

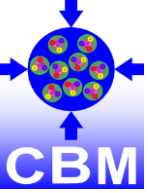
Status of Readout Electronics Production in CCNU

Dong Wang

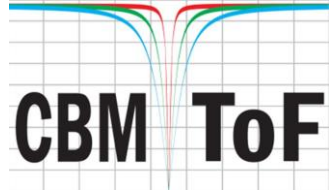
CCNU

3rd CBM - China Workshop, 16-18 April 2018,

YiChang HuBei China

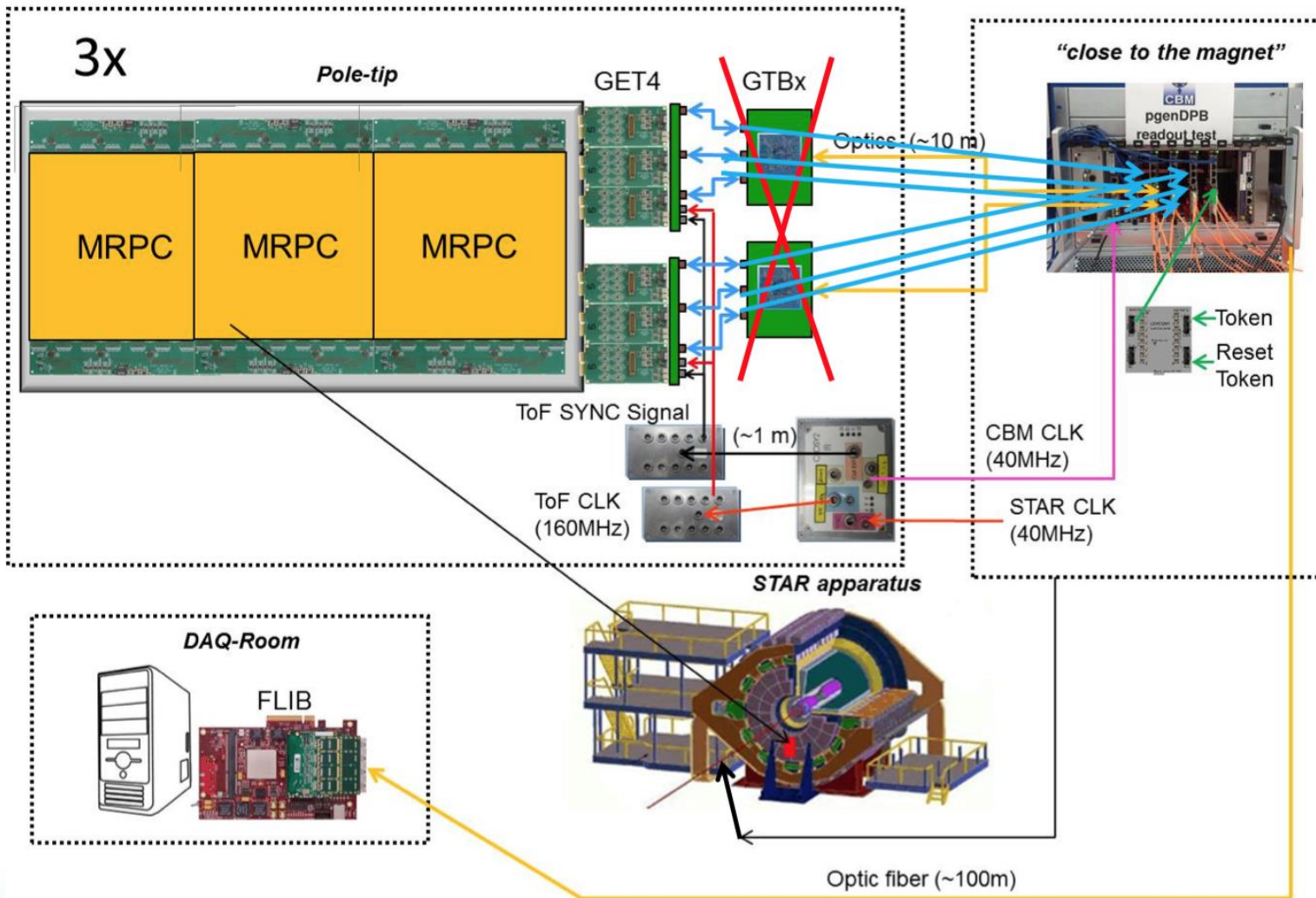


Outline

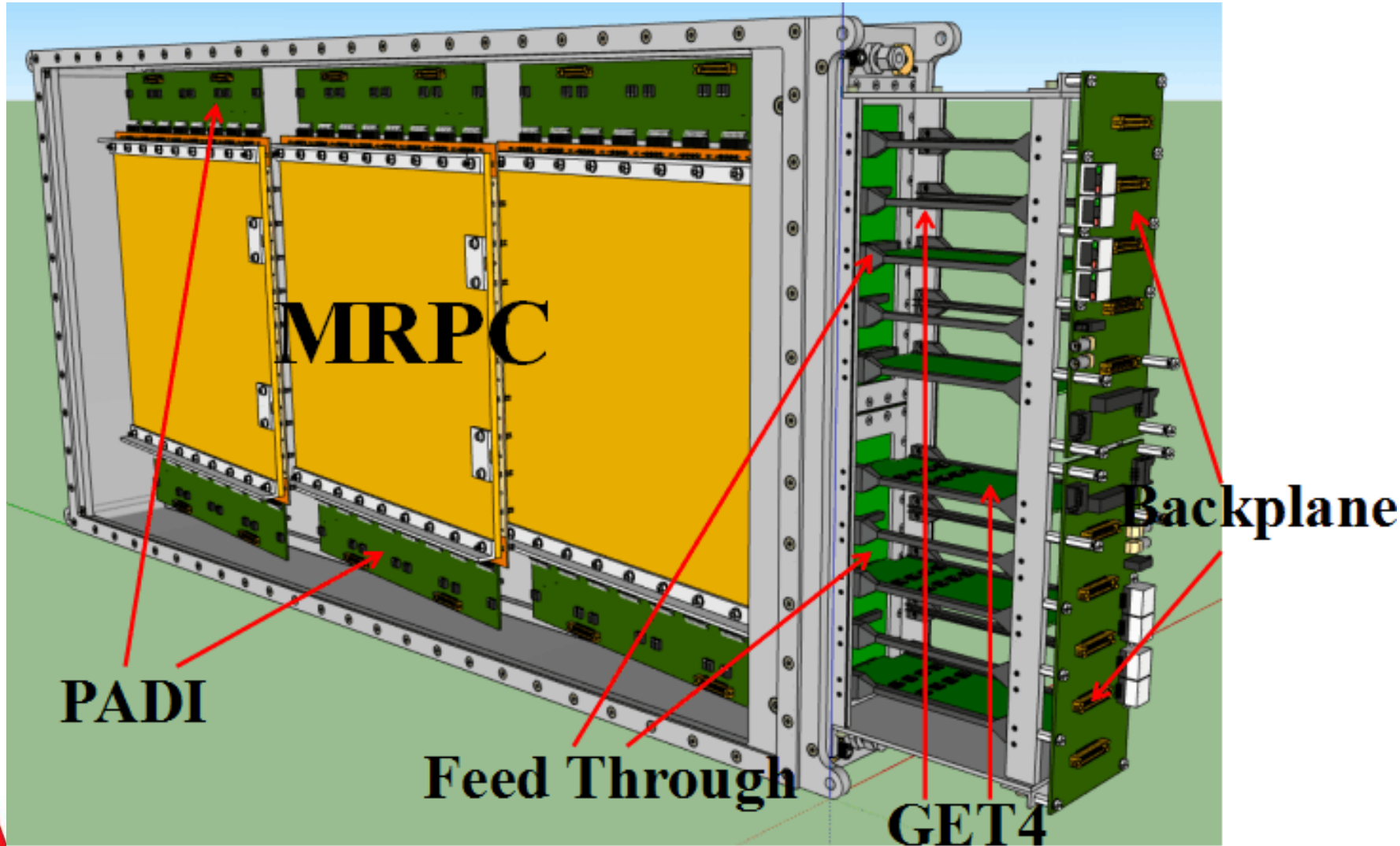


- PADI Boards Production Status
- GET4 Boards Production Status
- Feed Boards Through Production Status
- Backplane Boards Production Status
- Test_TDC Boards Production Status
- AFCK Boards Production Status
- Summary

Setup in run for eToF 2018

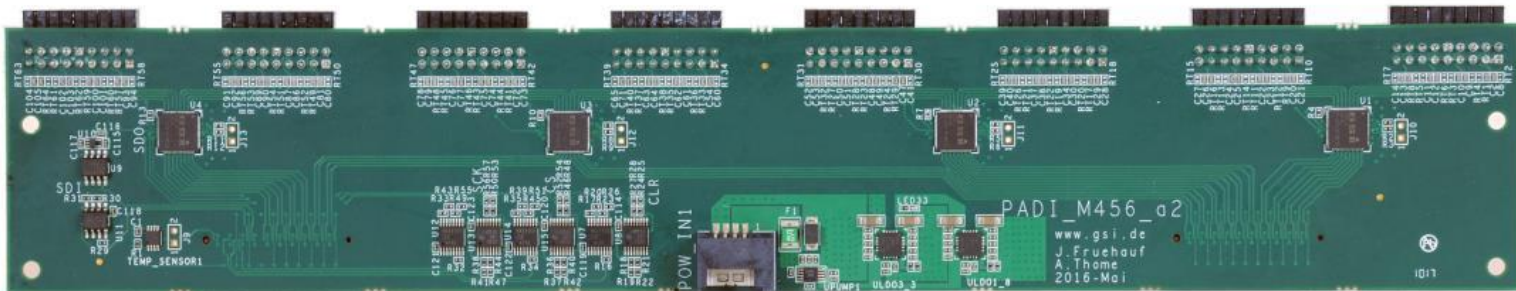
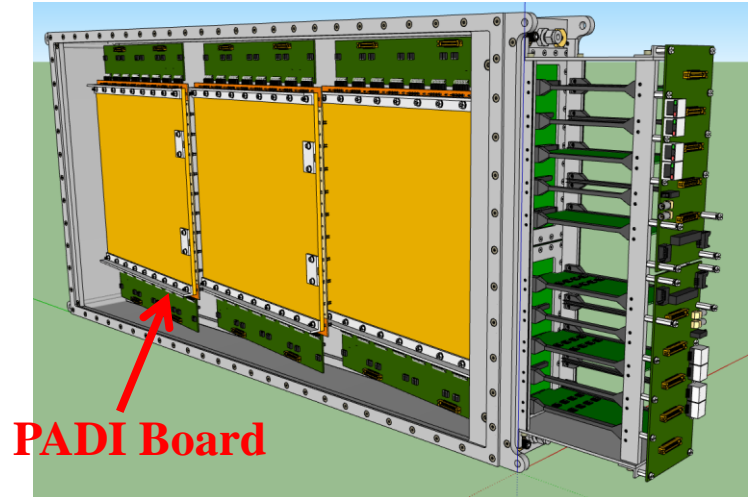


Electronic Boards Need to be Produced CBM ToF



Production of PADI

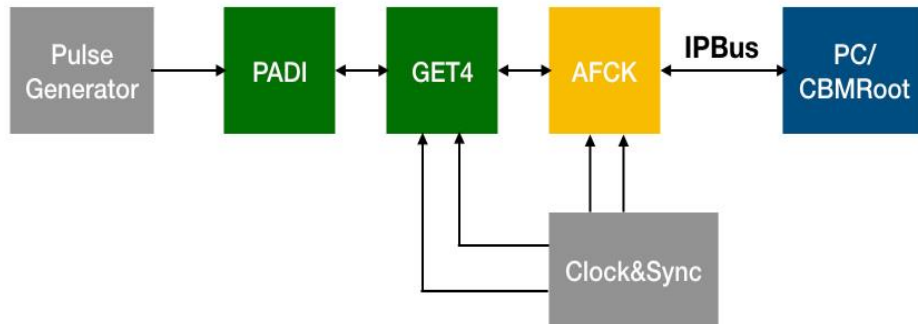
- **The 1st pre-production:** 27 x PCBs, finished on March 15, 2017.
- **The 2nd pre-production:** 20 x PCBs, finished on June 15, 2017.
- **The 3rd pre-production:** 263 x PCBs, finished on July 15, 2017.



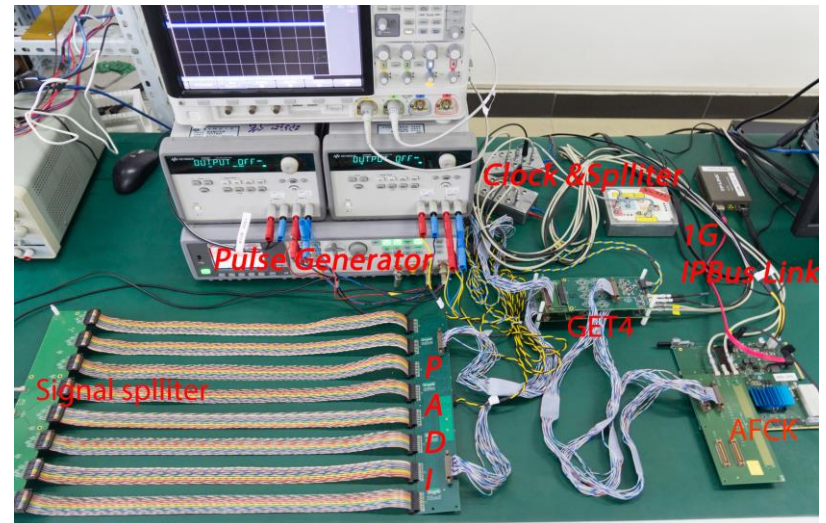
PADI PCB

Testing Setup of PADI

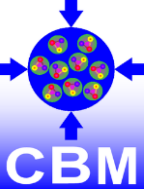
- **Test:** Each PADI and GET4 (GSI Event - Driven TDC with 4 channels) PCB has 32 channels in total.



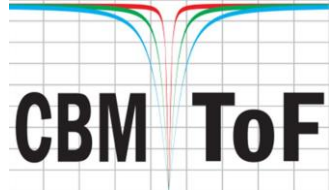
Data acquisition system structure block diagram



The test platform



PADI Board Test Result at CCNU



Test Result of the 3rd Production of 264 PADI Boards

- **Time Resolution:**

Time resolution of each Board is lower than 35 ps.

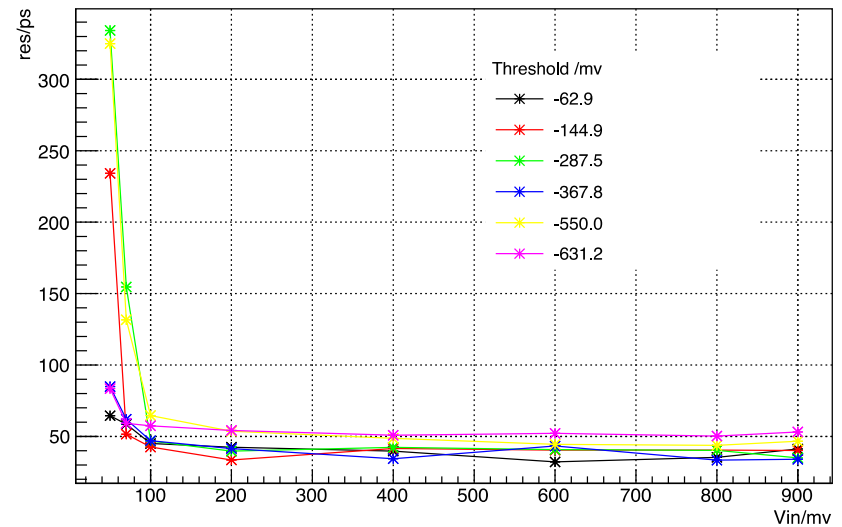
- **Test results:**

Power supply voltage: 3.8v

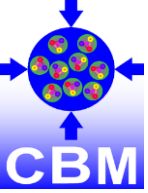
Average current: 0.480A

power consumption: 1.824W

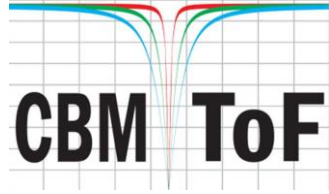
Time Resolution (Chn8 vs Chn1, #56)



#56 PADI PCB Resolution Test Result



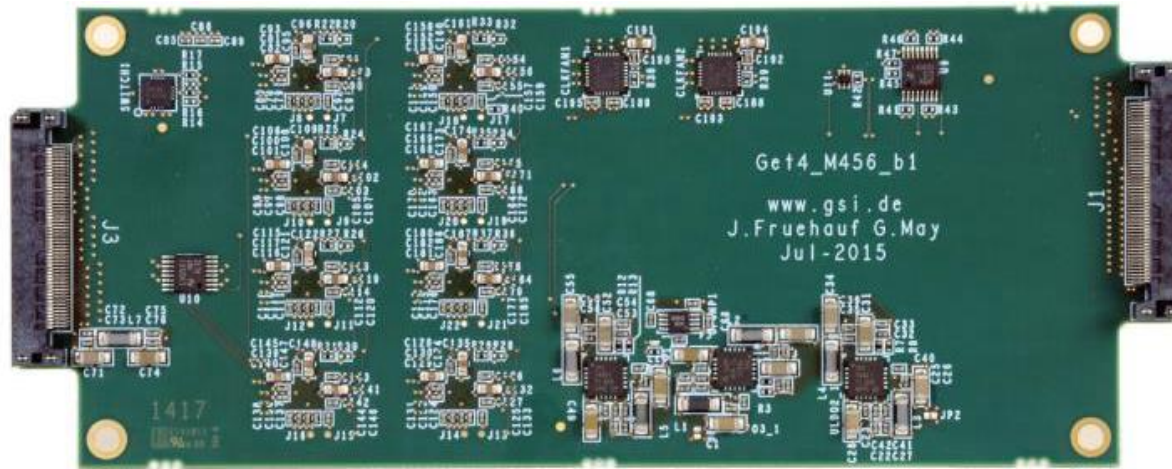
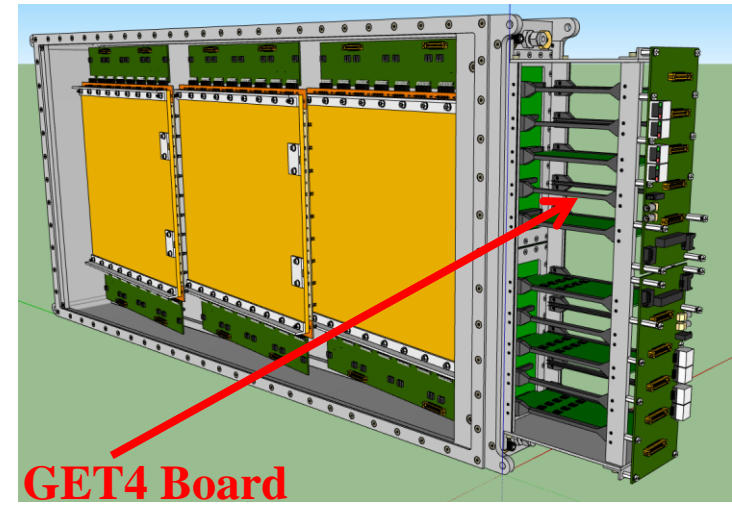
Future Plan on PADI Boards Production



- **Additional 50 PADI Boards will be produced soon which is required by Jochen a few days ago.**
- **We need about 2 months to prepare the materials and one more month to produce.**
- **The same procedure and test setup will be used.**

The 1st Pre-Production of GET4

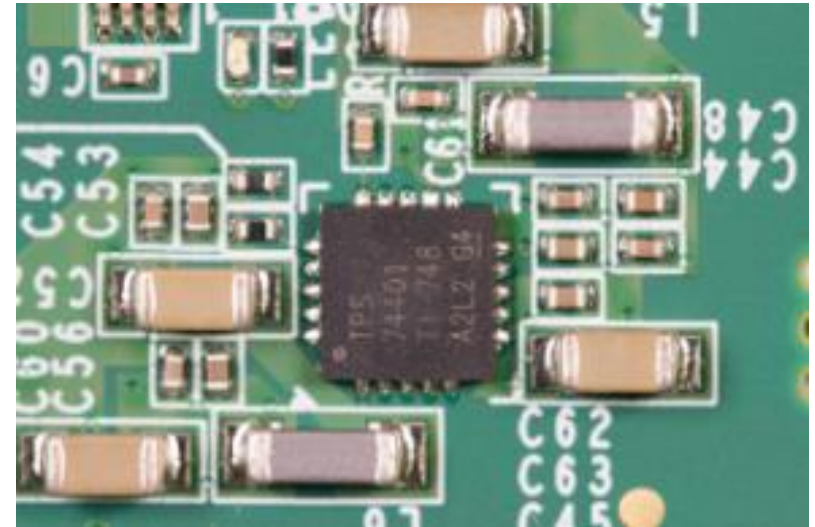
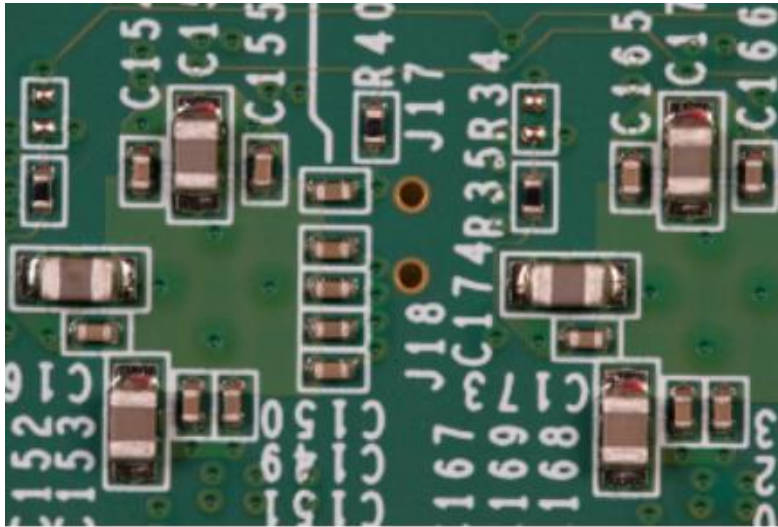
- **The 1st pre-production: 48 x PCBs**, finished on Decembert 7, 2017, had been sent to GSI for testing.
- **42 of 48 GET4 Boards work well.** Another 6 boards are under inspection at GSI.



Get4 PCB

The 2nd Production of GET4

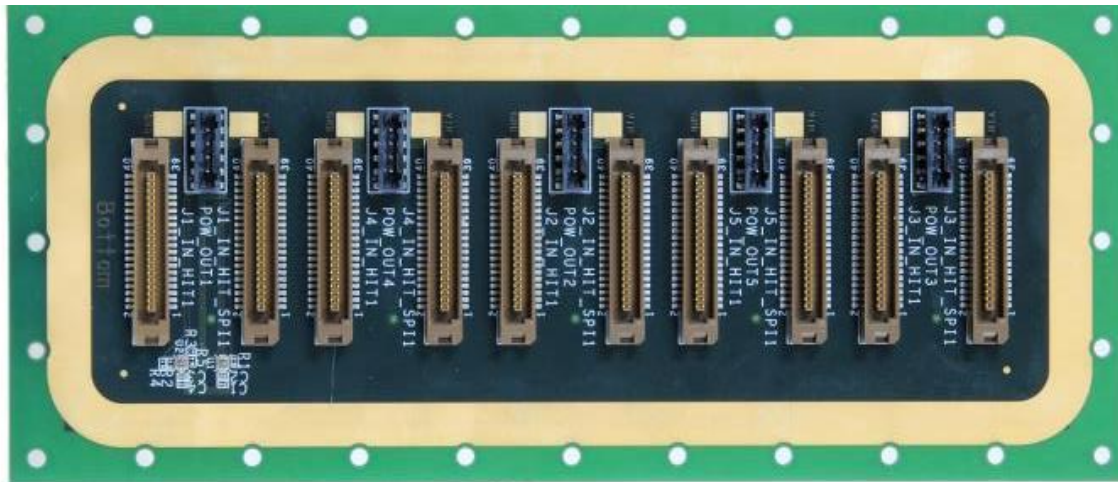
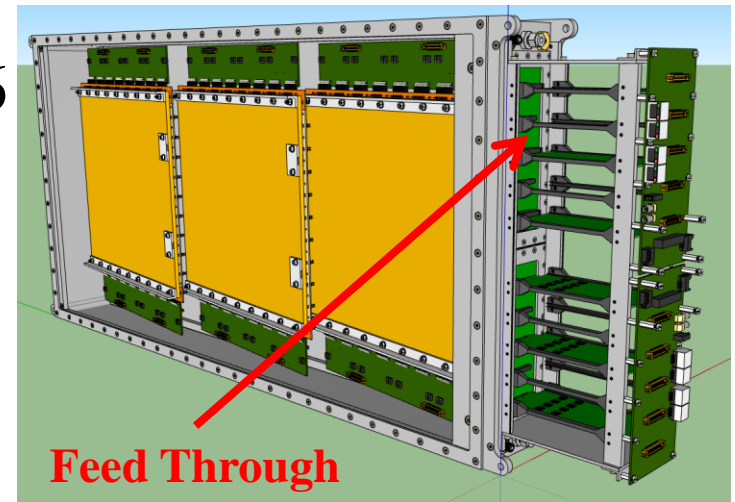
- **The 2nd production:** 264 x PCBs, finished on April 16, 2018, will be sent to GSI after visual inspection in CCNU.



Solder detail pictures of the 1st pre-production GET4 PCBs

The 1st Pre-Production of FT_M456

- **The 1st pre-production:** 9 x PCBs, finished on April 14, 2018, will be sent to GSI after visual inspection in CCNU.

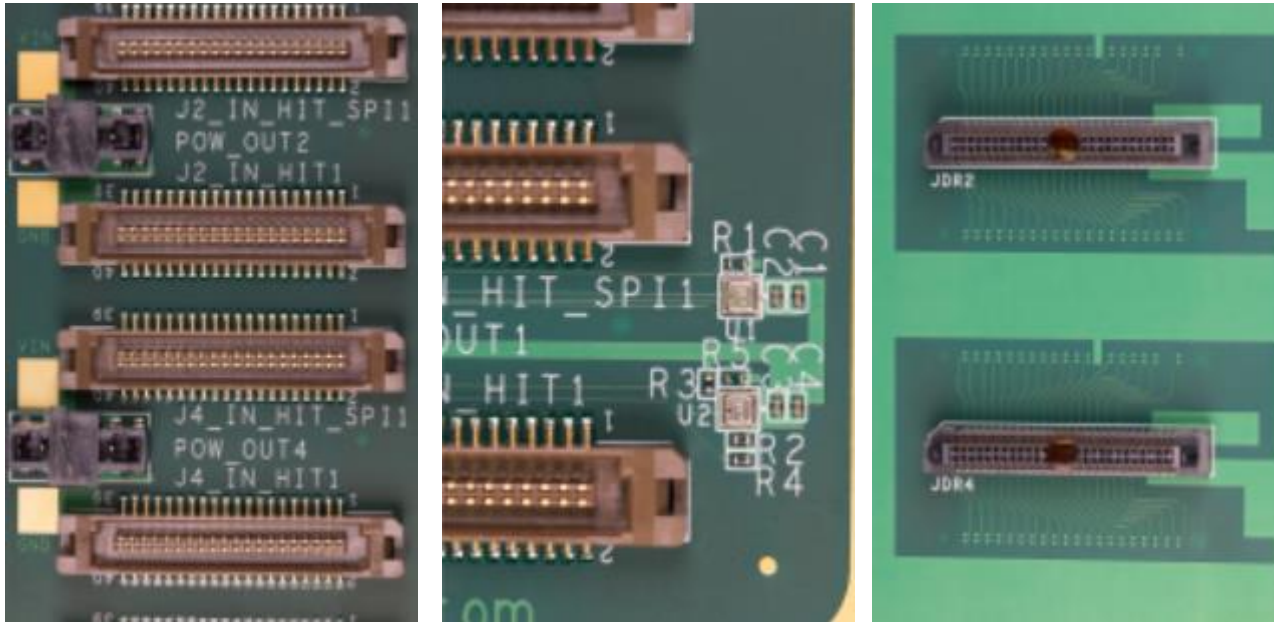


Feed-Through PCB

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The 2nd Production of FT_M456

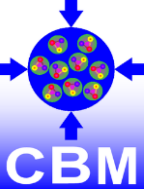
- **Number:** 91 x PCBs
- **Material Prepared Time:** April 30, 2018
- **Estimated Delivery Date:** May 20th



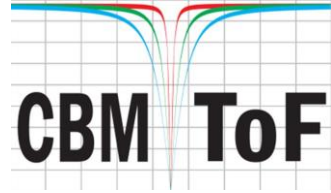
Solder detail pictures of the 1st pre-production FT PCBs

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16-18 April 2018, YiChang HuBei China



Backplane Board Production Status

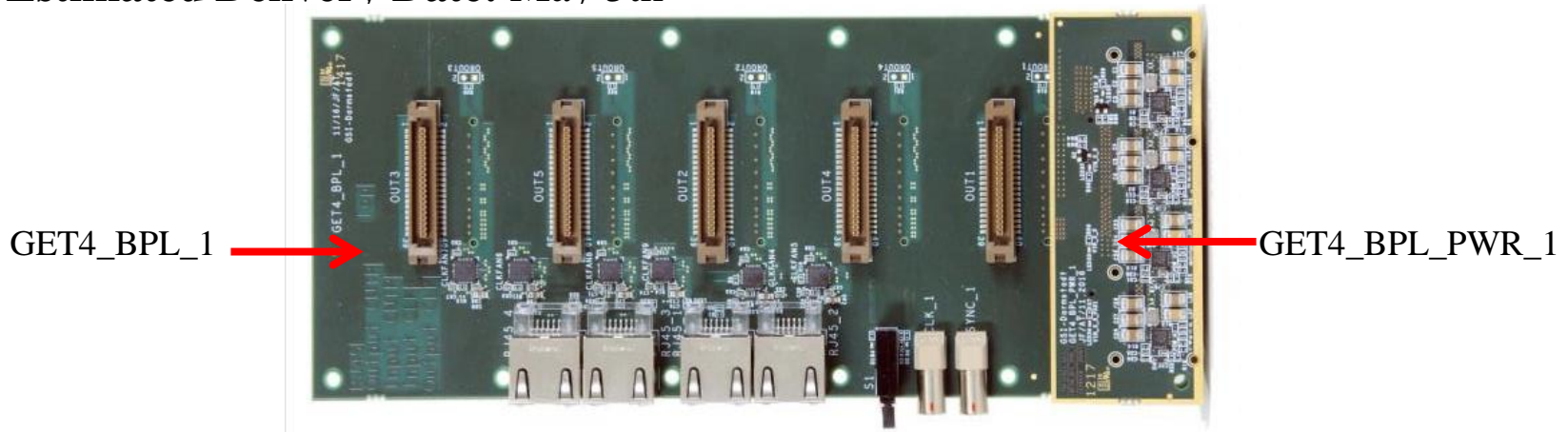
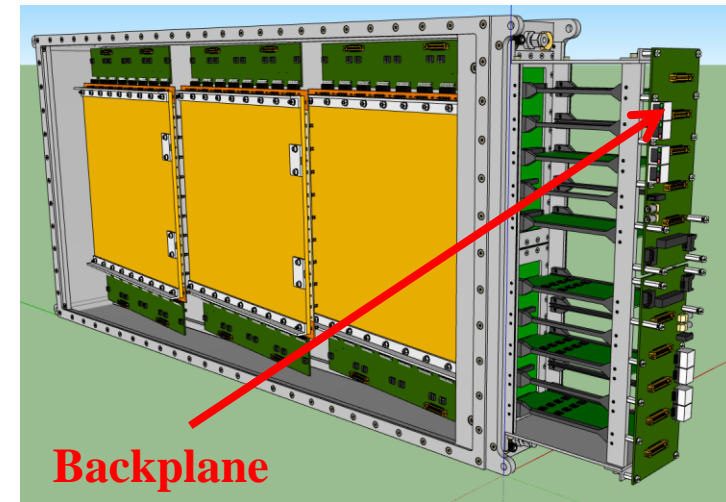


The Production of GET4_BPL_1

- **Number:** 20 x PCBs
- **Material Prepared Time:** April 30, 2018
- **Estimated Delivery Date:** May 15th

The Production of GET4_BPL_PWR_1

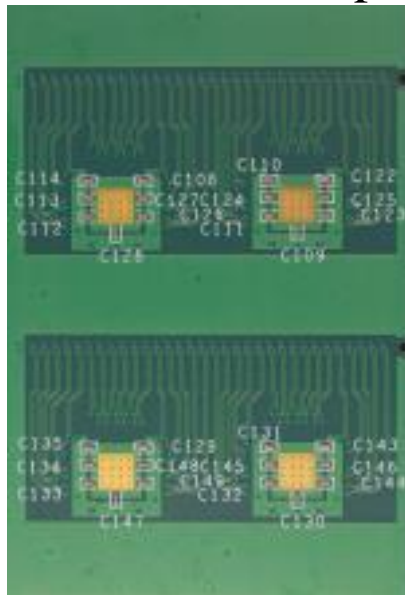
- **Number:** 30 x PCBs
- **Material Prepared Time:** April 15, 2018
- **Estimated Delivery Date:** May 5th



Backplane PCB

Production of Test_TDC

- **The 1st production:** 8 x PCBs, finished on April 14, 2018, 4 of the 8 will be sent to GSI after visual inspection in CCNU.



Solder detail pictures of Test_TDC PCBs



Test_TDC PCB Front



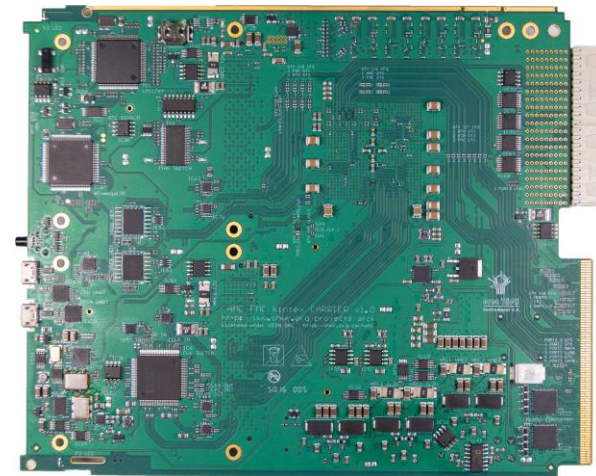
Test_TDC PCB Back

Production and Debugging of AFCK

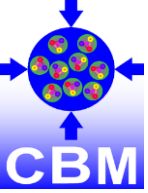
- **Produce:** Five pieces of AFCK (AMC FMC Carrier with Kintex 7) (V1.0) circuit board were produced.
- **Test:** The basic function of AFCK board has been test. And they can work properly.



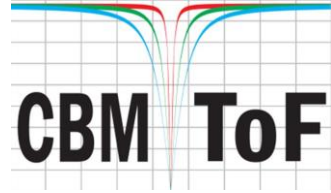
AFCK PCB Front



AFCK PCB Back



SUMMARY



Work Completed

- 310 PADI boards have been produced and have already send to GSI.
- 48 GET4 boards have been produced and have already send to GSI.
- 9 Feed Through boards have been produced and will be sent to GSI soon.
- 8 Test_TDC boards have been produced and 4 boards will be sent to GSI soon.
- 264 GET4 boards have been produced and will be sent to GSI soon.

Future Plan

- 50 PADI boards will be produced within 3 months.
- 91 Feed Through boards will be produced on May 15th.
- 20 GET4_BPL_1 boards will be produced on May 15th.
- 30 GET4_BPL_PWR_1 boards will be produced on May 20th.