

# New Development of Compute Node based on xTCA

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BelleII SVD-PXD Meeting, Vienna, Austria

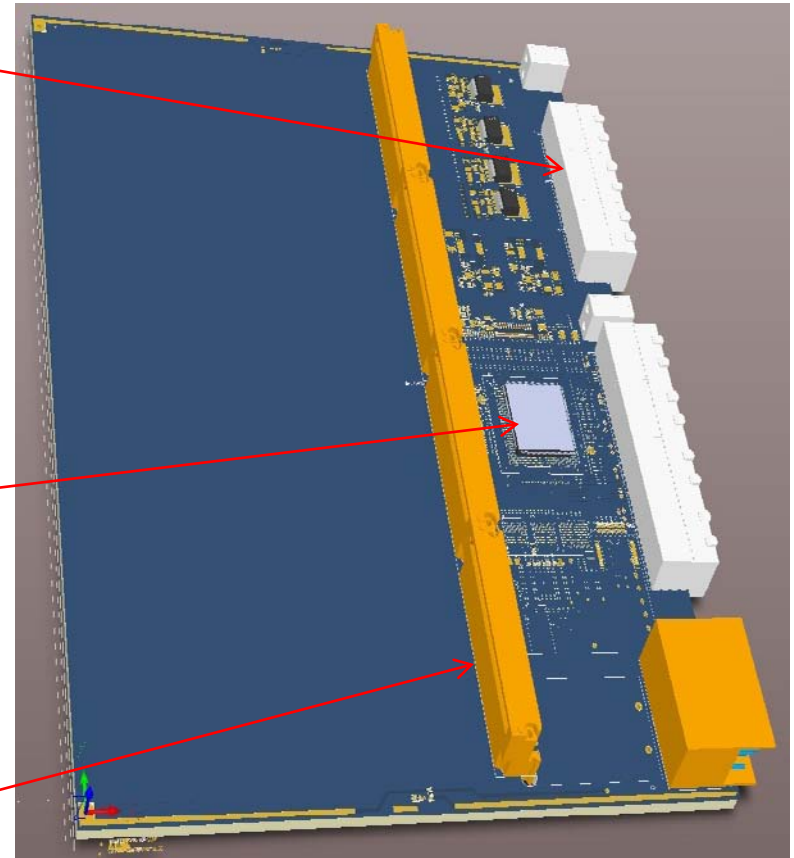
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# Outline

- Development for PXD
  - New computer Node
  - Carrier Board progress
  - AMC card progress
- AMC development for SVD DATCON
  - Requirement
  - status
- Summary

# Development for PXD (1)

- New Compute Node
  - Carrier Board Board of ATCA size (8U high), compliant to xTCA
  - One V4 FPGA on Carrier Board for switching
  - 4 AMC cards with V5(w PPC,70t)



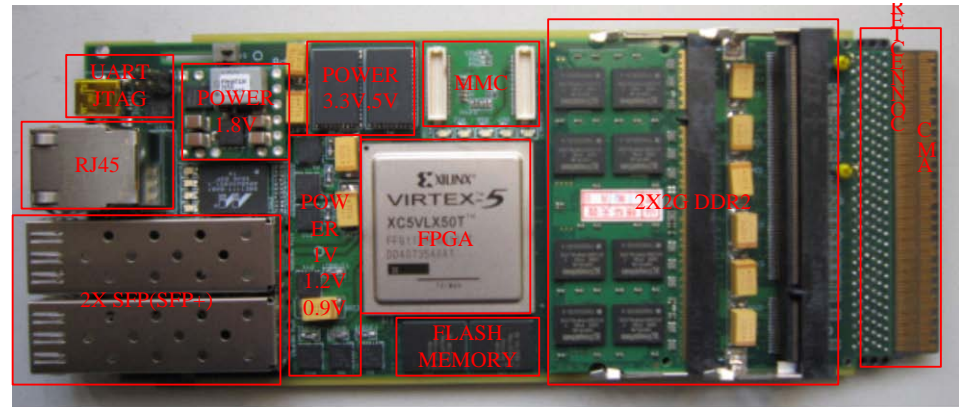
# Development for PXD (2)

- Status of Carrier Board(Carrier + Power +Case)
  - Carrier Board Board soldered Nov. 2011
  - Power Board solder in Jan. 2012
  - Testing both in Giessen and IHEP
  - Power card OK at Giessen(soldering problem found at IHEP)
  - Function test under going



# Development for PXD (3)

- AMC (xFP) card
    - xFP 1.0 with 50T FPGA tested OK at IHEP Aug. 2011
    - xFP 1.0 with 70T FPGA(w PPC) tested at JLUG Oct. 2011
    - Main problems found
      - DDR2\_RW speed low
      - Pin assignment error
- ◆ Single DDR2 test(50t/70t)



DDR2	clock	R/W speed
DDR2_A	200M	400MHz
DDR2_B	167M	334MHz

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◆ Double DDR2 joint test(50t/70t)

DDR2	clock	R/W speed
DDR2_A_B	167M	334MHz

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DDR2_A_B	167M	334MHz

# Development for PXD (4)

## xFP1.0 Upgrade to xPF 2.0

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### xFP V1.0 function list

- SFP 6Gb/FPGA ( 2x3Gb/s )
- 2xDDR2 4GB ( 2x2GB )
- 2xFlash (512Mbit)
- **No Platform Flash**
- 1x Gbit Ethernet
- 1x UART
- IPMC/MMC

### xFP V2.0 changes

- **1x Platform Flash**
- **Pin assignment change**
- **New DDR2 routing**
- **Power supply device**

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### Upgrade :

1. Platform Flash : self-configuration when power on
2. Power supply: enhanced the supplying current.
3. DDR2 Routing: better speed hopefully

# Development for PXD (5)

- Status of AMC (xFP) card
  - xPF 2.0 come back with Key Components soldered yesterday
  - Problem found
    - Wrong direction of DDR2 sockets
- Plan
  - Has been sent back to factory, come back next week
  - Start testing when back next week



# Development for SVD DATCON (1)

- Requirement from Jochen, Carlos and Michael
  - 2 types of AMCs
    - 50t FPGA, 2 GB RAM, and 4 SFP connectors
    - 110t FPGA, 4 GB RAM, 1 RJ45/PHY and 2 SFP connector
  - Carrier boards
- Plan
  - New design with 4 SFP
  - Share AMC PCB with PXD for 2 SFP
  - Share Carrier with PXD

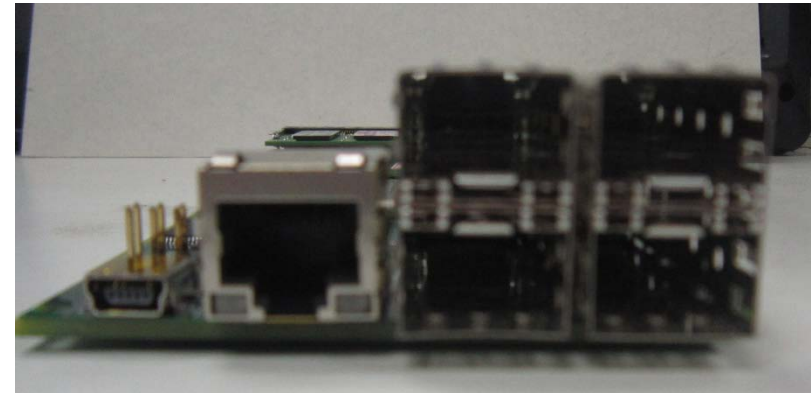


# Development for SVD DATCON (2)

- Status

- AMC with 4 SFP with help of company

- New connector decided
    - Design finished
    - Layout finished
    - PCB produced
    - Expeced next week



- AMC with 2 SFP

- To be soldered after PXD test successful

- Carrier boards waiting for PXD test result

- Plan

- Bonn U. test in March with AMC if basically OK

# summary

- CN Development for PXD
  - Carrier Board is **slow but smoothly**
  - AMC is in good shape
    - Soldering problem lost a week
- CN development for SVD DATCON
  - Well planned after detailed discussion
  - **Now key problem foreseen now**
  - AMC with 4 SFP almost in hand
- Development smoothly in General, by mid of this year, new system be used for functioning test from user, if not satisfactory in March

Thank you for your attention !