

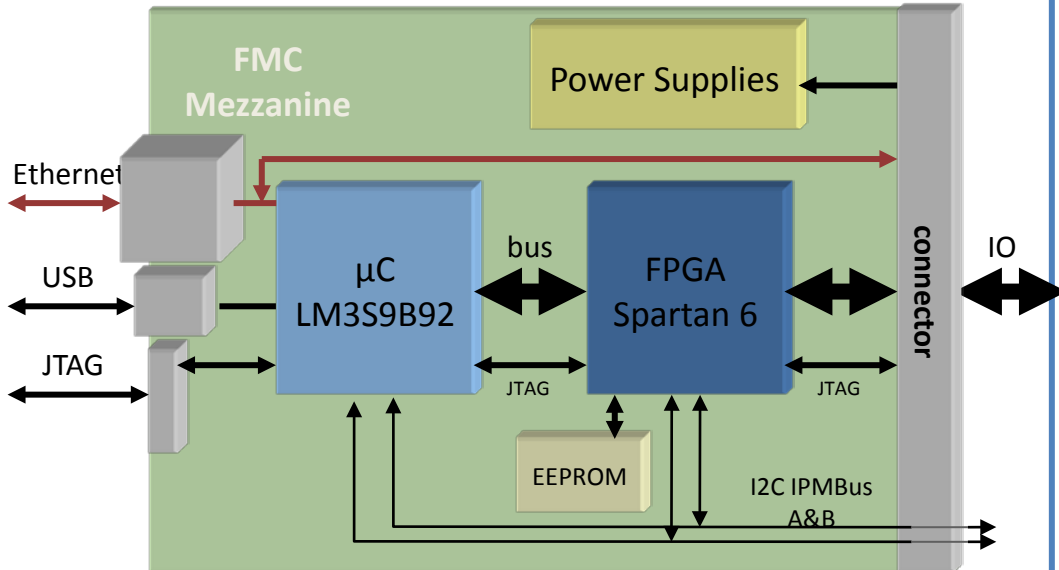
# IPMC Mezzanine for ATCA boards

**xTCA interest group - CERN**

07/03/2011

Nicolas LETENDRE

# IPMC Mezzanine V1



## • IPM Controller

- Communication with Shelf manager through IPMBus A & B
- Hot Swap, Power management etc..

## • ATCA board management

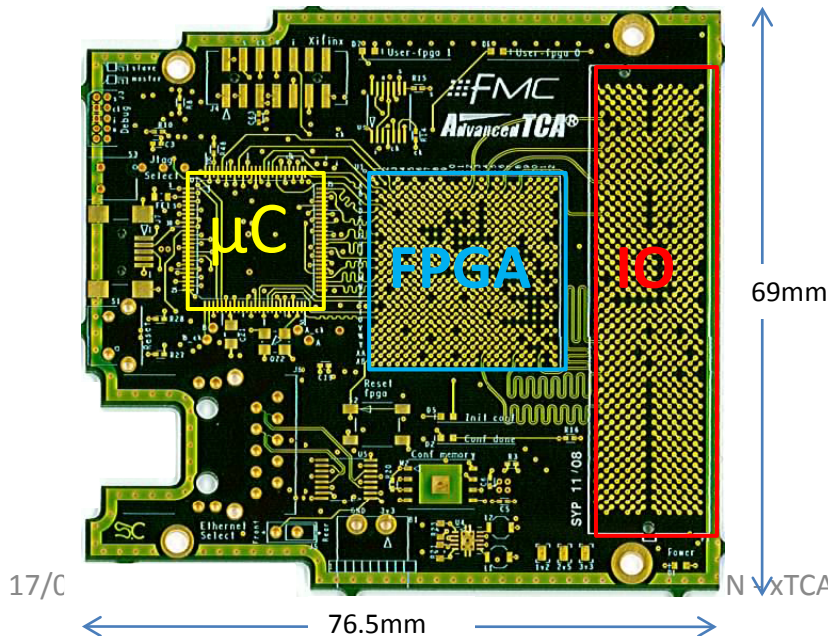
- Communication via Ethernet (front panel or ATCA Base Interface)
- User functions
  - Firmware Upgrade
  - ATCA board monitoring & configuration
  - Users stuffs....

## • FMC (FPGA Mezzanine Card) compliant

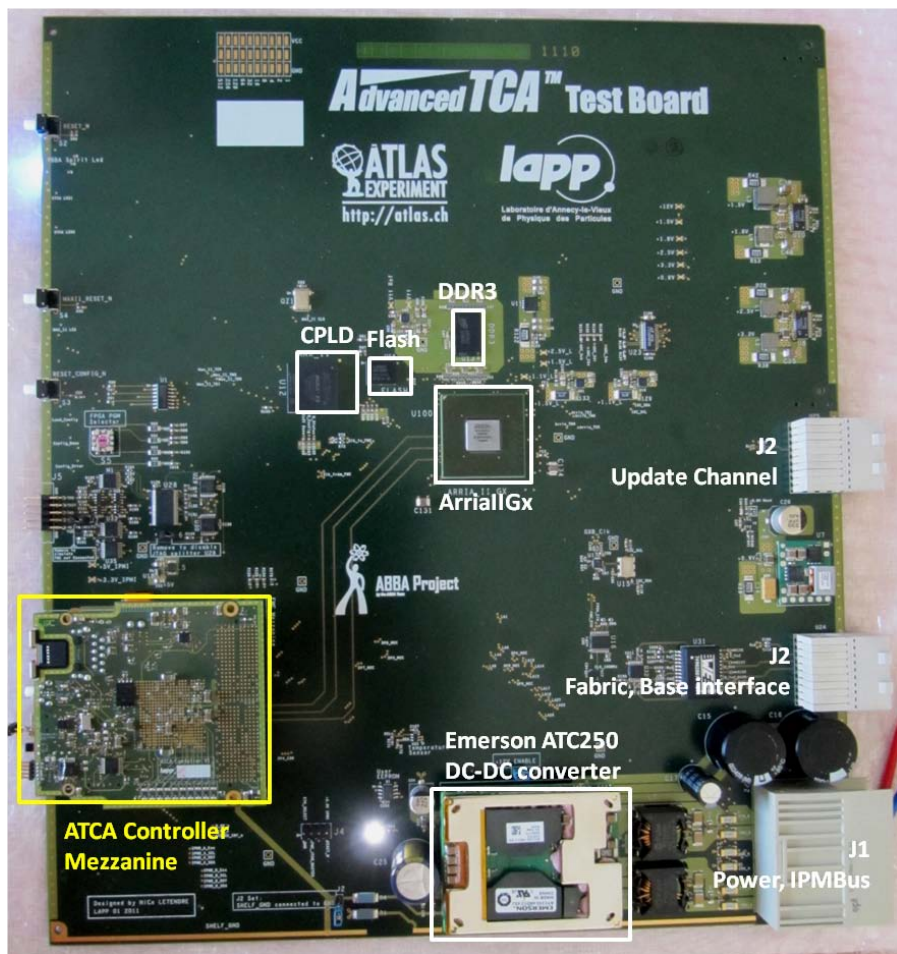
- up to 160 customizable links( including 74 differential links)

## • Features:

- ARM cortex M3 processor
- Xilinx Spartan 6 for highly configurable user IO
- Ethernet / USB / JTAG interfaces



# IPMC Mezzanine V1 Status

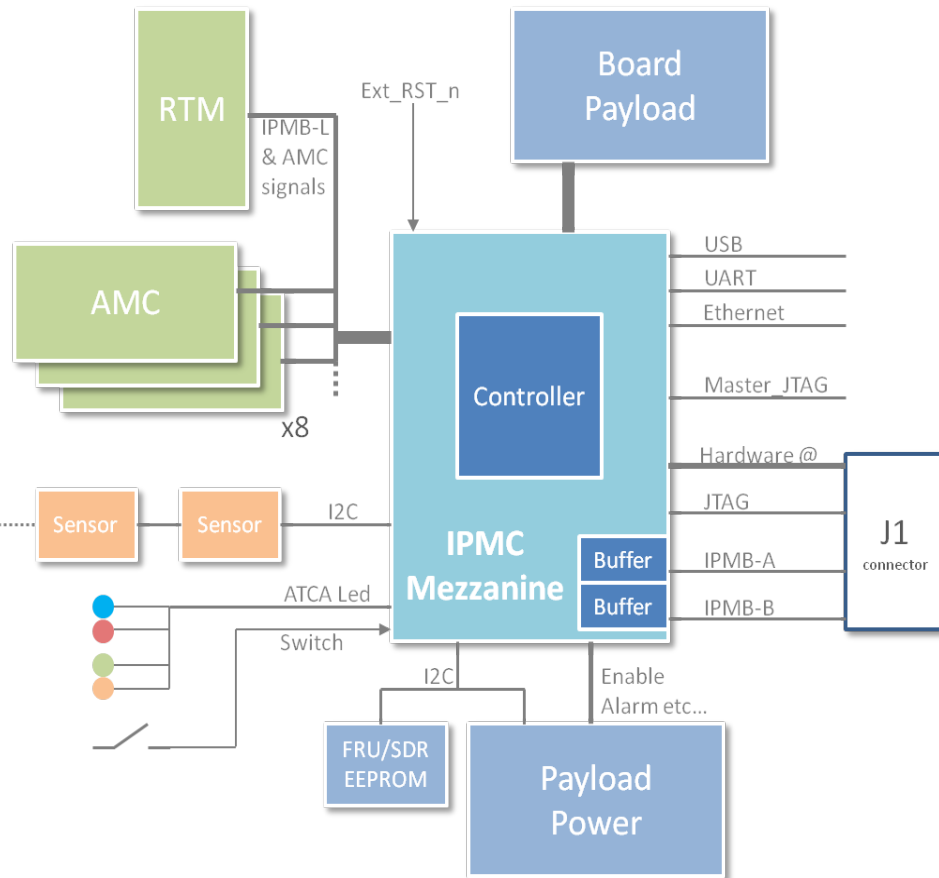


## • ATCA Test Board

- Mezzanine tested on ATCA test board
- IPMC functionalities:
  - Hardware & software OK
- ATCA board management OK:
  - Firmware upgrade
  - Monitoring
  - Mezzanine ↔ FPGA communications

But: No support for AMC, mezzanine size...

# IPMC Mezzanine V2



- **IPMC features**

- IPMB\_0 with on board buffers, Hardware address detection
- Hot Swap management with ATCA Leds and front panel switch
- Management of up to 8 AMC + RTM
- On board Event LOG
- FRU & SDR via I2C
- Access to ATCA board sensors via I2C
- Configurable User Signals for Payload management

- **JTAG Master**

- JTAG master via Ethernet (ATCA board debugging, firmware upgrade)

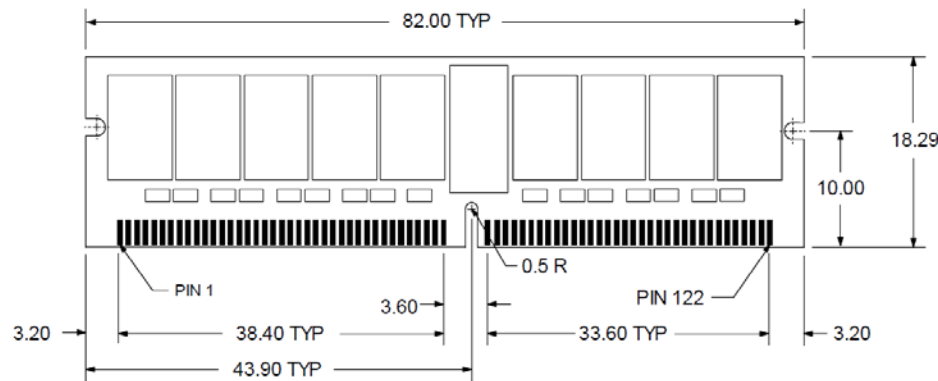
- **Custom interface**

- Possibility to have a custom interface between the Mezzanine and the ATCA board for custom functionalities

- **Other**

- USB and UART interfaces (debugging etc..)

# IPMC Mezzanine V2



## • Mechanical

- Smaller size: DDR3 VLP Mini-DIMM
- Vertical or horizontal mounting

## • Hardware

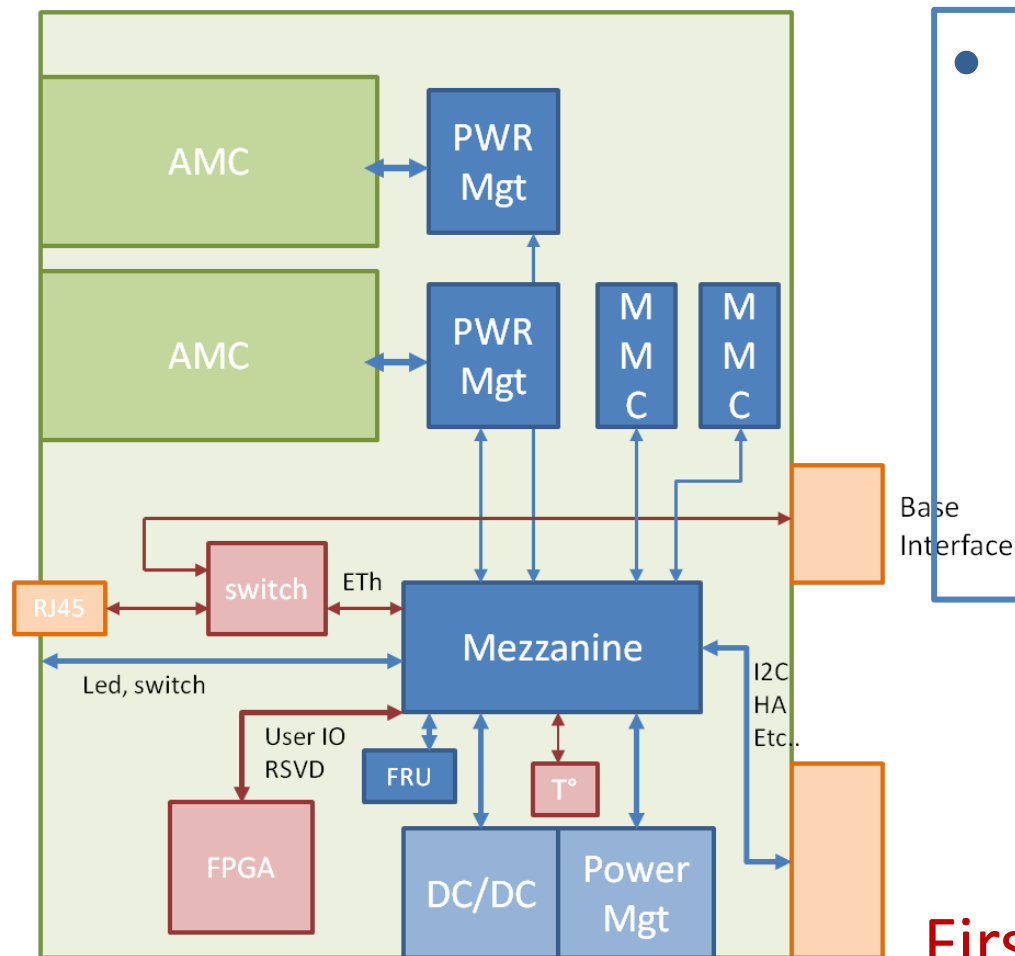
- Based on ARM cortex M3 or M4  $\mu$ C (probably from ST)

## • Software

- Reuse of Mezzanine V1 code
- Add AMC management

First Prototype: Summer 2012

# Test of IPMC Mezzanine



## • IPMC Mezzanine Test Board

- ATCA Board with two AMC slots
- Allow to test all mezzanines functionalities
- Will give a “reference design” for mezzanine users

**First Board: Summer 2012**