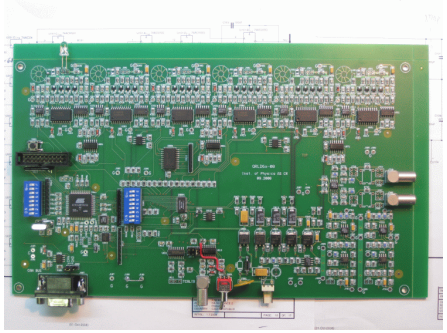
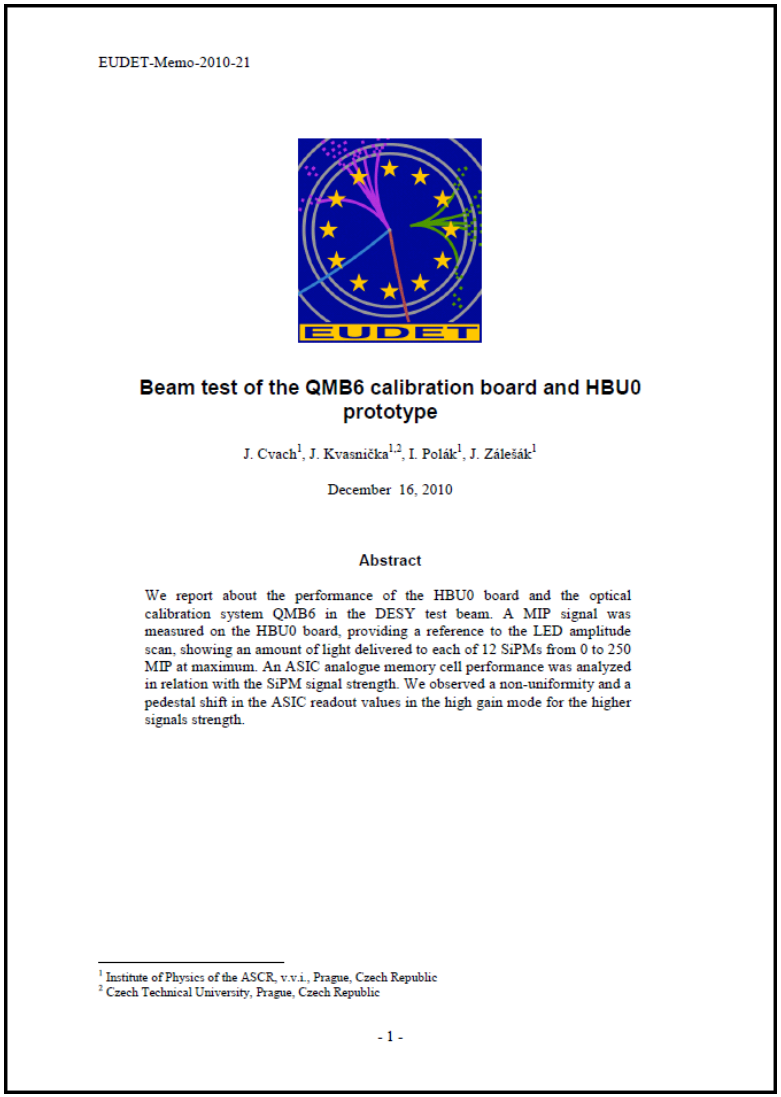
LED calibration system (with notched fibre)

Prague - Plans for 2011

Overview of 2010



- We performed 2 tests of QMB6 with HBU0:
  - Lab test
  - Beam test
- Some small issues were observed during the tests
  → Summarized in a MEMO
- We addressed 2 electrical issues at QMB6, which will be fixed
  - After-pulses for some LEDs at highest amplitude
  - Stability of pulse power within a bunch of very fast triggers (>100kHz)



EUDET-Memo-2010-21

Beam test of the QMB6 calibration board and HBU0 prototype

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Abstract

We report about the performance of the HBU0 board and the optical calibration system QMB6 in the DESY test beam. A MIP signal was measured on the HBU0 board, providing a reference to the LED amplitude scan, showing an amount of light delivered to each of 12 SiPMs from 0 to 250 MIP at maximum. An ASIC analogue memory cell performance was analyzed in relation with the SiPM signal strength. We observed a non-uniformity and a pedestal shift in the ASIC readout values in the high gain mode for the higher signals strength.

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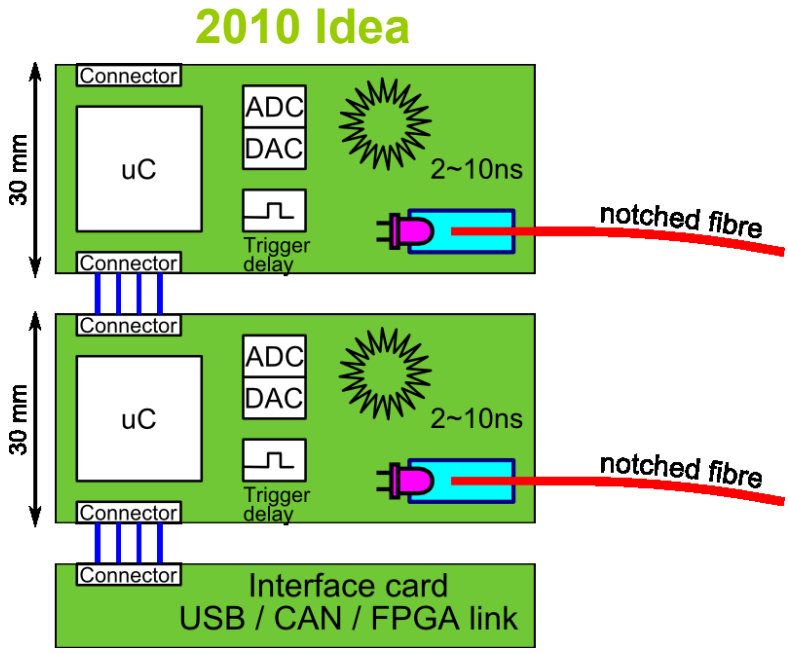
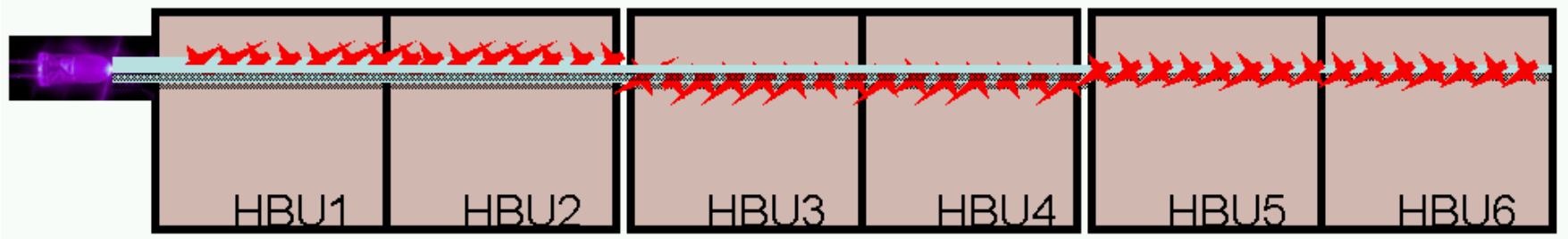
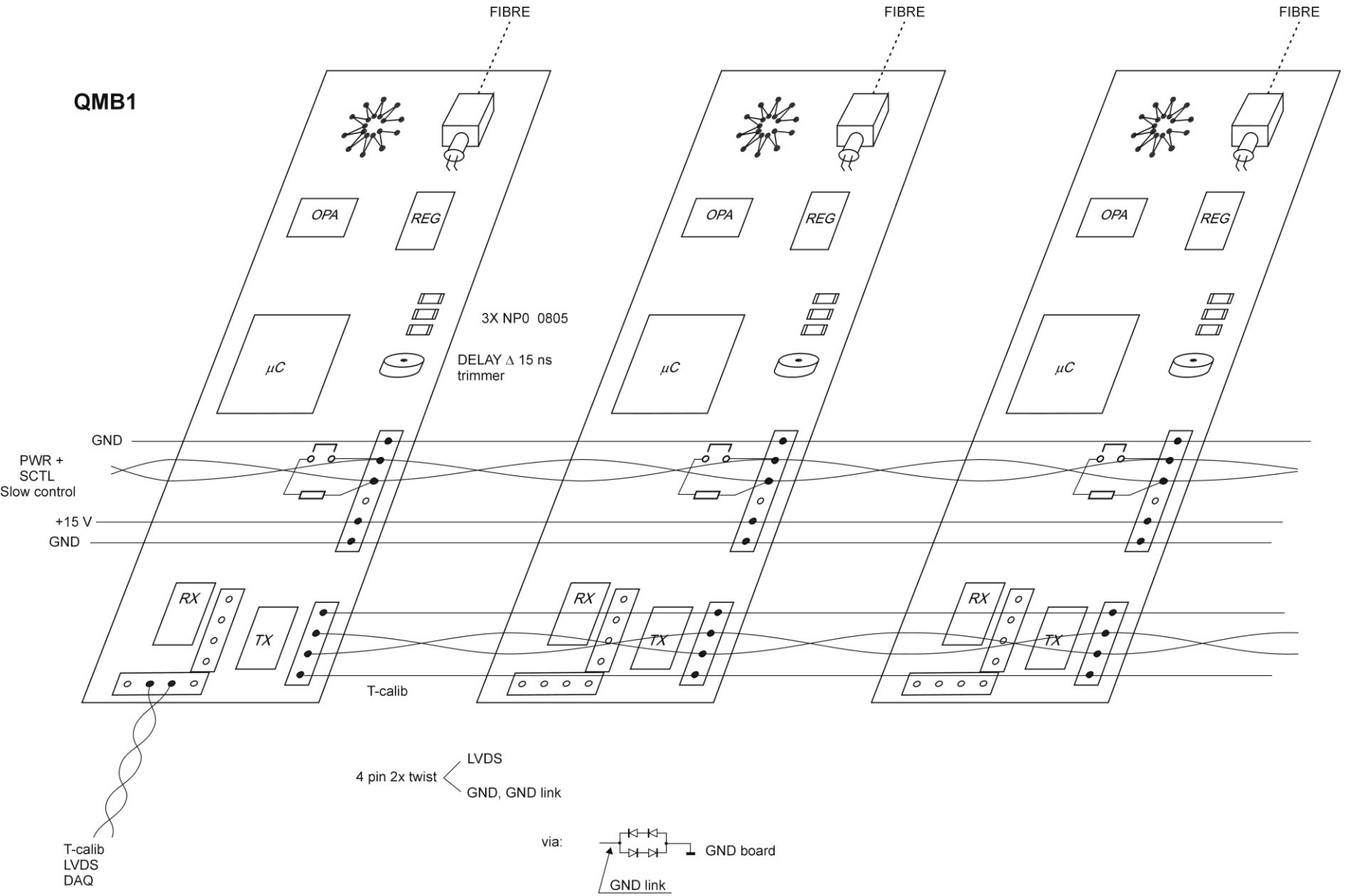
Plans for 2011

- **QMB1 (1-chanel LED driver)**:
  - Better adaptability to test-setups
  - finishing the selection of components
  - Fixed
    - Topology
    - Communicating bus (CAN)
    - CPU (Atmel AVR)
    - Trigger distribution (LVDS)
  - Free to adjust:
    - Mounting holes (fixation to support/HBU
    - Fibre(LED) position
    - Trigger delays
- Set of **notched fibers**
  - Set: 3*fibre with 24 notches, creating a line of 72 notches.
  - 3 sets will be delivered





Architecture



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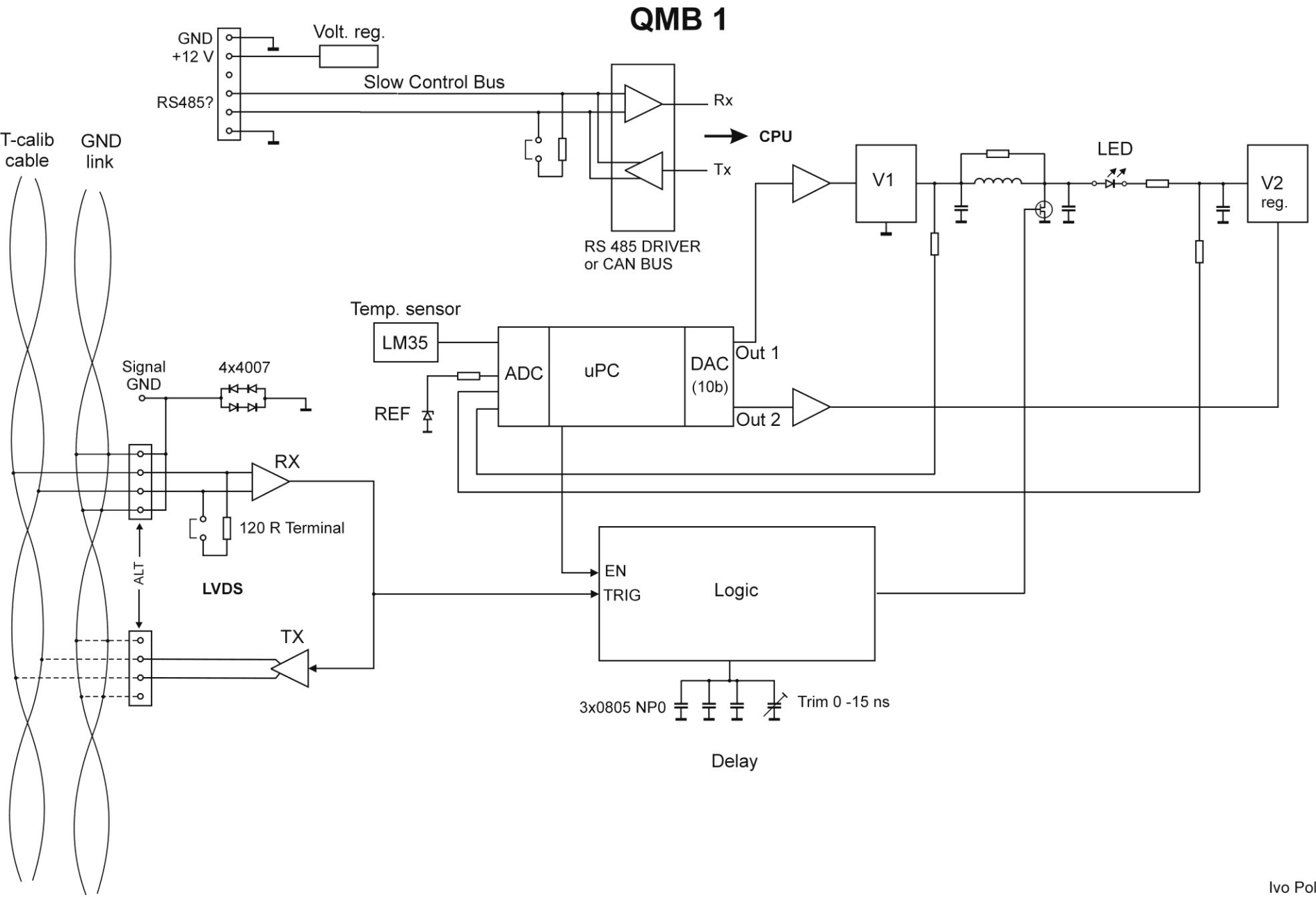
Nov 2010

Principal scheme



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