IPMC Mezzanine for ATCA boards

xTCA interest group - CERN
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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
  - Xilinix 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**
  - Small size: DDR3 VLP Mini-DIMM
  - Vertical or horizontal mounting

- **Hardware**
  - Based on ARM cortex M3 or M4 µC (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