

# Computer Node Status

Jingzhou ZHAO, [zhaojz@ihep.ac.cn](mailto:zhaojz@ihep.ac.cn)

ZhenAn LIU, [liuza@ihep.ac.cn](mailto:liuza@ihep.ac.cn)

**Trigger Lab ,IHEP Beijing**



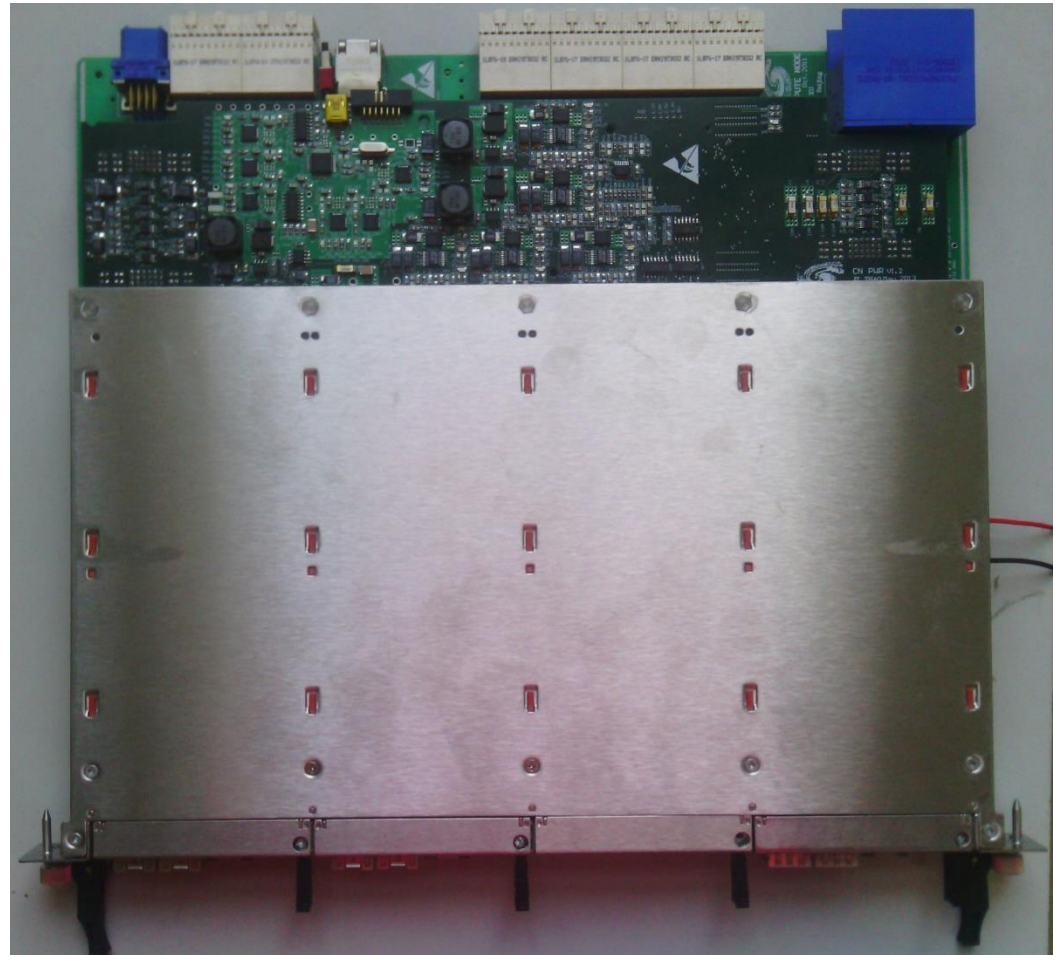
# Outline

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- Review of Computer Node for PXD
- xFP board status
- CN Carrier board upgrade
- Carrier Power Module status
- MMC module status
- Summary

# Review of Computer Node for PXD

- CN ( Computer Node ) for PXD consists of 4 xFP cards, CN carrier board, Carrier Power Module and IPMC/MMC module.
- xFP cards had three version design,
- Carrier board had one version design,
- Carrier power module had two version design,
- MMC module had two version design.



# xFP board status

## ■ xFP cards had three version design

- Version 1.0 has 2 SFP ports,
- Version 2.0 has 4 SFP ports with 3 RocketIO ports for interconnection( port6, 9, 12)
- Version 3.0 has 4 SFP ports with 3 RocketIO ports for interconnection( port6, 10, 12),

## ■ Version Production

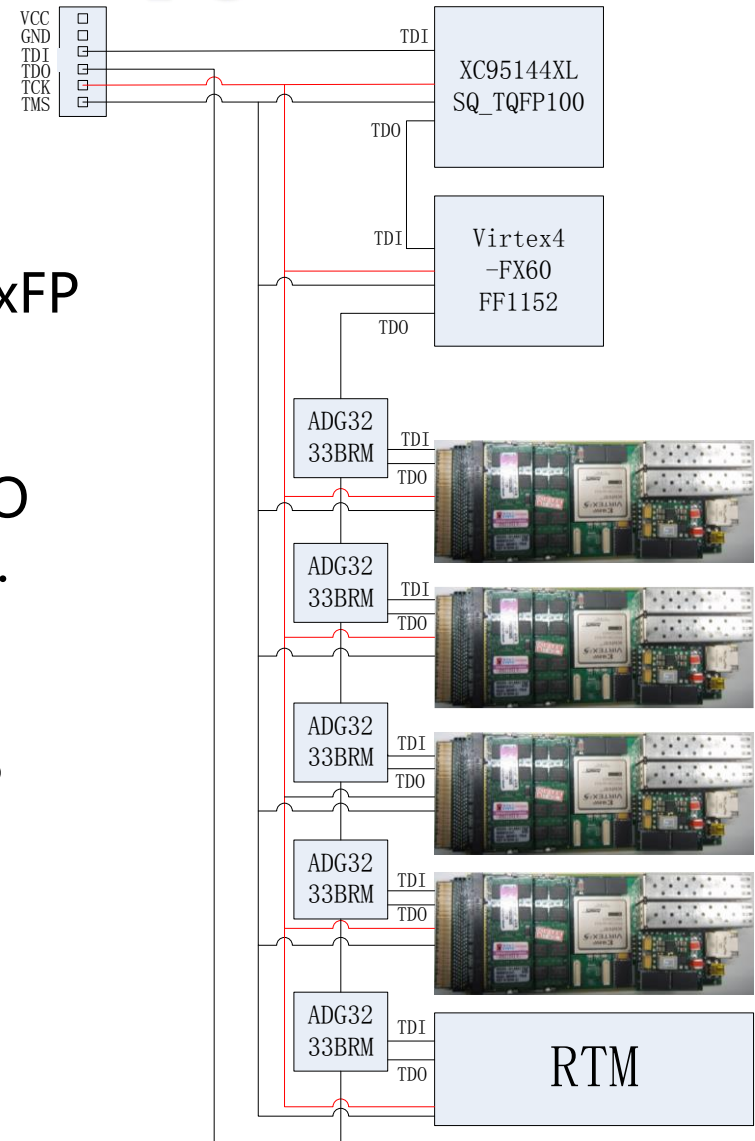
- First Production, 4 Produced (3 in Giessen, 1 in IHEP Beijing)
- Second Production, 10 produced (8 in Giessen, 2 in IHEP Beijing).



# CN Carrier Board upgrade(1)

## ■ JTAG Link in CN Carrier

- JTAG debugger, CPLD, V4-FX60, 4 xFP cards and RTM card consists one JTAG TDI/TDO Ring
- ADG3233 used for switch TDI/TDO connection of xFP and RTM cards.
- All TCK signals are connected through one line.
  - Star topology will form when xFP cards insert in CN carrier board.
  - This will affect signal integrity of TCK signal.

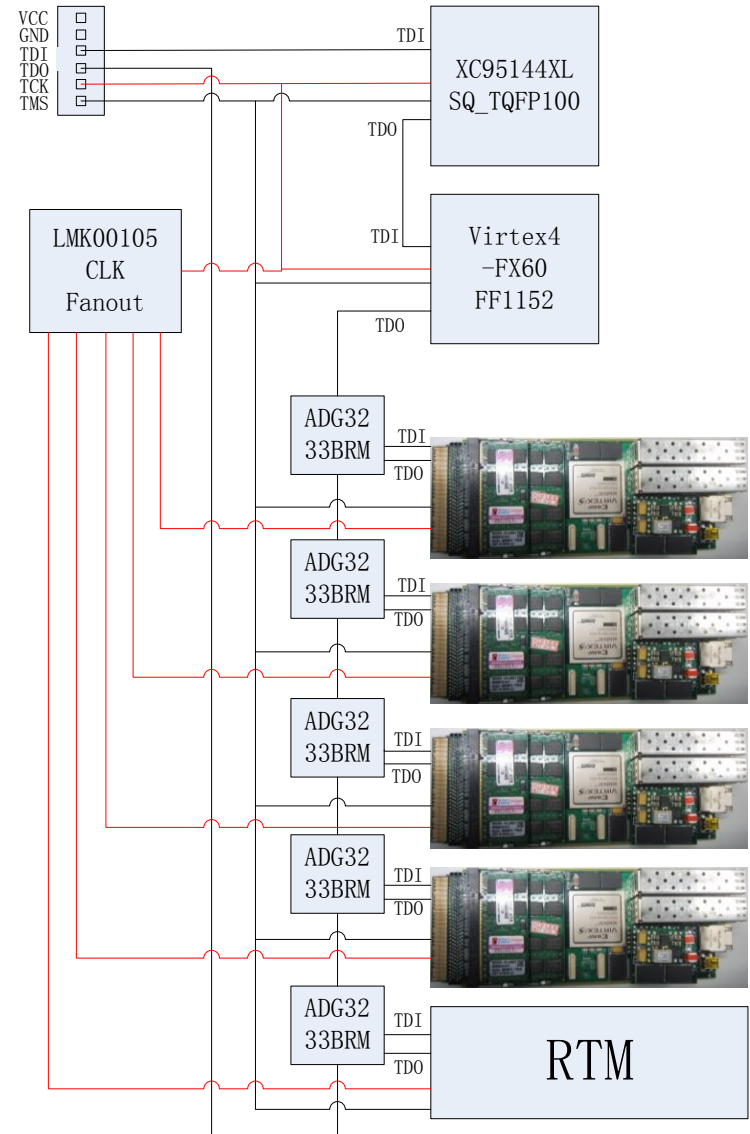




# CN Carrier Board upgrade (2)

## ■ JTAG link upgrade

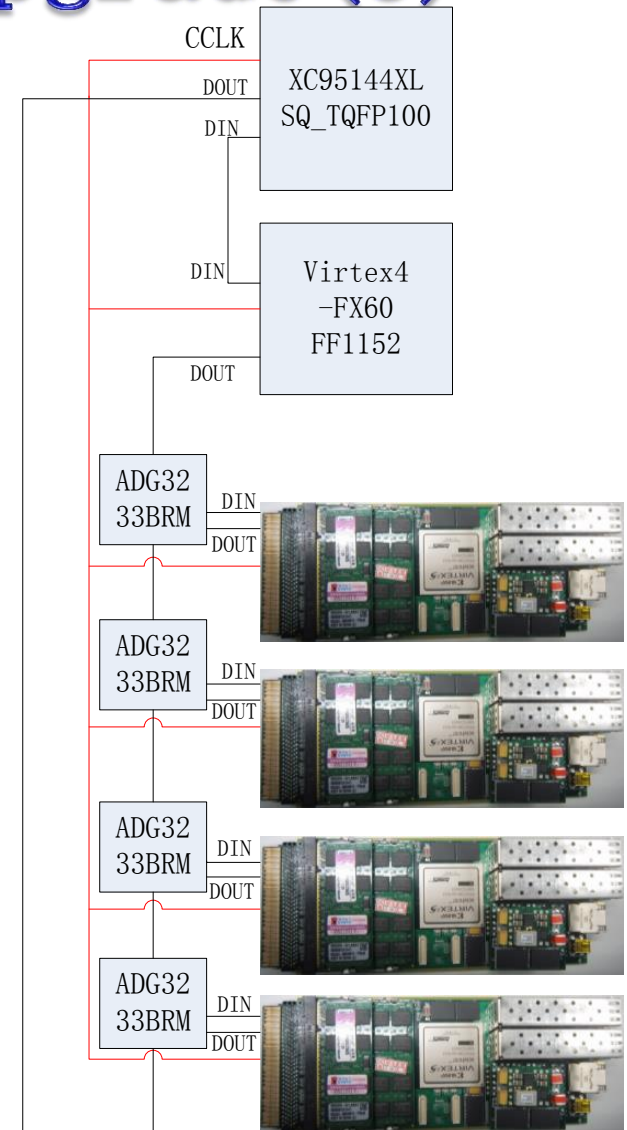
- Connection of TMS, TDI, TDO remains the same.
- TCK is fanned out by LMK00105.



# CN Carrier Board upgrade (3)

## ■ Serial Configuration on CN Carrier Board

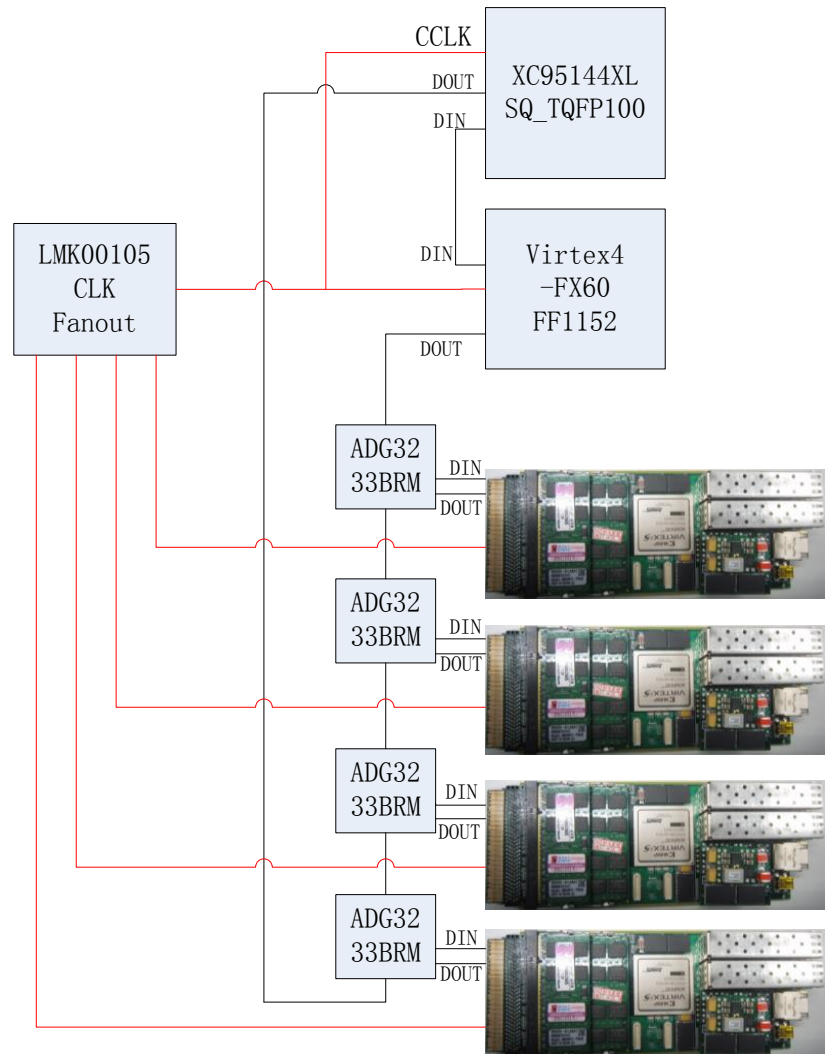
- CPLD, V4-FX60, 4 xFP cards consists one Serial DIN/DOUT Ring
- ADG3233 used for switch DIN/DOUT connection of xFP cards.
- All CCLK signals are connected through one line.
  - Star topology



# CN Carrier Board upgrade (4)

## ■ Serial Configuration Upgrade

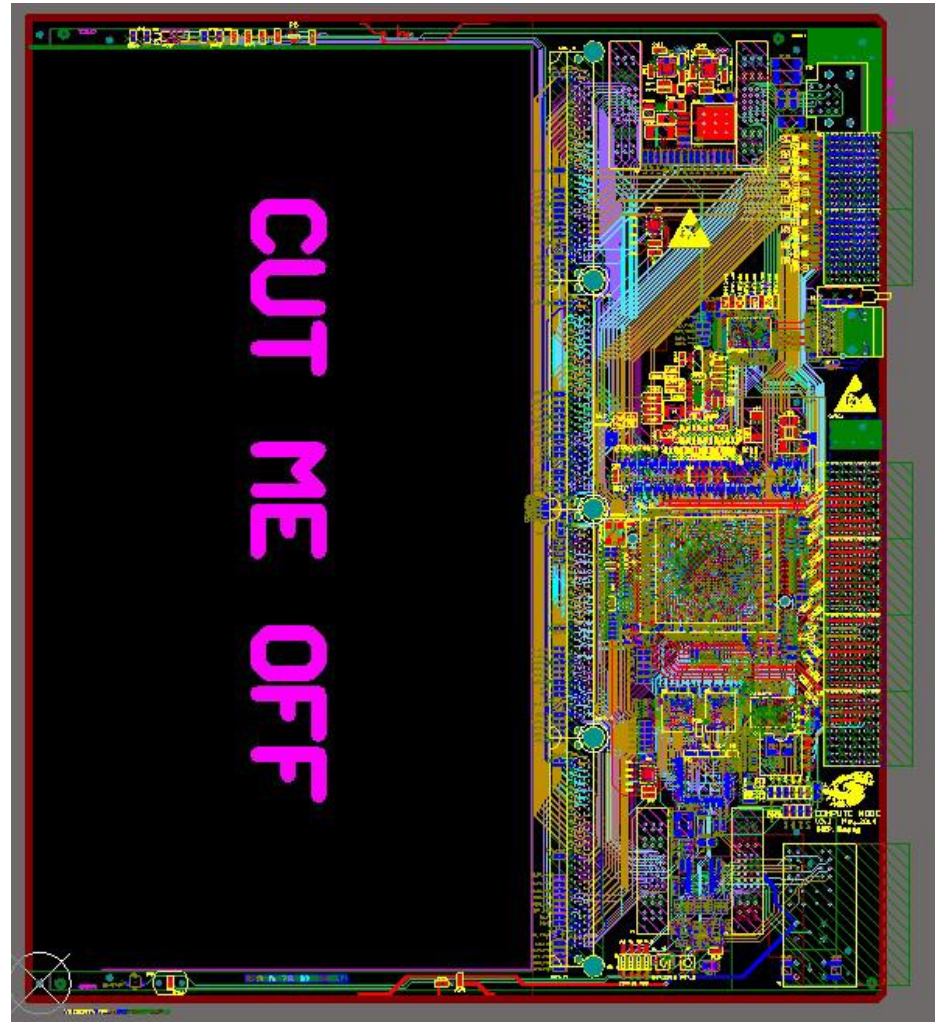
- Connection of DIN, DOUT remains the same.
- CCLK is fanned out by LMK00105.





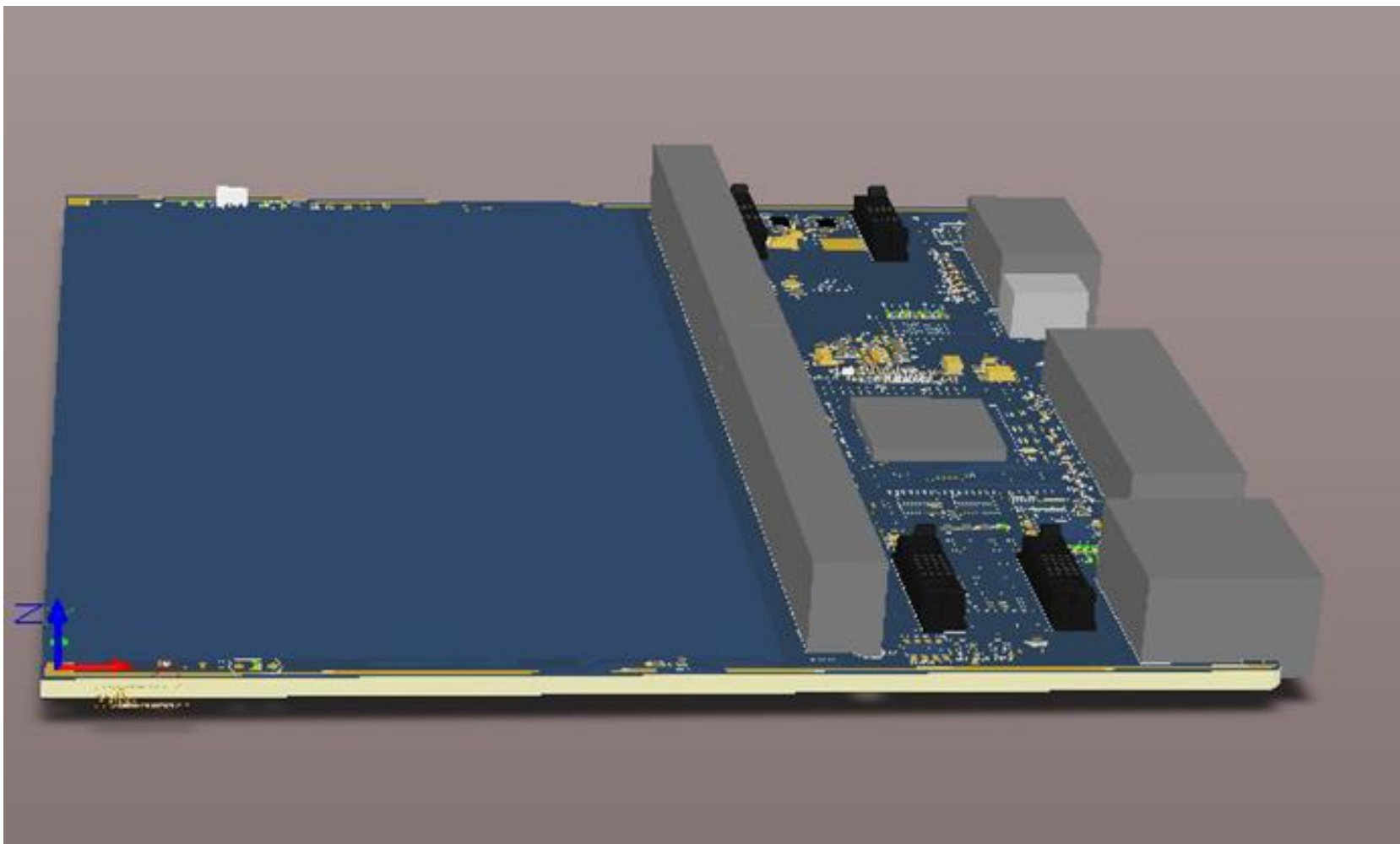
# CN Carrier Board upgrade (5)

- PCB layout of CN carrier board has been finished.





# CN Carrier Board upgrade (6)





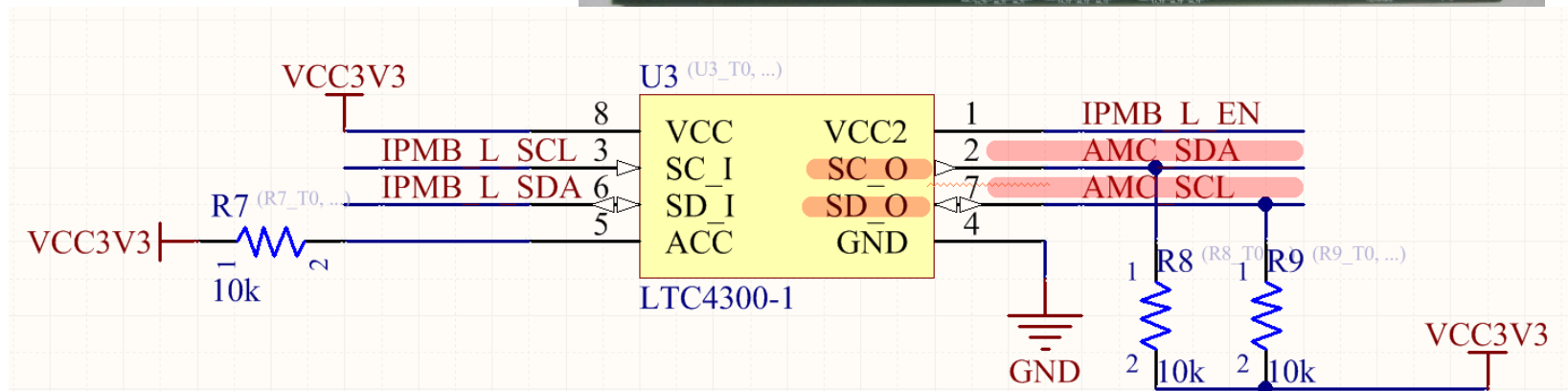
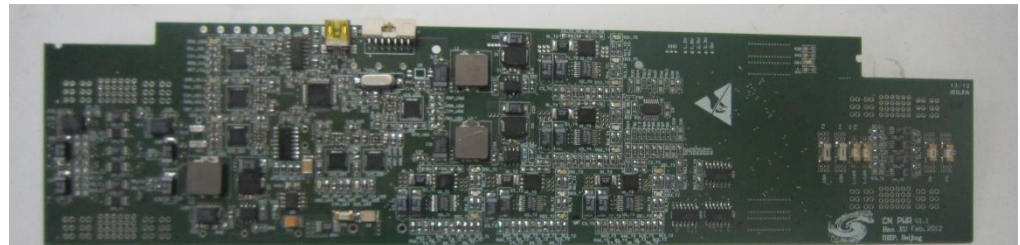
# CN Carrier Board upgrade (7)

## ■ Further Plan

- Next week check PCB layout and buy materials
- Get PCB in 20<sup>th</sup>.June
- Soldering will be finished 4<sup>th</sup>.July
- CN Carrier board will be checked start from 5<sup>th</sup>.July

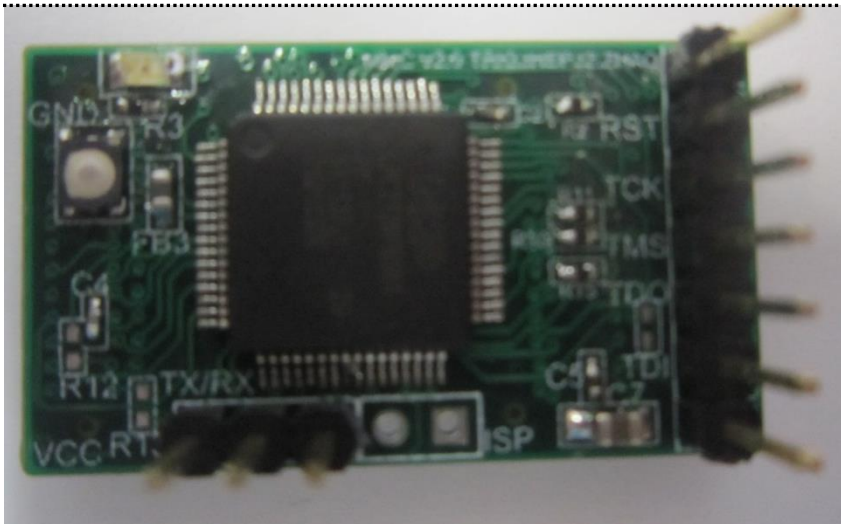
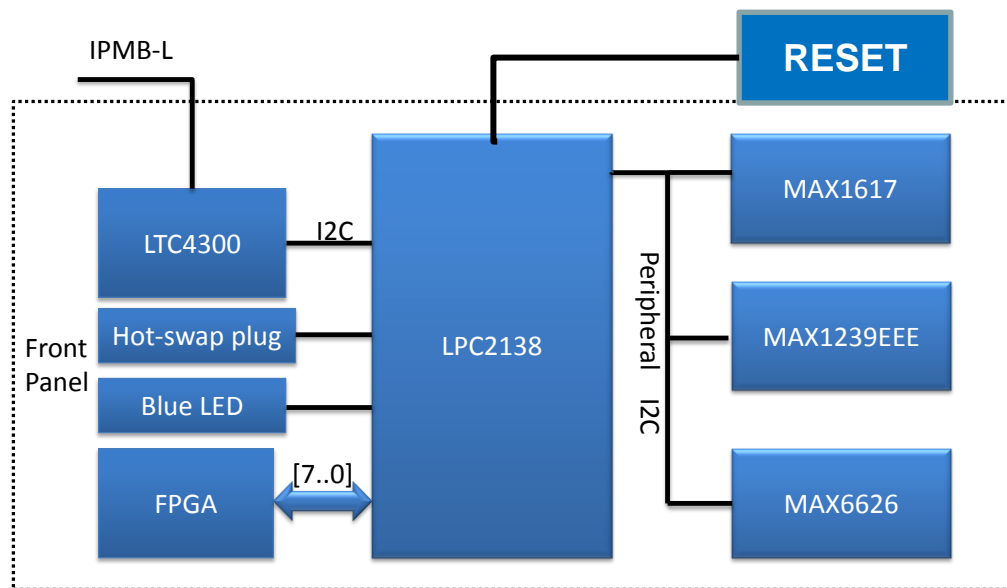
# Carrier Power Module Status

- Three versions has been designed.
- IPMC connector position and UART was changed in verion 2.0.
- IN Version 3.0, swapped two signal (AMC\_SDA, AMC\_SCL) of I2C bus on AMC side.
- Now Carrier Power Module V3.0 works well.



# MMC module status(1)

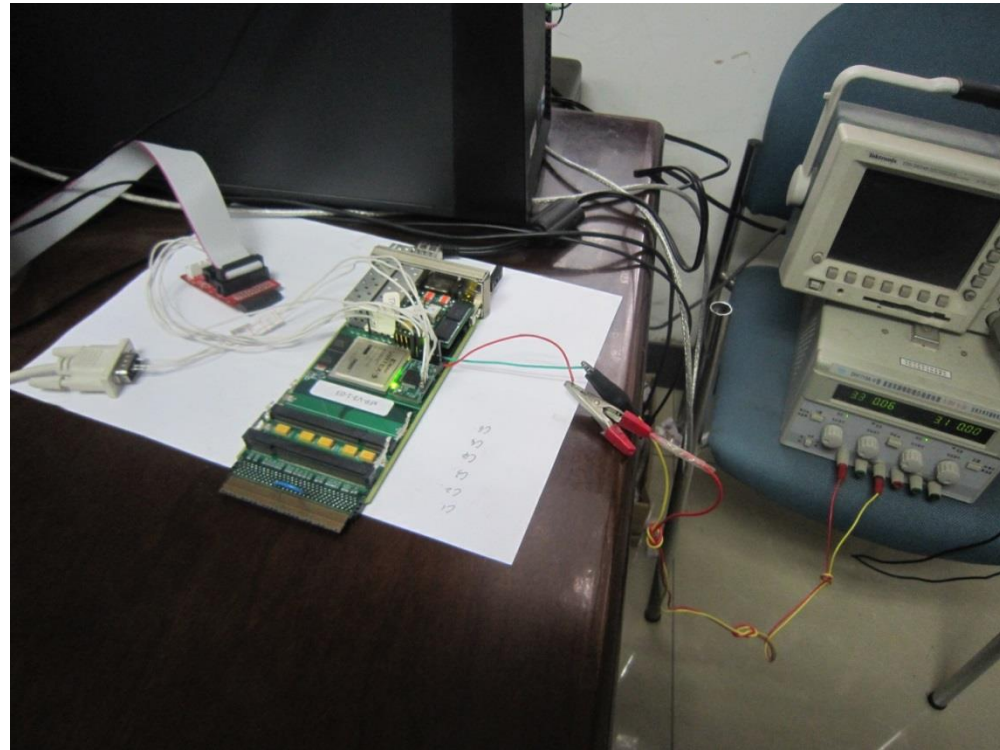
- MMC Module Version 2.0 had been finished.
- Size: 31.5mm x 18mm
- Function:
  - Voltage Measurement function,
  - Temperature Measurement function
  - Hot swap controlling
  - FPGA interconnection
  - I2C buffer
- RESET module added in this version for debugging.





# MMC module status (2)

- Test result
  - GPIO Test
    - LED Flash ✓
  - UART Test ✓
  - I2C device reading. ✓
  - I2C interconnection between two AMC cards on CN Carrier board ✓
- IPMI need to be developed.





# Summary

- xFP V3.0 works well and has been produced two times.
- New version PCB layout of CN Carrier board has been finished.
- Carrier Power Module works well.
- Hardware of MMC works well, IPMI need to be developed.