

Update on the ATCA work going on at LAPP

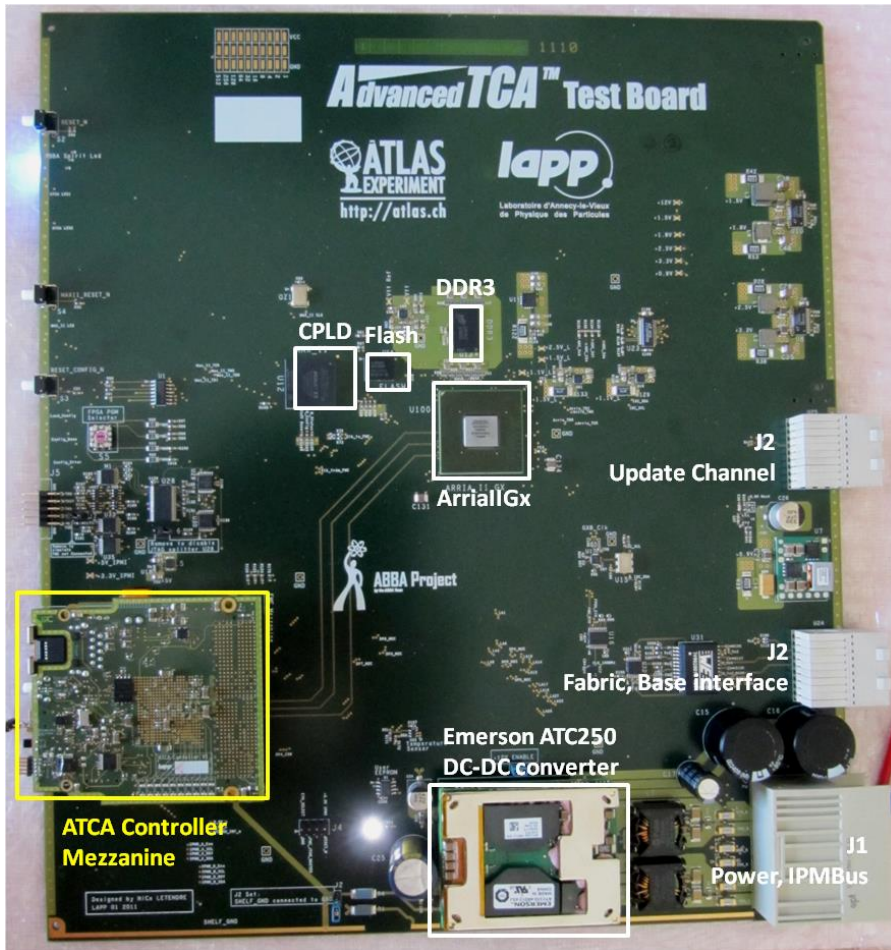
xTCA interest group - CERN

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IPMC Mezzanine V1

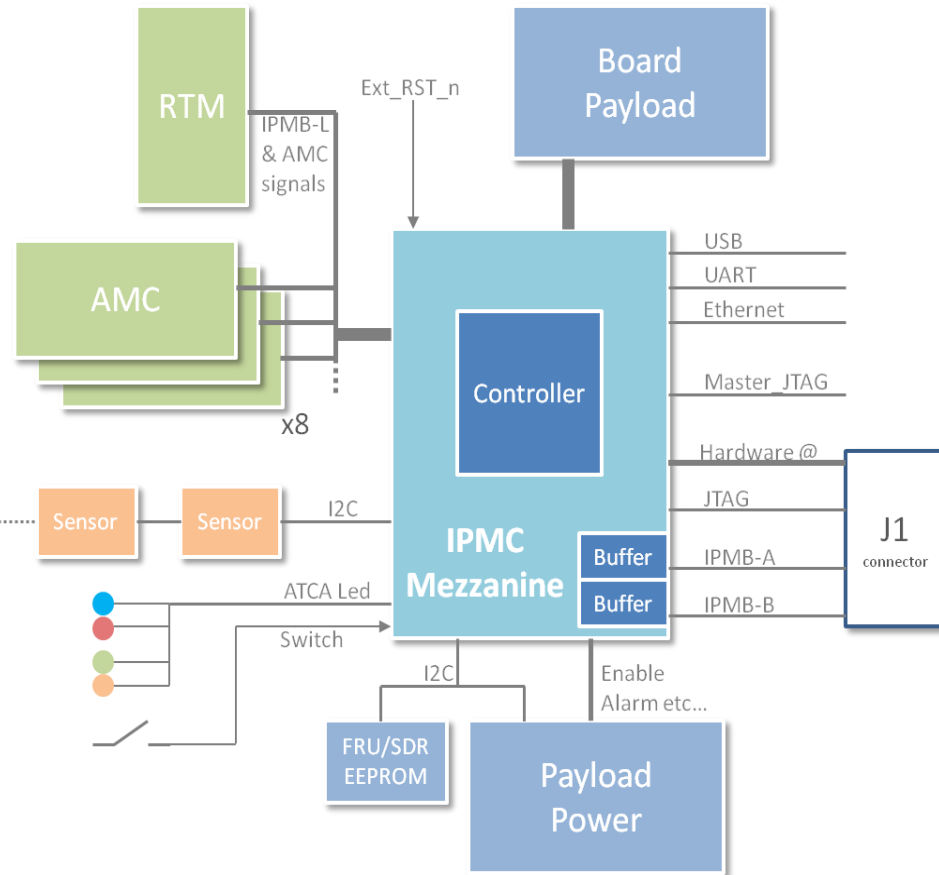


- **IPMC mezzanine V1**
 - FMC size, based on cortex M3
 - IPMC function
 - ATCA board configuration function
- **ATCA Test Board**
 - Mezzanine tested on ATCA test board
 - IPMC functionalities:
 - Hardware & software OK

But: No support for AMC
mezzanine size too large...

→ Design of a Mezzanine V2

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
- IPM_IO: Configurable User Signals for Payload management and e-keying

• NON-IPMC features

• JTAG Master

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

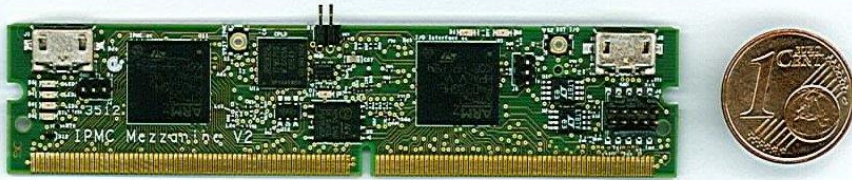
• Custom interface

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

• Other

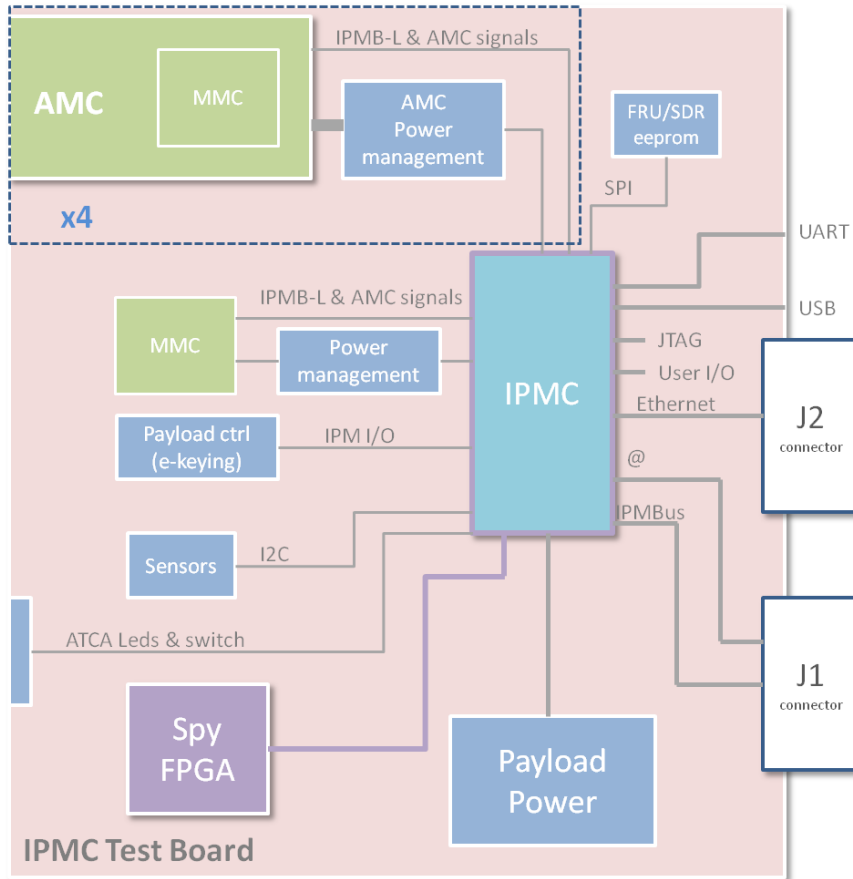
- USB and UART interfaces (debugging etc..)

IPMC Mezzanine V2 - Hardware



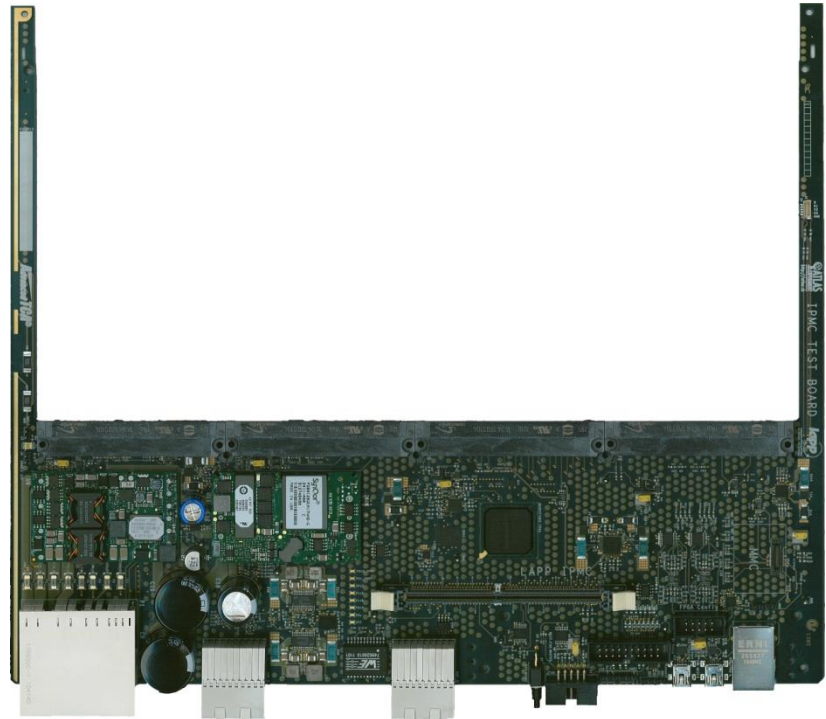
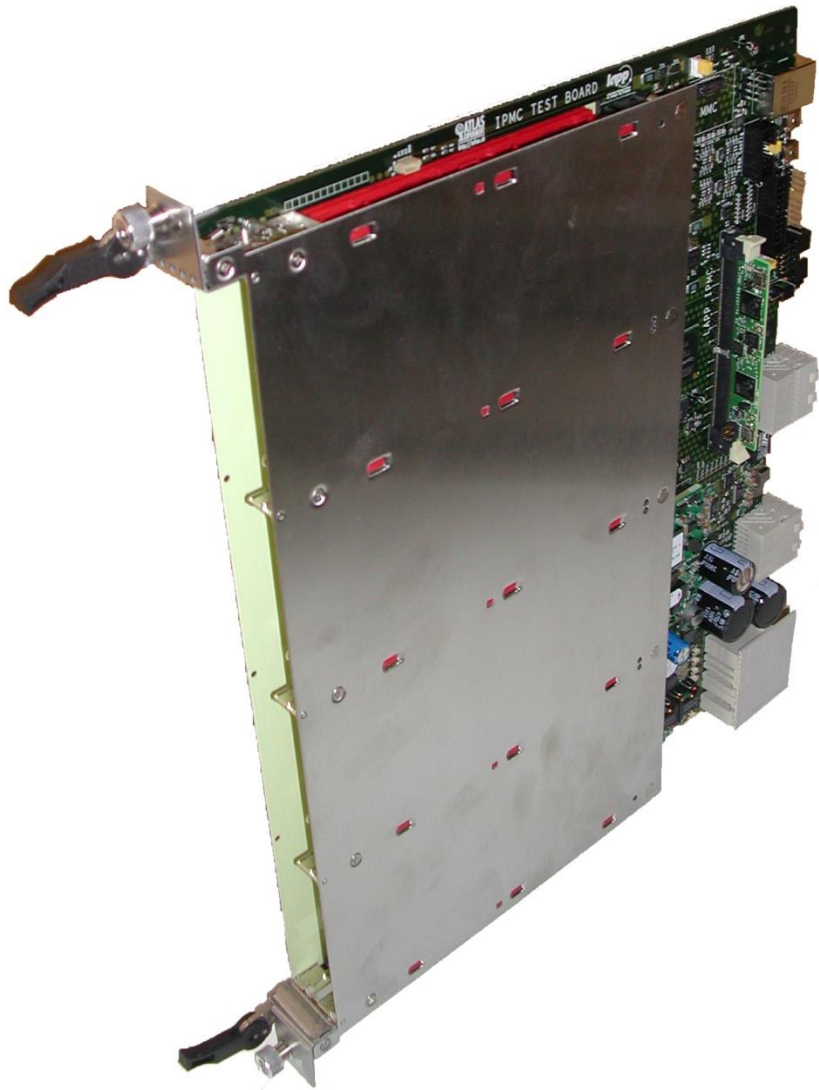
- **Mechanical**
 - Small size: DDR3 VLP Mini-DIMM
 - Vertical or horizontal mounting
- Based on ARM Cortex M4 μ C
- Hardware part almost tested
- Software of mezzanine V1 successfully ported
 - Tested on CPPM and LAPP carrier
- New bug free version (V2.1) will only be produced after extensive tests with new software and firmware (Autumn).
- If someone needs a mezzanine sooner, we can provide a patched V2.0

LAPP IPMC V2 Test Board



- **ATCA board**
- **Designed to tests and debug IPMC mezzanine V2 (Hard and Soft)**
 - **Board powering (hot swap, power negotiation)**
 - **IPMB and communication with shelf manager**
 - **Sensors reading**
 - **E-keying**
 - **AMC power management with different devices**
 - **AMC management (communication with MMC)**
 - **Ethernet / USB / UART**
 - **User_IO and IPM_IO**
- **Features**
 - **4 AMC slot + 1 MMC slot**
 - **Communications between 2 AMCs, and to the fabric for E-keying tests**
 - **Spy FPGA connected to IPMC signals**

LAPP IPMC V2 Test Board

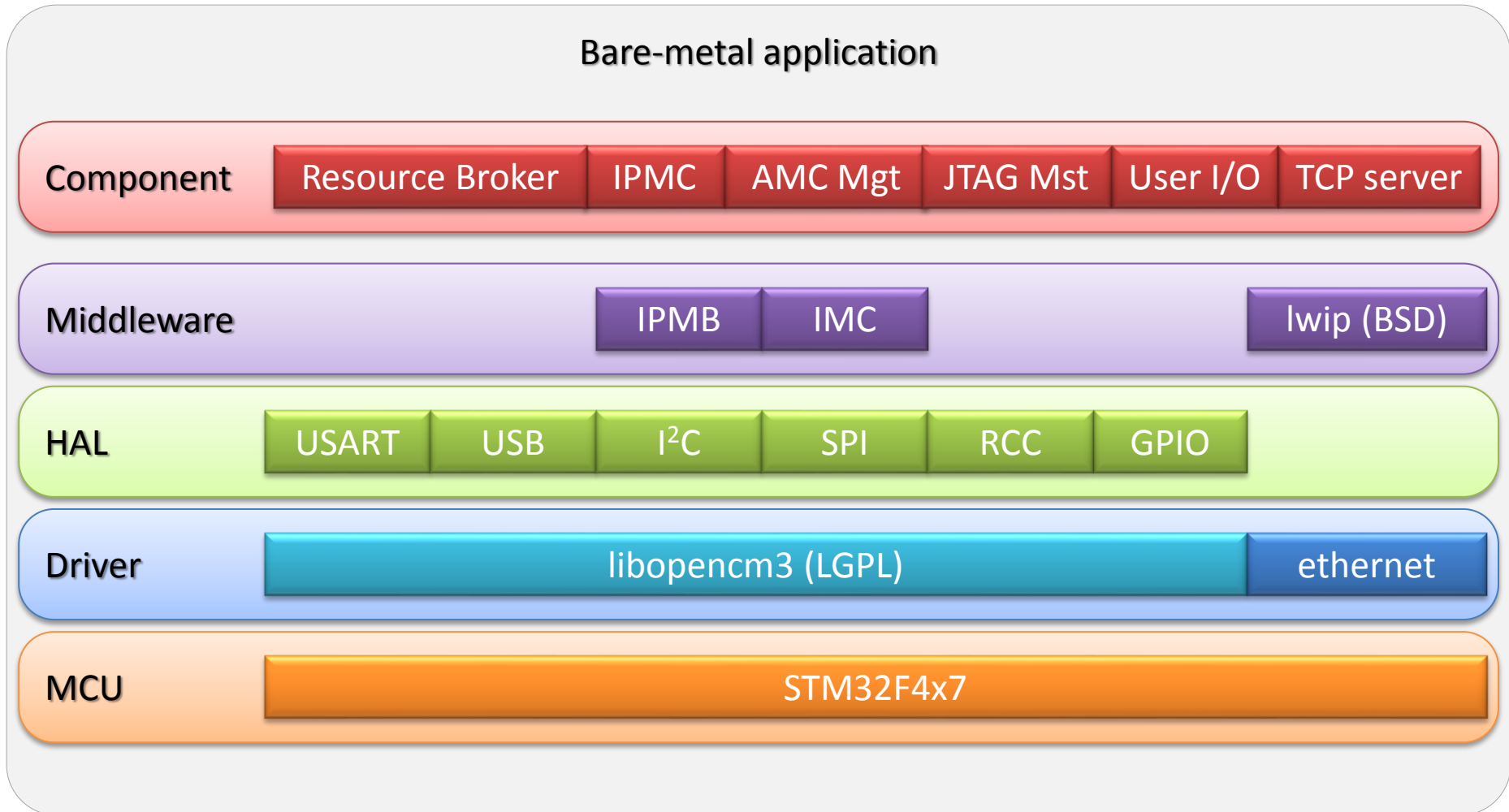


- Board received in March
- Test on-going
- IPMC Mezzanine V2 with V1 software successfully tested

IPMC Mezzanine V2 - Software

- **Re-design of software for mezzanine V2 for**
 - **AMC support**
 - **Better take into account users requirements**
 - Easier integration of users module**
 - GUI for some configuration (FRU/SDR, IO)**
- **Fully open source**

Mezzanine V2 software architecture



LAPP IPMC Mezzanine V2 conclusion

- Hardware almost tested. Tests on-going with the new test board
- New hardware (bug correction) for Autumn
- Work on new software version on-going
- New software version (beta released) for end of may