MCH TEST BEAM AT PS T10

Sabyasachi Siddhanta

PS User Meeting
26.05.2017
PS Schedule

Muons: 31/05/17 – 13/06/17

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<th>Week</th>
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<th>19</th>
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<th>21</th>
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<td>M. Glaser</td>
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<td>T9</td>
<td>E. Noah</td>
<td>D. Lazic</td>
<td>CMS Timing</td>
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<td>T10</td>
<td>P. Martinengo</td>
<td>A. Akindinov</td>
<td>ALICE ITS</td>
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<td>E. Chiaveri</td>
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**PS: Mai 2017**

schedule issue date: 02-Mar-2017
Version: 1.01

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**PS: June 2017**

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MCH Upgrade

Replacement of current electronics (MANU, Translator, CROCUS) with FEE based on SAMPA chip

SAMPA - new front-end ASIC common to MCH and TPC

- **1 FEC = 2 SAMPA = DualSAMPA**
  - 16500 + 2500 (spares)

- **FE link:**
  - FLEX (slats)/PCB (quadrants)
  - + flat cable
  - ~3000

- **LVPS WIENER PL512**
  - 1.2V analog
  - 1.2V digital
  - GND

- **Filter box**
  - 2.5V GND

- **GBT link**
  - 3.2 Gbit/s

- **Cavern**
  - FE link 80 Mbit/s (Data, Trigger, Config)

- **Control room**
  - FE link 80 Mbit/s (Data, Trigger, Config)

- **SAMPA:** Brazil
- **CRU:** Hungary, India

- **FEC:** Orsay
- **FLEX:** Cagliari
- **SOLAR:** Saclay
- **CRU:** India (Kolkata, Aligarh)

- **HVPS No change**

- **DCS**

- **FLP (O2)**

- **SOLAR**

- **30**

- **LTU**

- **CTP**
MCH readout chain

- Slat, Dual Sampa, Flex, ribbon cable, SOLAR, GRORC, DATE
ALPIDE Telescope

- Use the ALPIDE telescope (ALICE ITS Upgrade) to measure spatial resolution
- Use EUDAQ framework adapted to ALPIDE telescope
Triggering and Synchronization

SAMPA

- Triggered mode

ALPIDE RO system

- Receive external trigger (500 Hz – 1 kHz)
- Transmit a busy with configurable logic
- Busy and triggers are daisy-chained between planes
- Event ID and timestamp

GRORC

- Receive the same external trigger via an adapter card (LEMO – RJ45)
- Transmit a busy signal through the adapter card
Triggering and Synchronization

GRORC

• Trigger arrives
• Raise the BUSY and send a word to the FEE (trigger)
• Open the acquisition window
• Collect a configurable number of words
• Close the acquisition window and wait for the next trigger
Team

CNRS/IPN Orsay: Christophe Suire

INFN Cagliari: Richard Pireddu, Carlo Puggioni, Corrado Cicalo, Davide Marras, Mauro Arba, Sabyasachi Siddhanta

CEA Saclay: Andry Rakotozafindrabe, Yves Penichot, Christophe Flouzat, Bernard Paul, Alberto Baldisseri, Herve Borel

With invaluable support from

Filippo Costa, Paolo Martinengo (CERN)