



ODTÜ
METU



CDC status

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2nd JENNIFER Consortium General Meeting and Midterm Review

Queen Mary University, London
22-23 September 2016

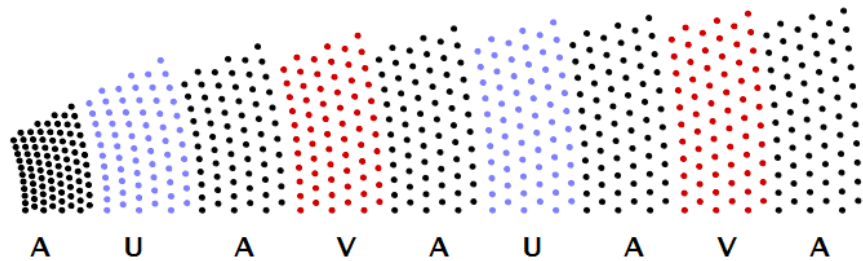
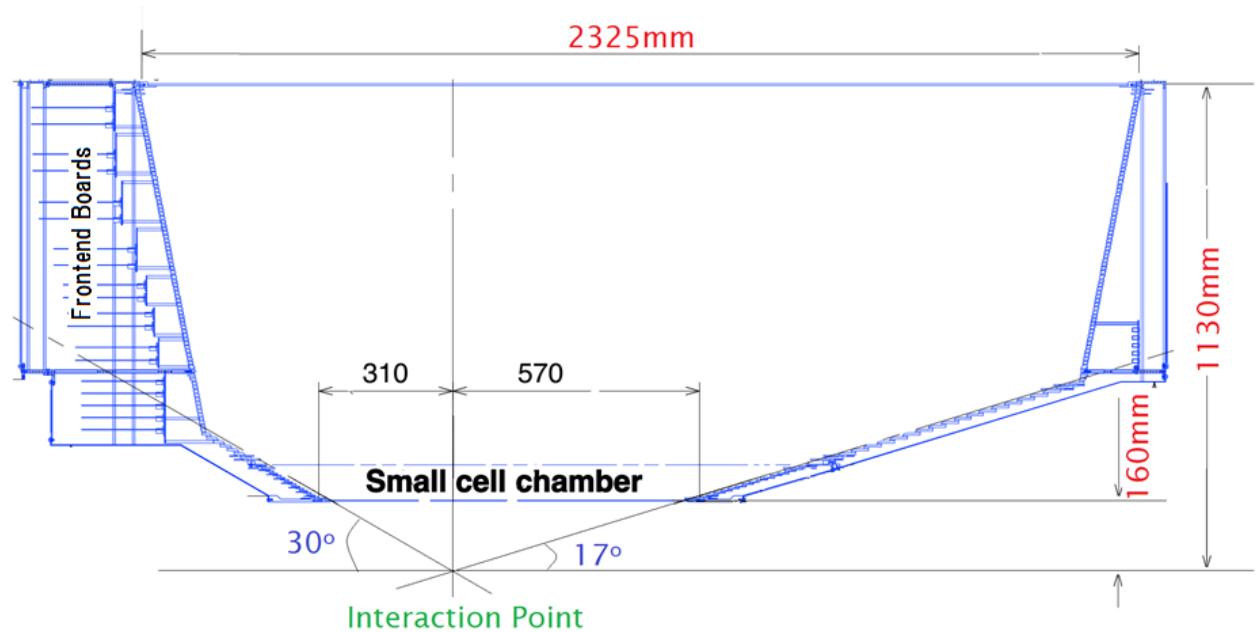
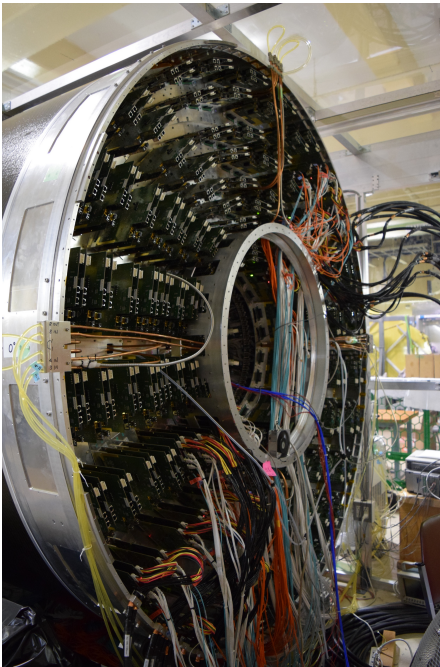
The Central Drift Chamber (CDC)

CDC is one of the central components of Belle II detector. The CDC has a cylindrical shape with inner and outer radii of 160 and 1130 mm, respectively. It has 14,336 sense wires and 42,240 field wires.

In order to cope with the design luminosity at the accelerator, the CDC detector and readout electronics is designed to handle higher trigger rates with less dead time. The new all-in-one technology is employed to the CDC readout-system which is developed at KEK. The system measures both timing and amplitude for the drift-time and the dE/dx measurements, respectively.

Wire stringing for the CDC has been started at the end of 2012 and completed beginning of 2014 at KEK with participation of a member from METU group.

CDC and its schematics



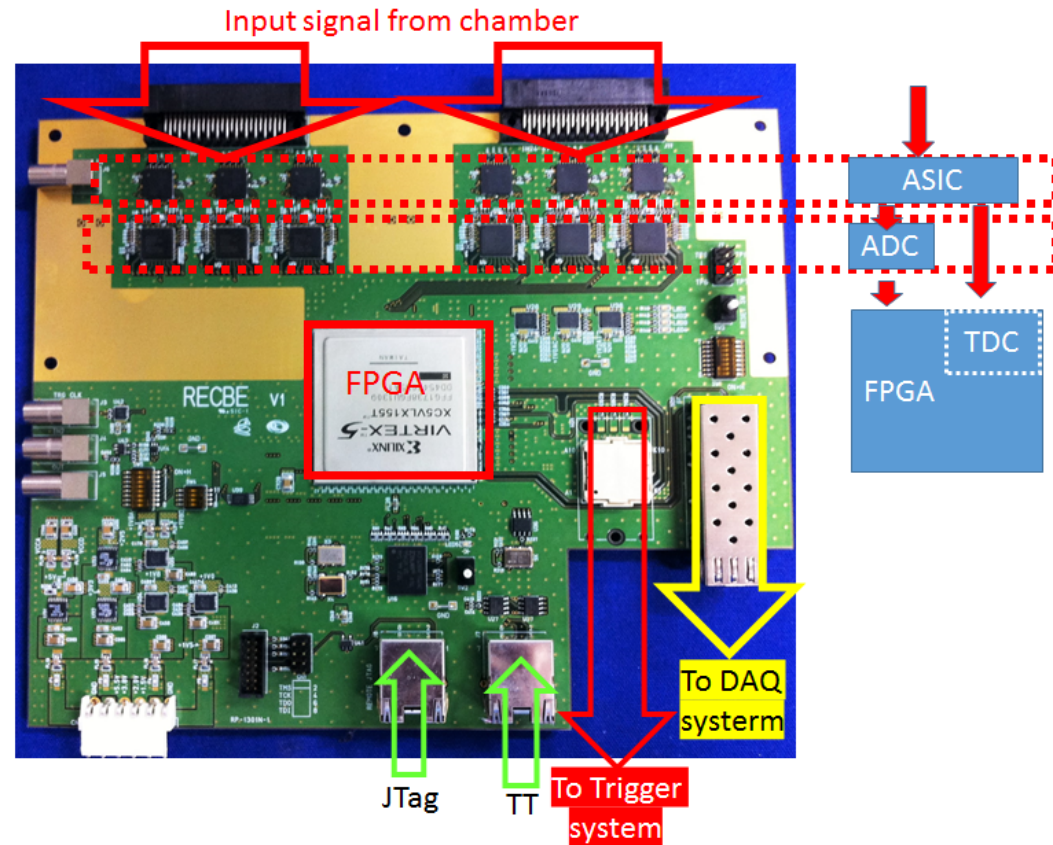
A: Axial layer

U: stereo layer, stereo angle > 0

V: stereo layer, stereo angle < 0

Front end electronics

- 299 Front End Boards and each board has 48 channels.
- Boards are located at backward side of the chamber.
- All processes as Pre-Amplifier, shaping, ADC, TDC are done in a signal board. Output is digital signals only.
- Without dead time.

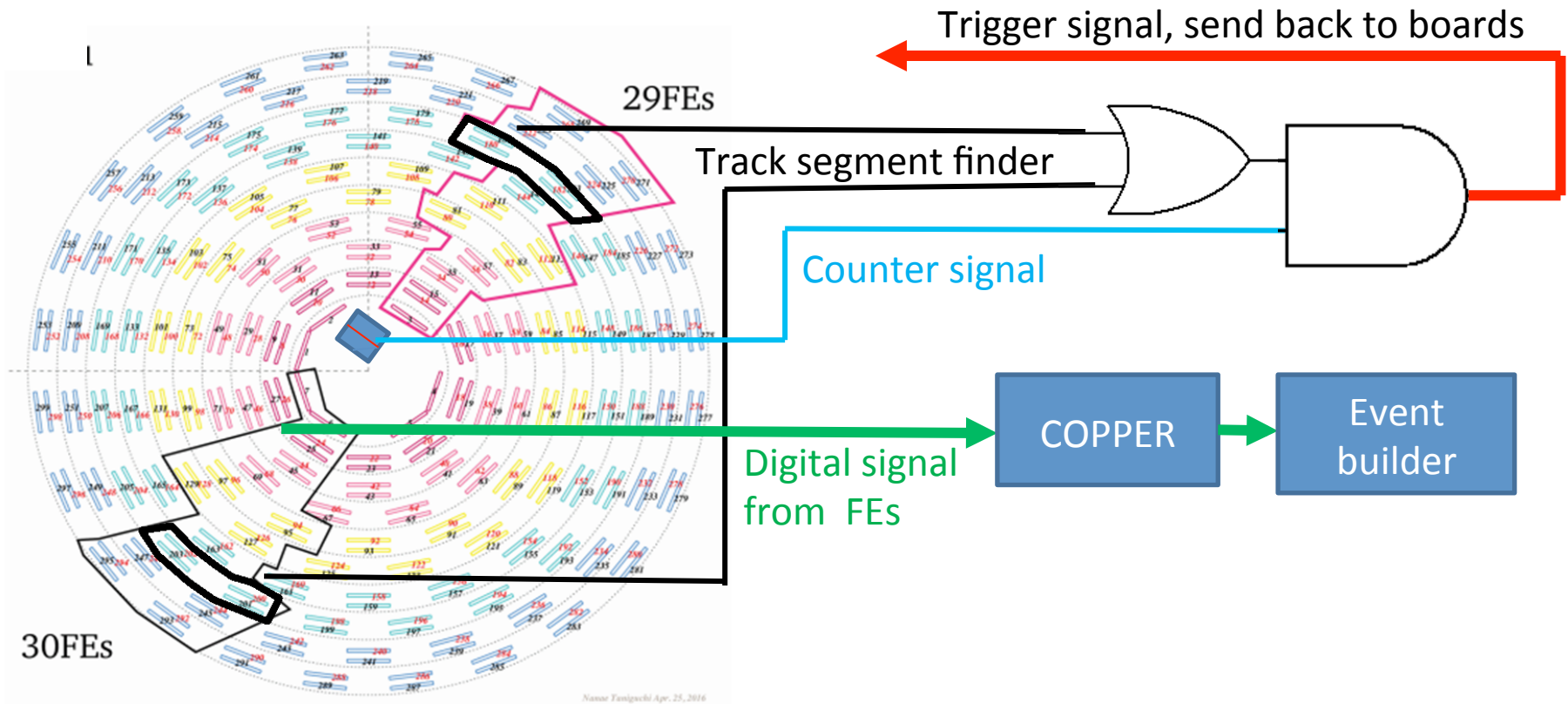


Status

- Preparing the installation into Belle II structure and taking the cosmic ray data with partial electronics in Tsukuba B4
- CDC will be installed into the structure in October 2016, then cosmic ray data taking will start with full electronics
(Calibration procedures are established, t_0 , x-t, position resolution etc)
- Spring 2017 magnetic field will be available
(Momentum resolution vs p_t , dE/dx calibration, resolution etc.)
- Fall or winter 2017 the first real data will be obtained without VTX detector (phase II) (METU secondments planned, starting from month 27)
(Mass resolutions for particles (KS, D0, J/Ps etc)
- Initial Calibration and alignment should be done during one year before Phase III with VTX detector (METU secondments planned, starting from month 39)

Setup of cosmic ray test-

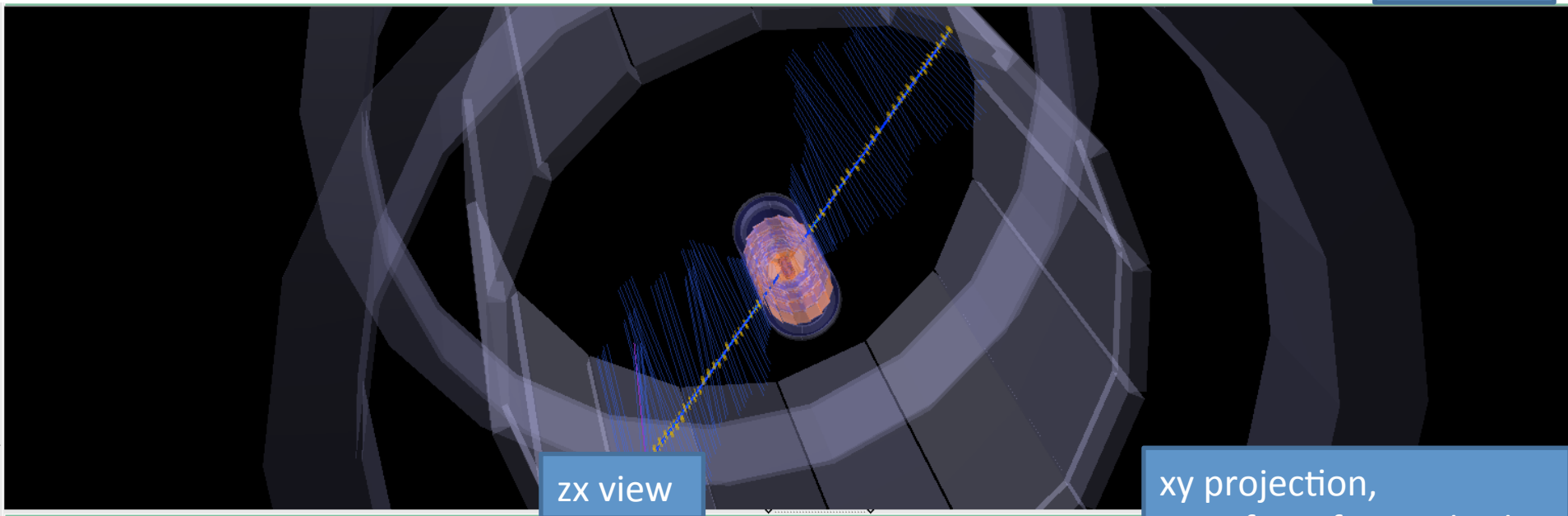
Dong Van Thanh, Shoji Uno, Makoto Uchida



- We took data with 59 FEs using Belle II central DAQ system. *29 and 30 FEs for upper and lower sectors, respectively.*
- Trigger counter is placed at the center of CDC.
- We took 343k events. (~190 hours)

Event display Evt149, run832

3D view



zx view

xy projection,
view from forward side

