Status of Compute Node

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Outline

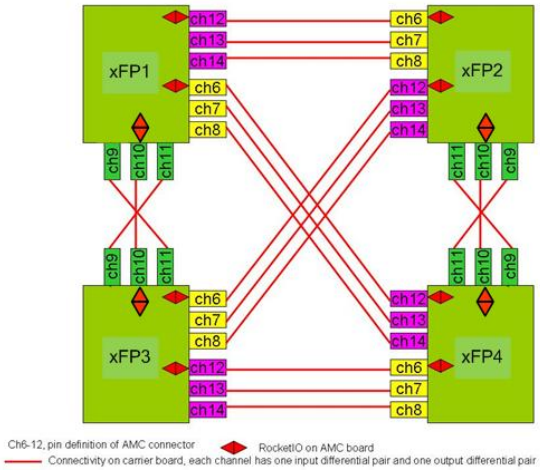
- Design of Compute Node
  - CN carrier board
  - Daughter card: xFP cards
- Status of CN
  - CN carrier board
  - CN Power Module
  - Daughter card: xFP cards
- Summary

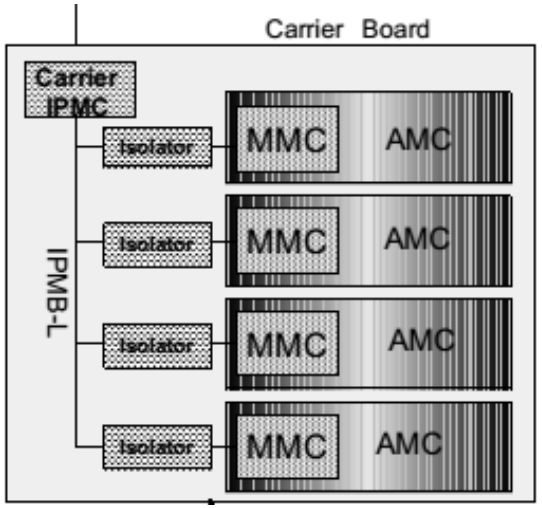
Function of CN

- CN is consist of one carrier board(named CN carrier board)+CN Power Module + 4 AMC daughter cards(named xFP card).
- The carrier board is designed with the function of
  - High performance Processing(V4 FPGA)
  - Interconnection for xFP cards
  - High speed data input/output
  - Management for xFP cards and itself
- The xFP card is designed with the function of
  - Large buffer: 1GB~4GB
  - Receive line rate 2x3.125Gbps
  - Gigabit Ethernet port for data output
  - High performance Processor(V5 FPGA)

Design of CN Carrier Board

- I/O with
  - Inter-connection for Four xFP slots (full mesh)
  - 16 backplane MGT channels
  - 2 GbE RJ45 ports,
  - UART Hub port for carrier board and xFP slots,
- Processor
  - Virtex4-FX60 with PPC405
- Memory
  - 2GB DDR2
  - 64MB Flash (2x32MB)
- IPMC-L bus connection between IPMC and MMCs
- One power module for power supply





Status of CN Carrier Board

- Version V3.2 for Carrier Board
- JTAG download, clock fanout and PHY circuit has been upgraded
- DDR2, Flash, GbE, UART, CPLD programming now works well.
- Upgrade in next version:
  - One line added from IPMI to Flash. It can help IPMI write Flash fast.
  - Changed ADG3233BRM Power supply, CN carrier will configure any slot of xFP cards.
  - Support up to 16 channels backplane MGTs

Status of CN Power Module

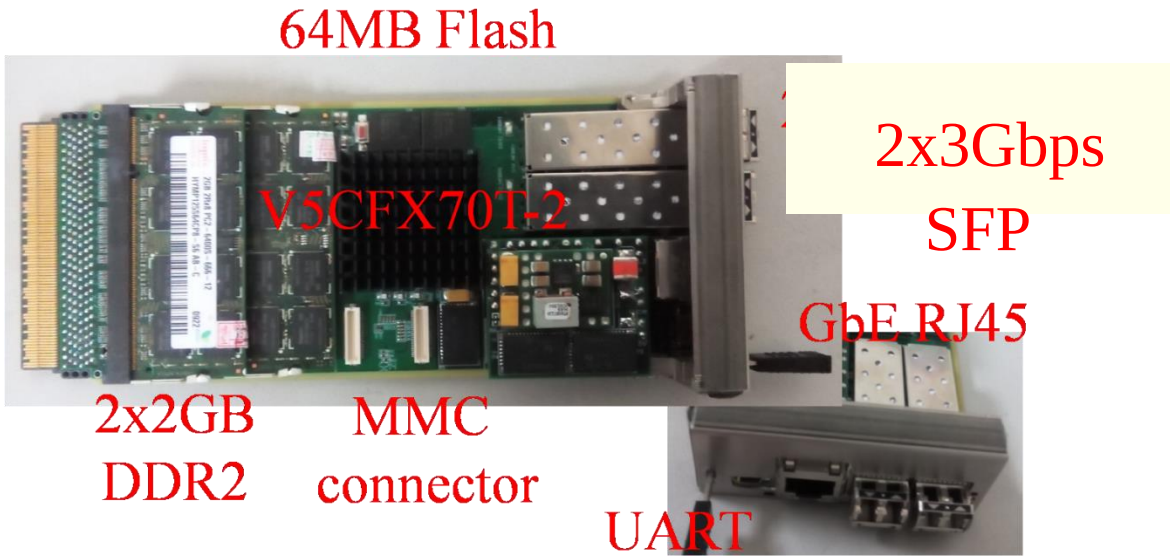
- Version V1.2 for CN Power Module
- UART problem in V1.0 fixed.
- I2C problem in V1.1 fixed.
- Now V1.2 works well.

Design of xFP card

- I/O
  - 2x3.125Gbps SFP
  - 1xGbE RJ45 port
  - AMC backplane I/O(compatible with Carrier Board xFP slot)
  - UART
- Processor
  - Virtex-5 FX70T with PPC440
- Memory
  - Support 1G~4GB DDR2
  - 64MB flash(2x32MB)
  - One 32Mb platform flash
- MMC slot

Status of xFP cards

- The latest version in middle of Jan. 2015.
- xFP V4.0 for PXD
  - 2xSFP , each SFP up to 3.125Gbps
  - Virtex-5 FX70T with PPC440 and GTP
- Preliminary testing was done in Beijing.
- Jan. 19 2015, new version was taken to Giessen by Jingzhou for joint-testing(next page).



Status of xFP cards

Joint test results at Giessen

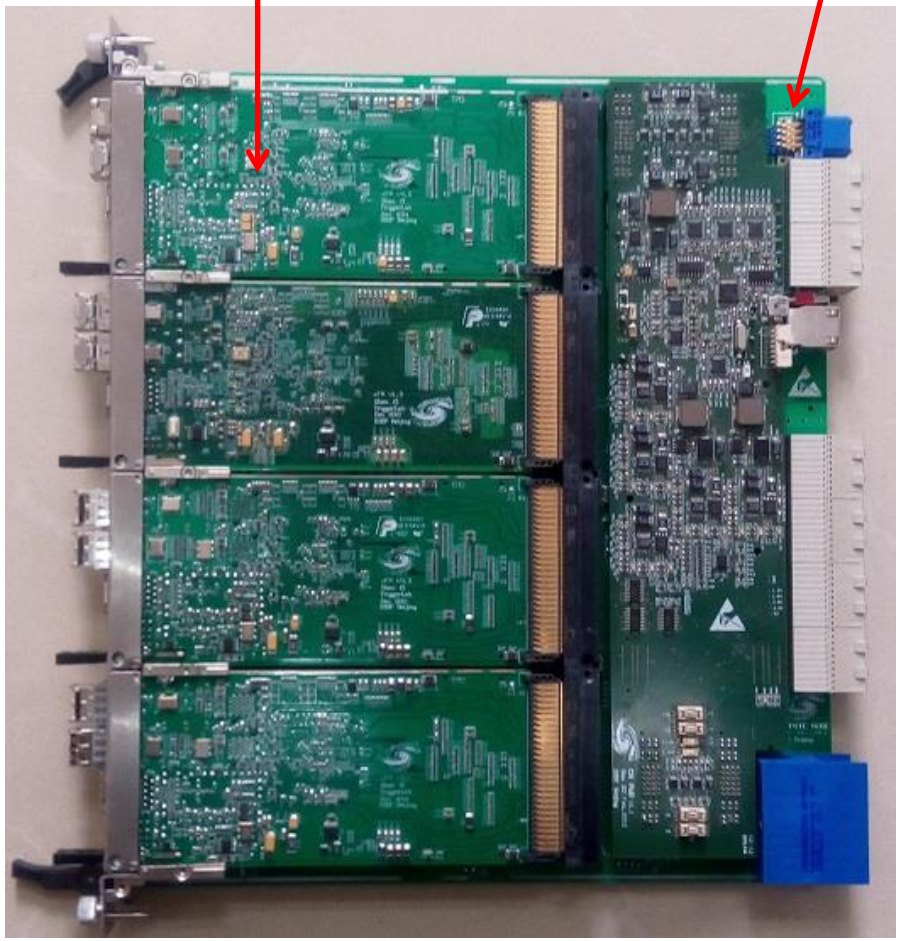
Testing	xFP V4_FX70T for PXD
Memmory	PASS
UART	PASS
Ethernet	PASS
Flash	PASS
Platform Flash	PASS
SFP	PASS@3.12Gbps
MGT backplane	PASS @3.125Gbps
Carrier Board Programming	PASS

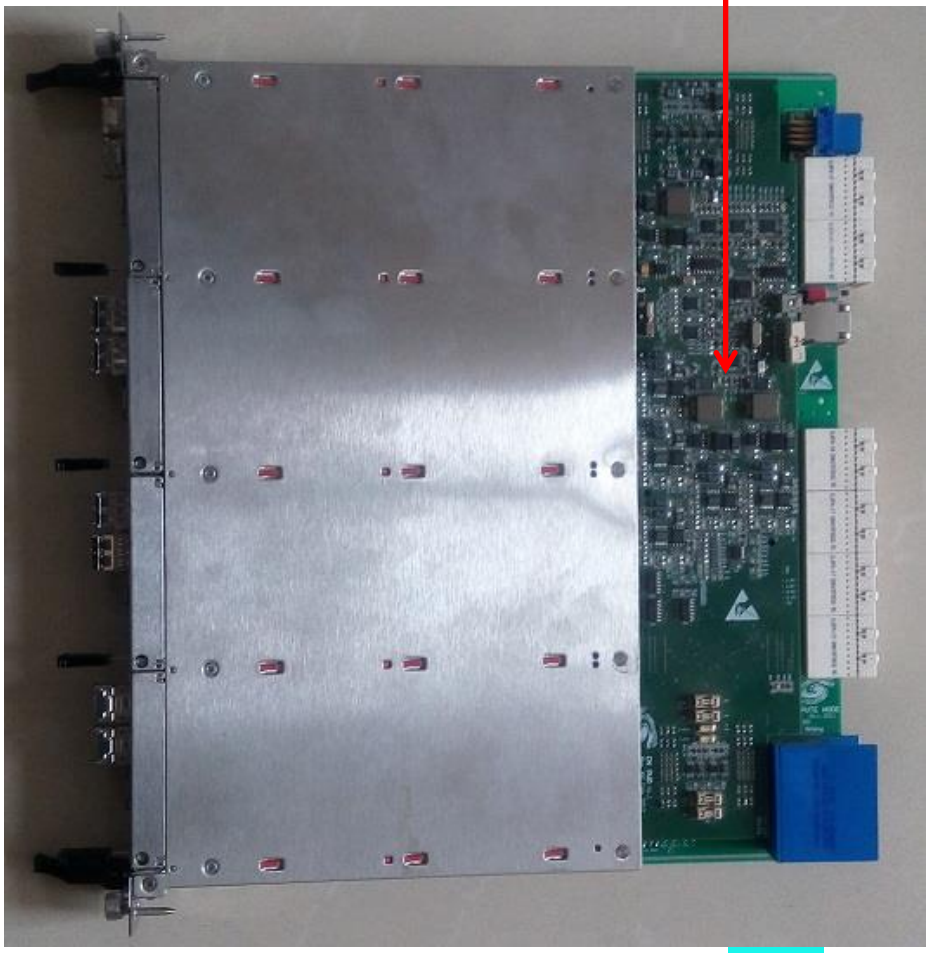
Compute Node final outlook

4 xFP cards

CN Carrier Board

CN Power Module





Summary

- Latest version of CN now works well in every function.
- IPMI configuration and Carrier configuration function has been upgraded and new version of CN carrier will be finished end of May.