-LDA

The three PCBs:

2. **Middle PCB with 12 HDMI-connectors:**

400mm
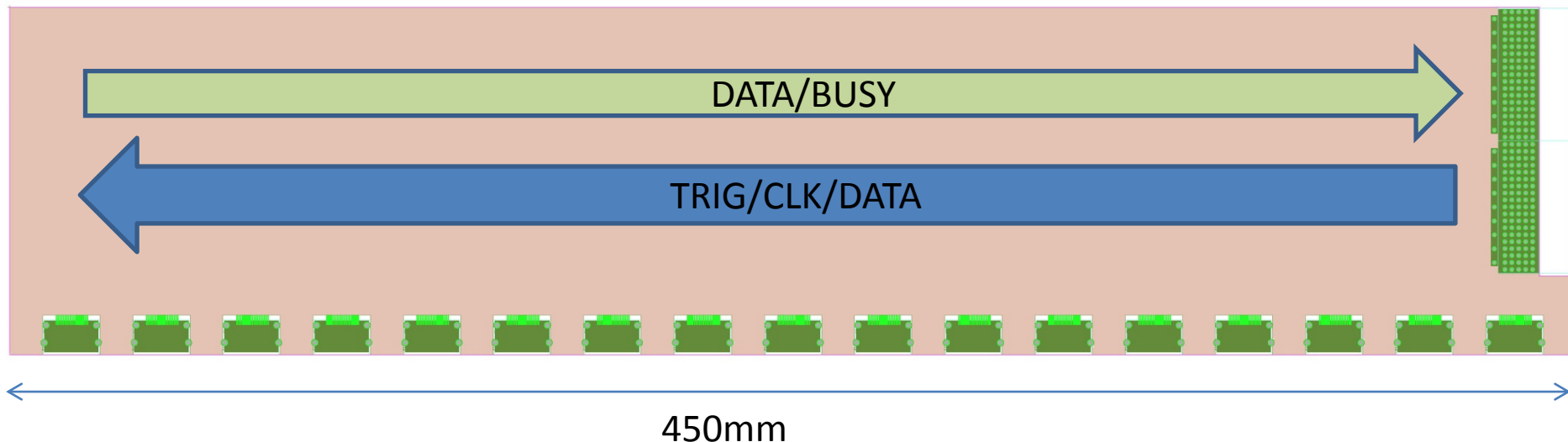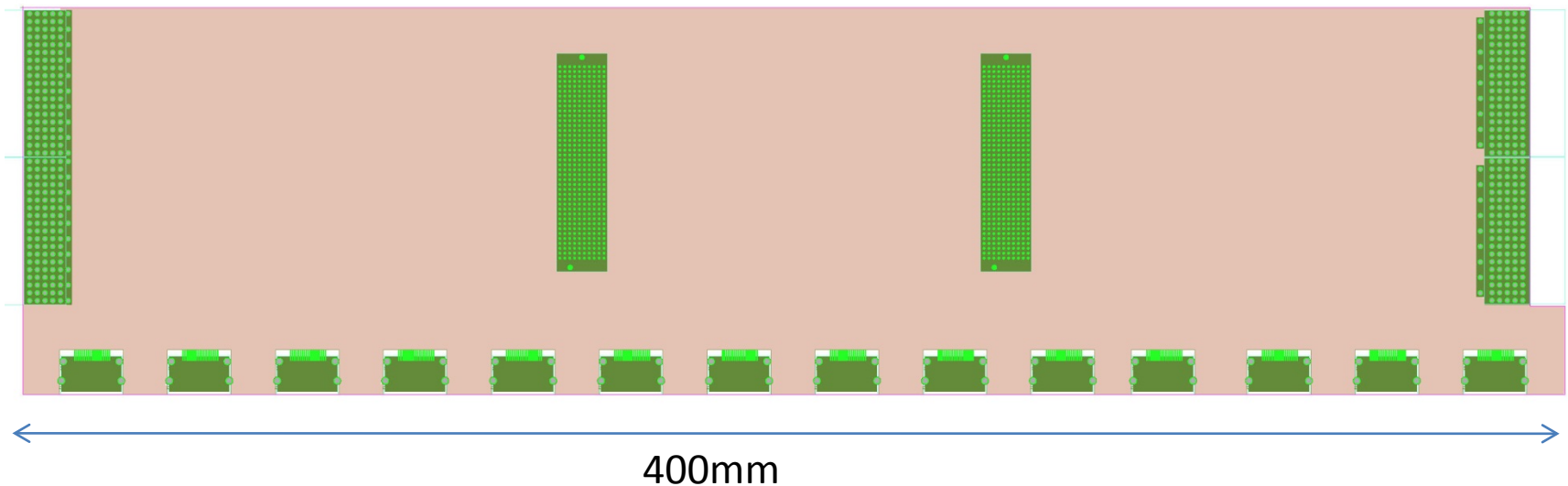
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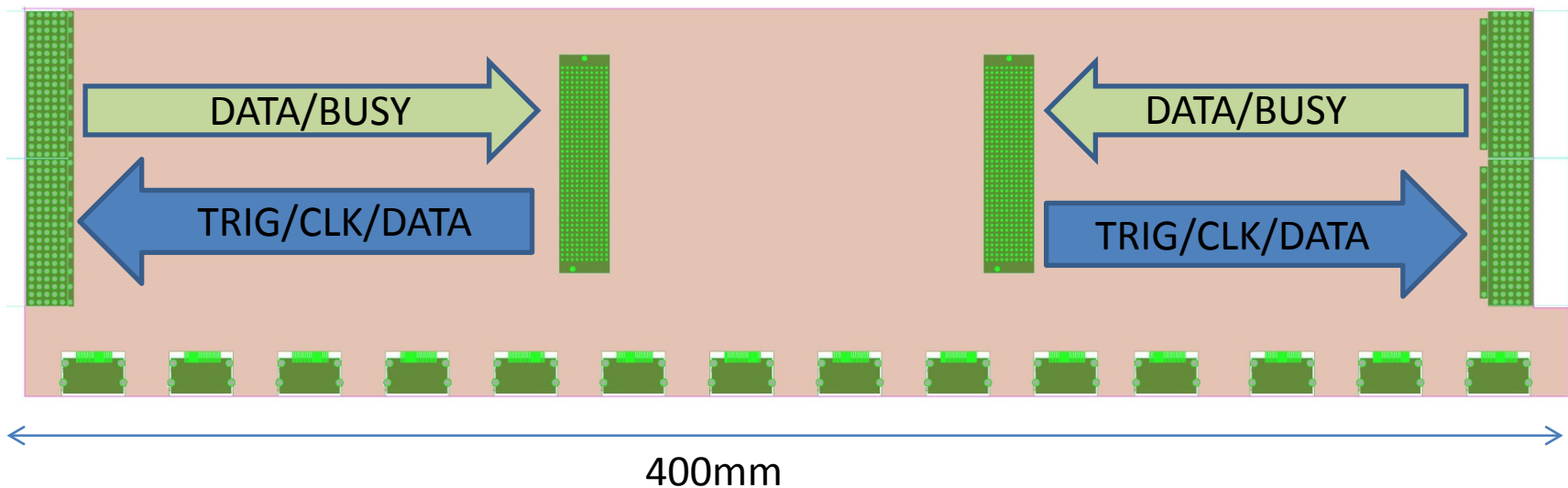
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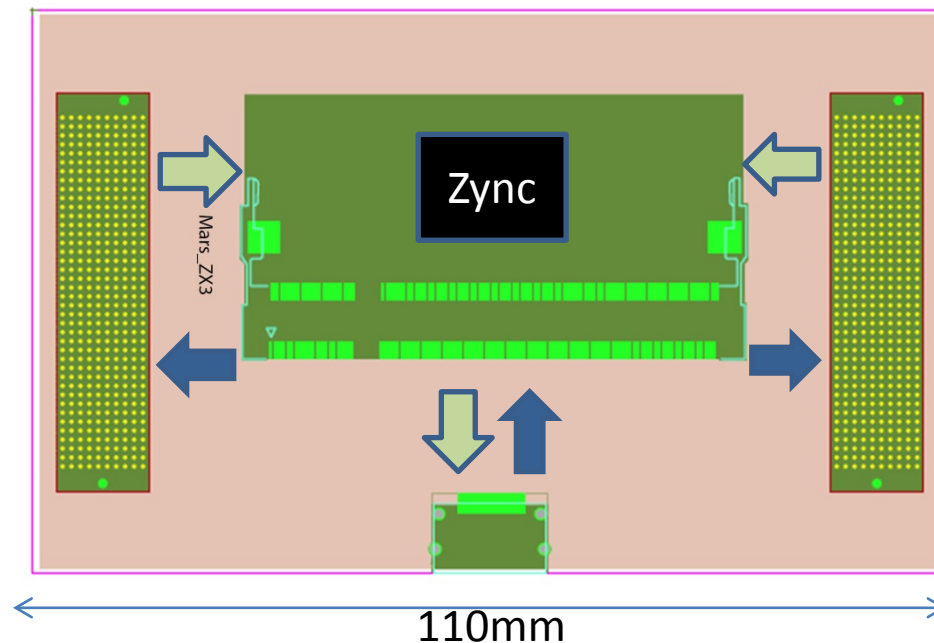
3. **FPGA mezzanine:**

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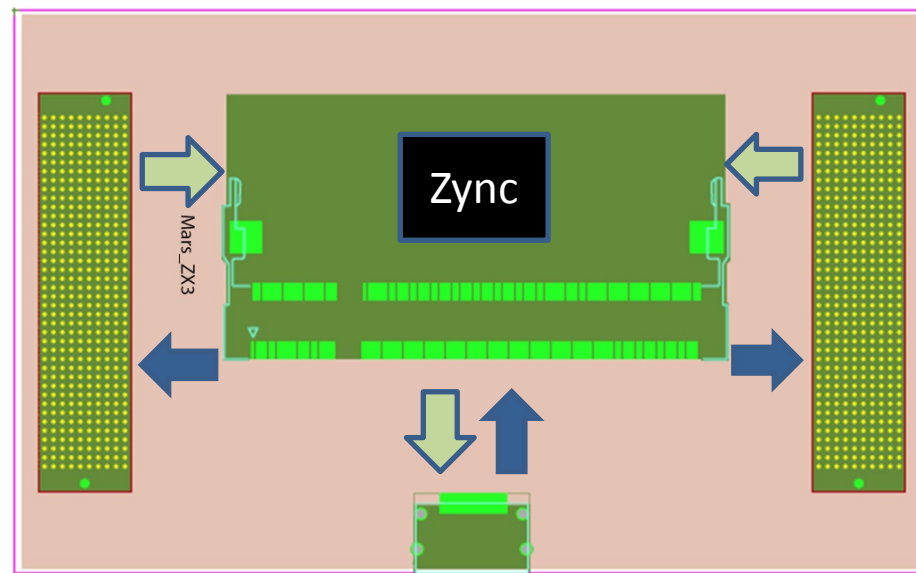
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1. First test with Mars-ZX3 PCB:
- New Xilinx FPGA/processor (108 I/Os), needed 490

Wing-LDA

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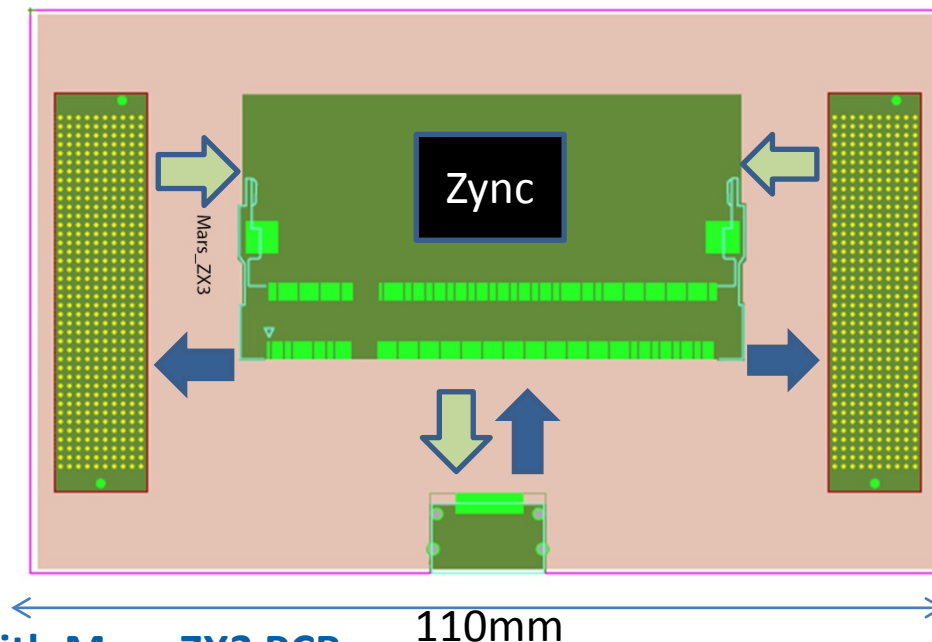
1. First test with Mars-ZX3 PCB:
  - New Xilinx FPGA/processor (108 I/Os), needed 490
2. Later with a FPGA/processor who can handle more I/Os:

Full-size funtional demonstrator

Timeline:

1. **Finalize design**
   - Where are the cryo pipes?
   - Where are the screw holes?
   - Where are the TPC cables?

Full-size functional demonstrator

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6. **Start tests at the lab in Mainz.**

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7. **Install and operate in AHCAL test beam.**

The goal is to be ready before Christmas and for the next test beam.