

Status of ATCA/Onsen at IHEP

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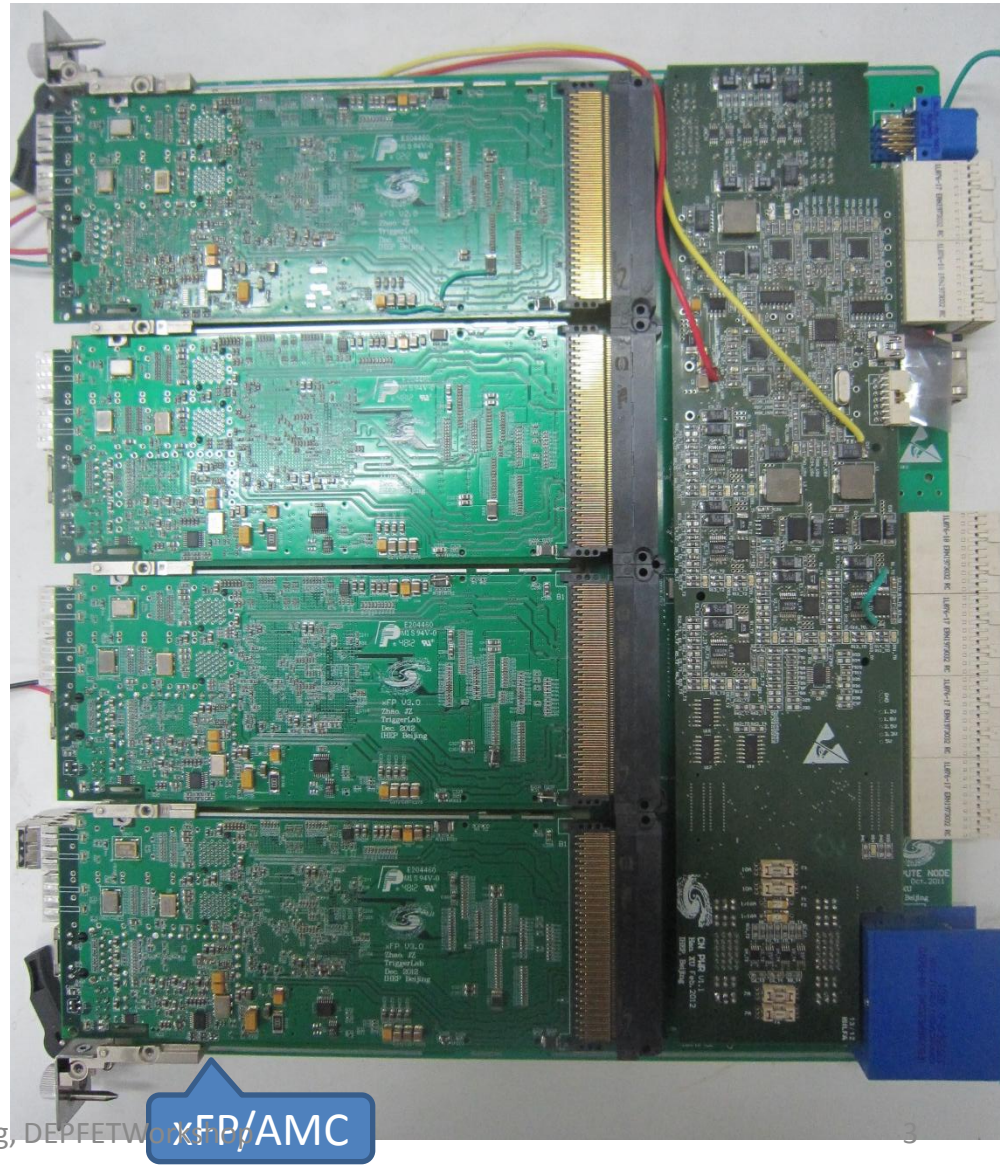
Ringberg Germany, June 15 2013

Outline

- Review of Computer Node for PXD
- Test Conclusion for newest modules
- Carrier PowerModule upgrade
- MMC module upgrade
- Summary

Review of Computer Node for PXD

- Computer Node(CN) for PXD consists of
 - CN Carrier Frame,
 - CN Carrier Host board(Ver.1)
 - CN Carrier Power board(Ver.2) with IPMC card(Ver.1)
 - xFP Cards(Ver.3) with MMC module(Ver.2)



Tests at Beijing and Giessen(1)

- **Carrier Host board W/ Power Board**

- FPGA download ✓
- Ethernet IP ping ✓
- DDR2 200MHz CLK ✓

- **xFP V3.0**

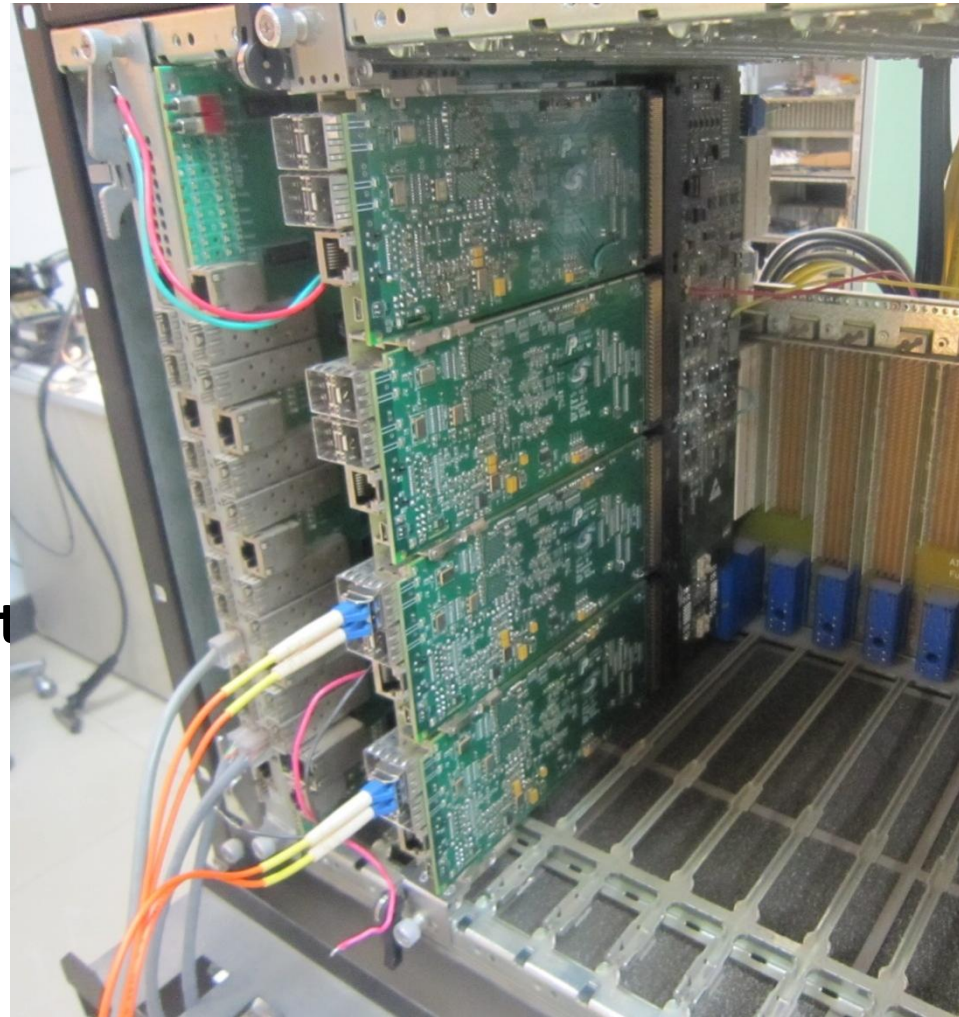
- SFP+ 6.25Gbps ✓
- DDR2 200MHz ✓
- Gigabit Ethernet ✓
- Flash ✓

- **xFP+Carrier board interconnect**

- 4Gbps, 200MHz REFCLK ✓

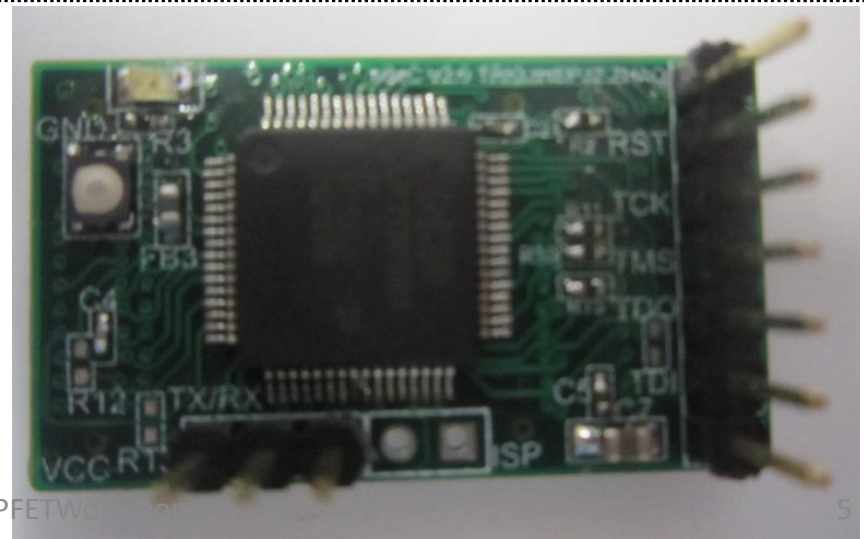
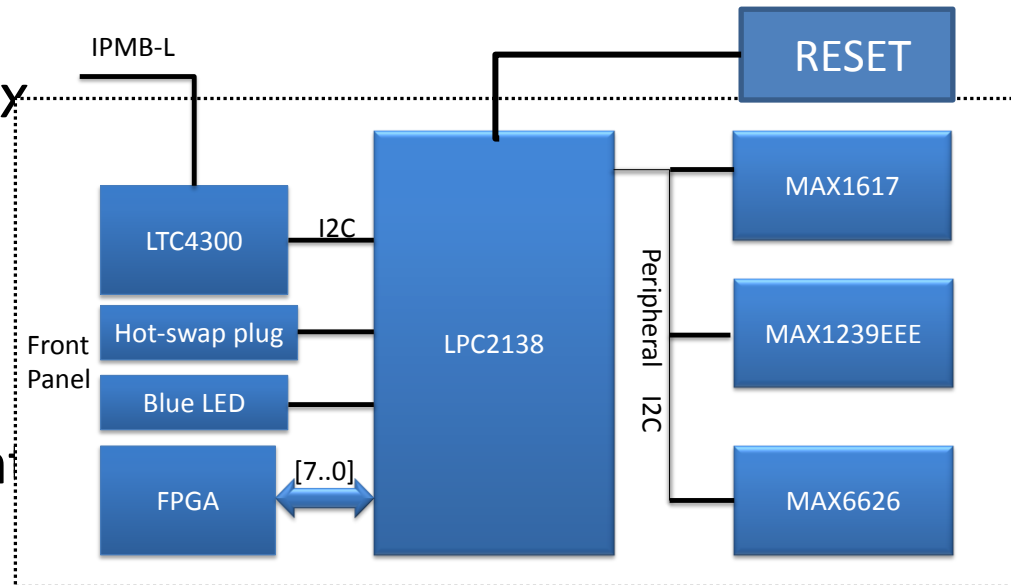
- **xFP+ MTCA shelf interconn.**

- 6.25Gbps, 312.5MHz REFCLK ✓



Tests at Beijing and Giessen(2)

- MMC card Ver. 2.0
- Small Size for xFP: 31.5mm x 18mm
- Function:
 - Voltage Measurement function,
 - Temperature Measurement function
 - Hot swap controlling
 - FPGA connection
 - I2C buffer
- Modification:
 - RESET module added in this version for debugging.



Tests at Beijing and Giessen(3)

- MMC Ver.2 test
 - GPIO Test
 - LED Flash ✓
 - UART Test ✓
 - I2C device reading under going

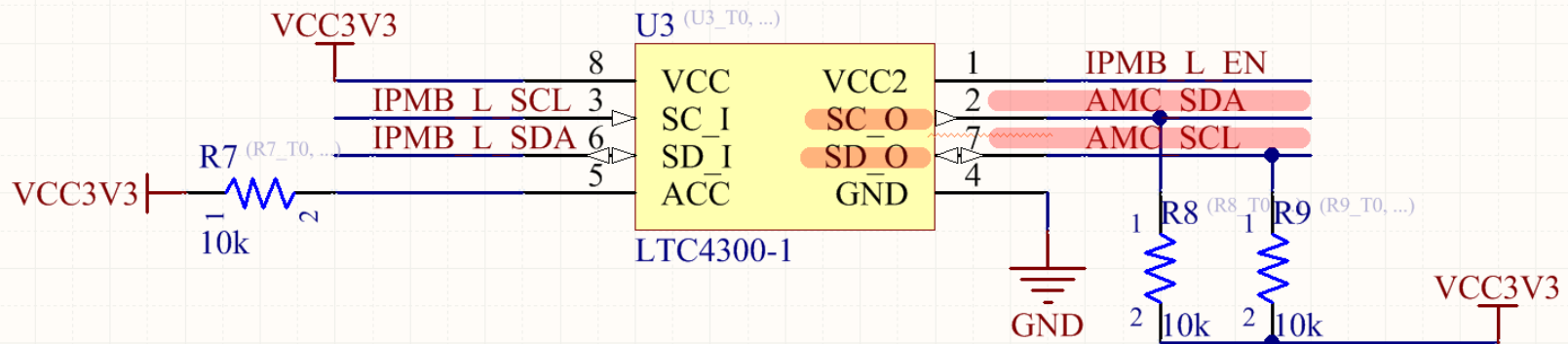


Tests at Beijing and Giessen(4)

- IPMC/MMC test at Giessen: **X failed**
- Reason found at Giessen in May:
 - Buffer of SCL/SDA wrongly routed(swaped)



Signal	Pin	←--- →	Pin	Signal	Error
SCL	3	<->	2	SCL	SDA
SDA	6	<->	7	SDA	SCL



Tests at Beijing and Giessen(5)

- Solution to IPMC/MMC error
 - Redesign Carrier Power Board(Ver.3)
 - Errors corrected
 - More resistors for easy testing
 - Ver. 3 has been sent to Factory for PCB
 - To be soldered and tested in July

Tests at Beijing and Giessen(6)

- Another Problem found in DESY experiment
 - PowerPC reboot when
 - More xFP in MTCA shelf and
 - One xFP downloading
 - Reason: unknown yet
 -

Future Plan

- Further tests for PowerPC rebooting
 - Tests on CN carrier board
 - Remove resistors for serial downloading
- MMC recoding
 - Jingzhou will visit Giessen in Aug
 - Coding for IPMC and MMC
- IPMC/MMC Test in Giessen in August(Thomas + Jingzhou)
 - xFP with xFP
 - xFP with MTCA shelf
 - xFP with Carrier Board w/ new power board

Summary

- xFP works fine in DESY experiment
- MMC coding in August
- Design error in Power Board found, New ver. comes back in July and test continue
- PowerPC rebooting problem found, reason unclear yet, under investigating