Hall C SHMS and HMS standard DAQ information

Hanjie Liu, Feb 21 2024
Credits to Carlos Yero thesis: https://hallcweb.jlab.org/DocDB/0010/001082/001/cyero_dissertation_DigitalCommons.pdf

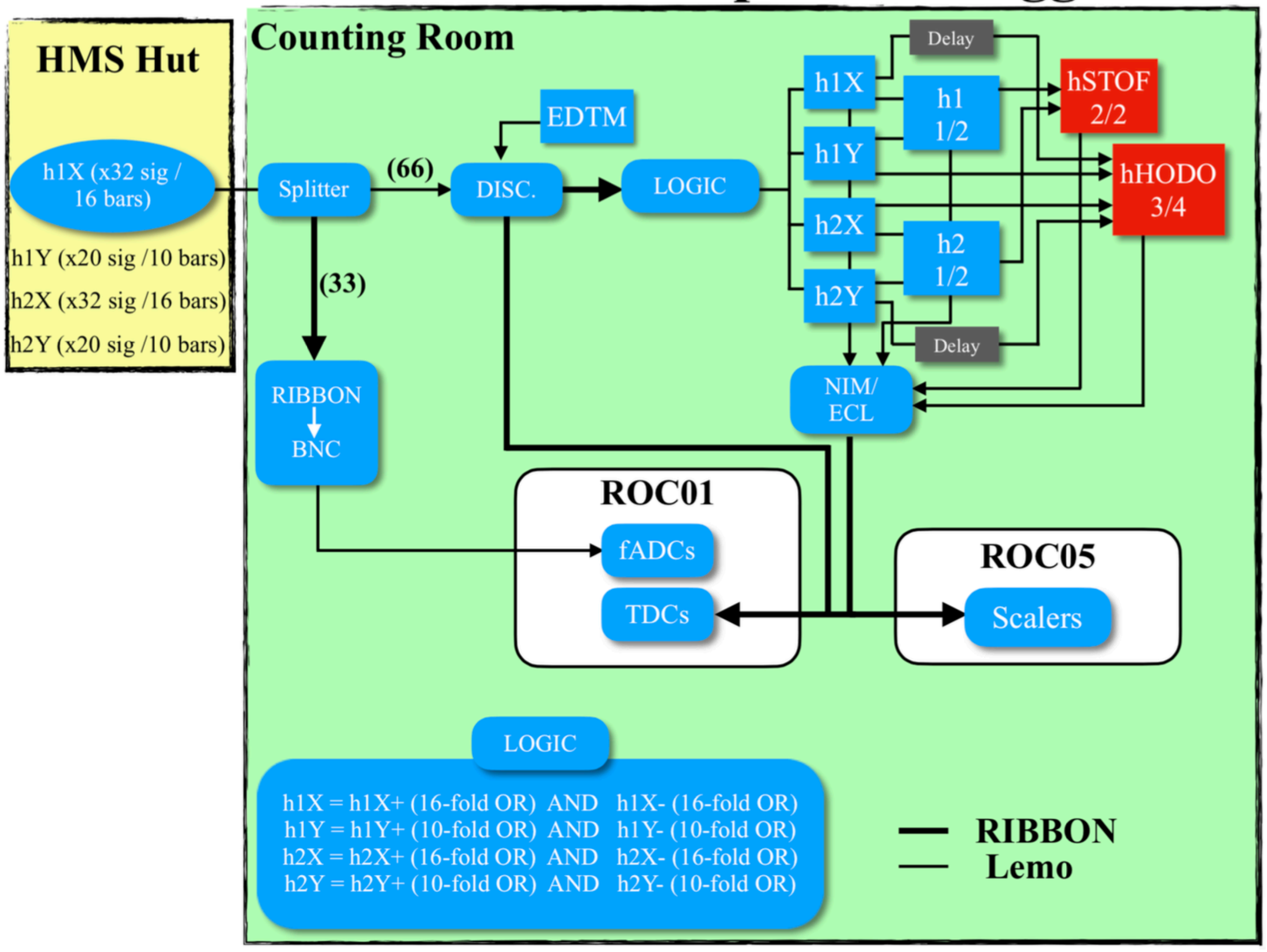
HMS:

- Drift chambers: 6 planes, 588 channels => CAEN 1190 TDC module, crate 3 (locate in the HMS hut)
- Heavy Gas Cherenkov: 2 channels => FADC, crate 1 (locate in Hall C counting house)
- Scintillators: 104 channels => FADC and CAEN 1190, crate 1
- Calorimeters: 78 channels => FADC, crate 1
- Triggers: => FADC, CAEN 1190, crate 1
- Scalers: scintillators, triggers, helicity, crate 5 (locate in Hall C counting house)
- BCM: crate 5

SHMS:

- Drift chambers: 6 planes, 586 channels => CAEN 1190 TDC module, crate 6 (locate in the SHMS hut)
- Heavy Gas Cherenkov: 8 channels => FADC, crate 2 (locate in Hall C counting house)
- Scintillators: 116 channels => FADC and CAEN 1190, crate 2
- Calorimeters: 252 channels => FADC, crate 4 (locate in the SHMS hut)
- Triggers: => FADC, CAEN 1190, crate 2
- Scalers: scintillators, triggers, helicity, crate 8 (locate in Hall C counting house)
- BCM: crate 8

HMS Hodoscopes Pre-Trigger



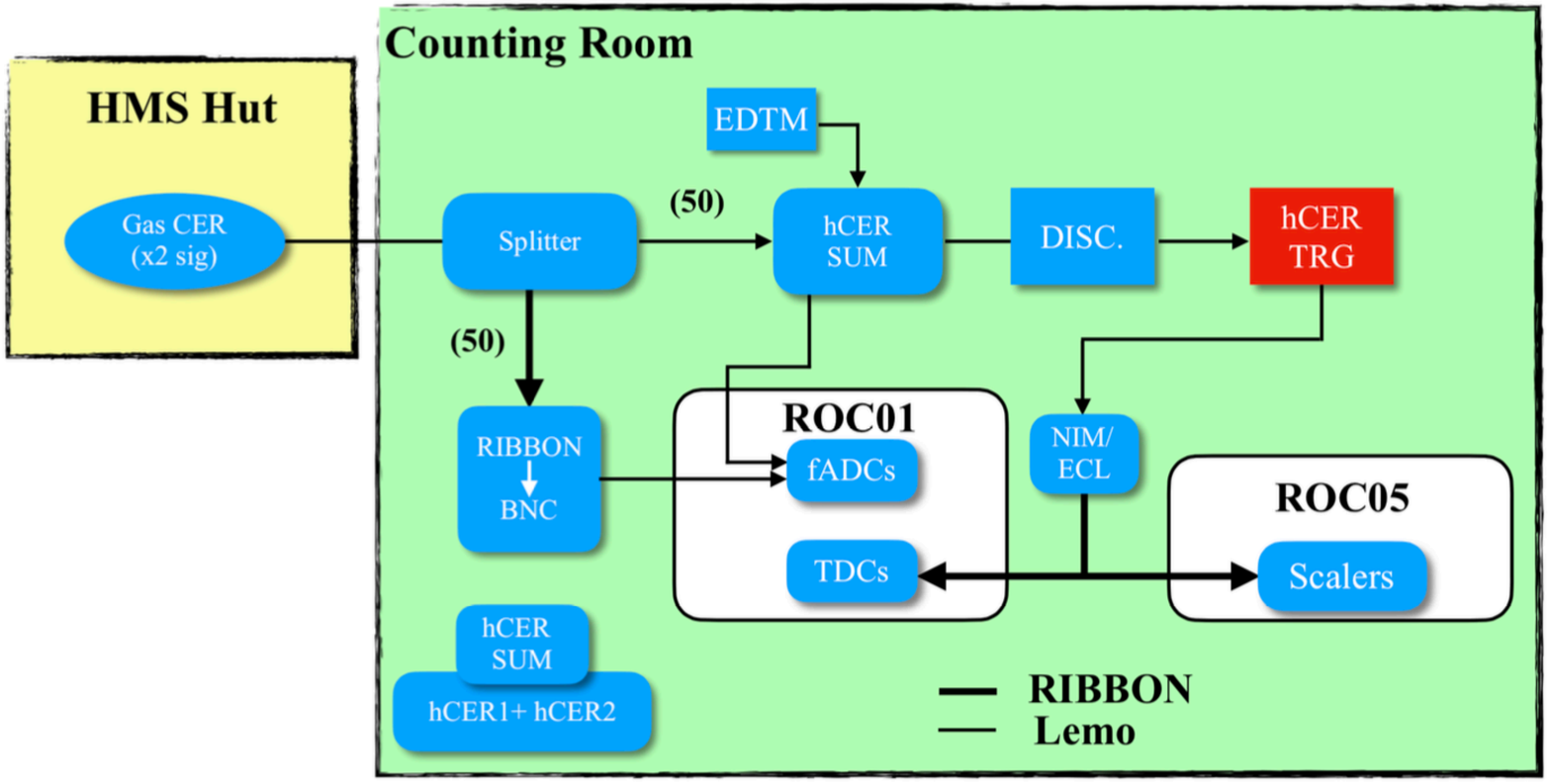
h1X = h1X+ (16-fold OR) AND h1X- (16-fold OR)

h1Y = h1Y+ (10-fold OR) AND h1Y- (10-fold OR)

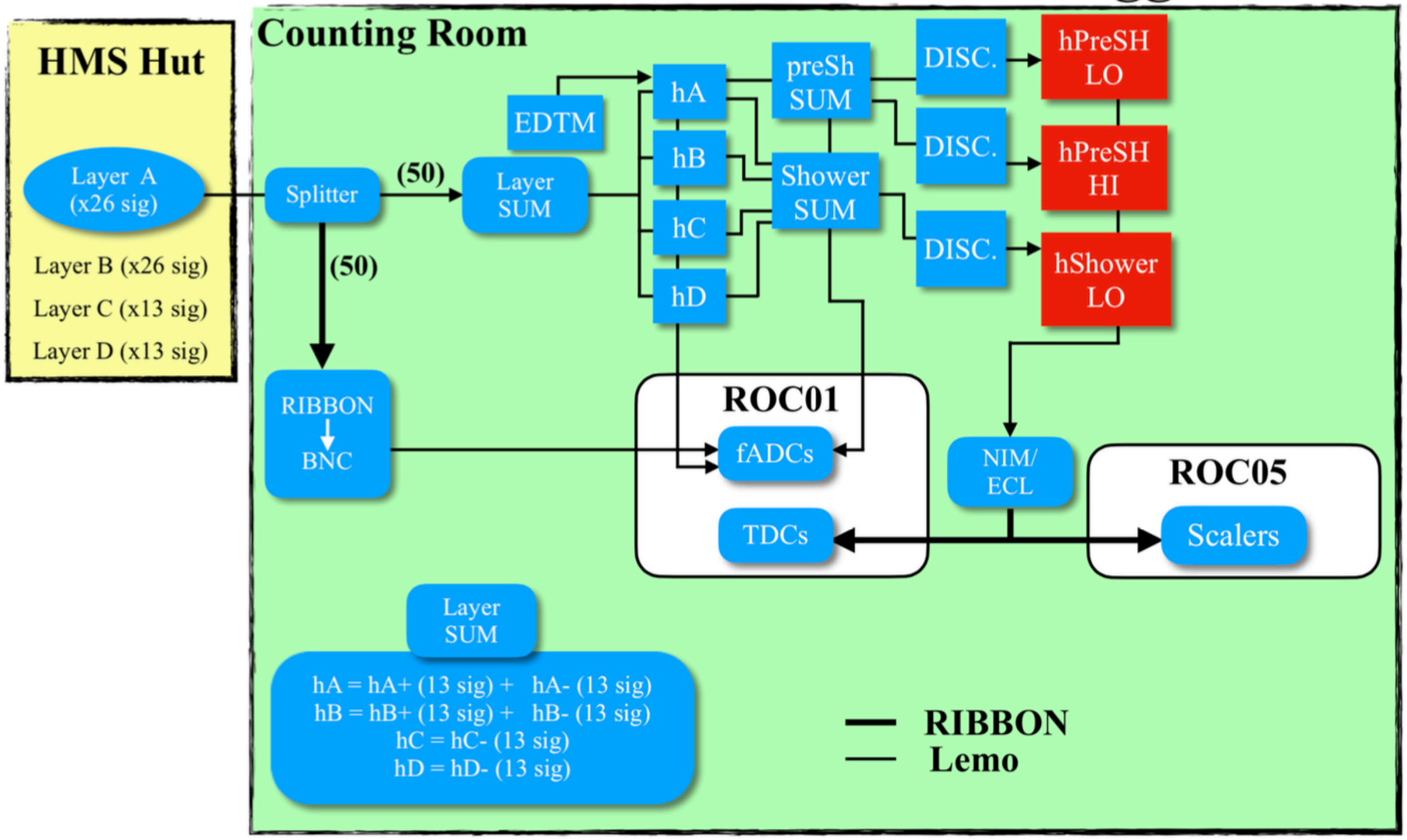
h2X = h2X+ (16-fold OR) AND h2X- (16-fold OR)

h2Y = h2Y+ (10-fold OR) AND h2Y- (10-fold OR)

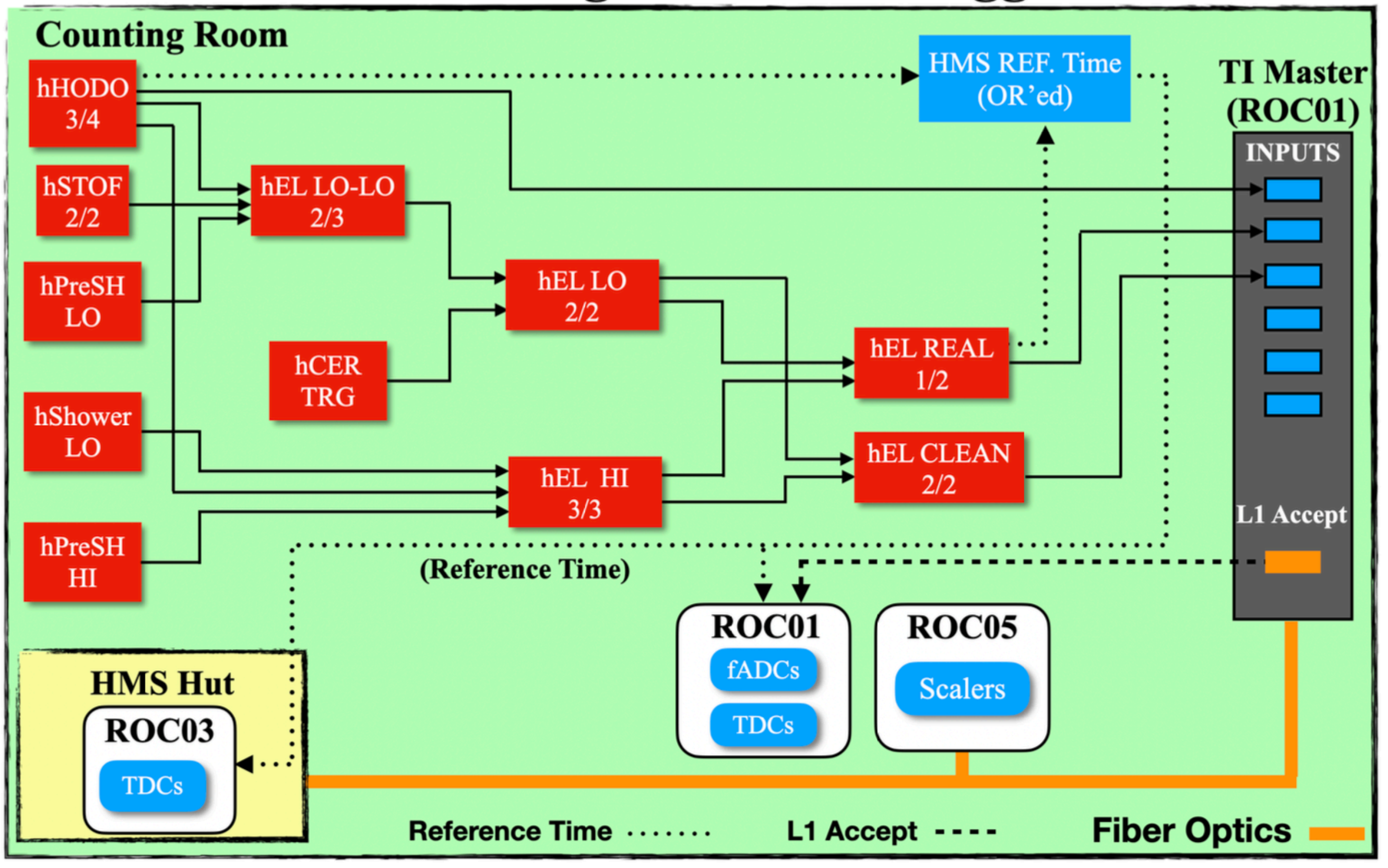
HMS Gas Cherenkov Pre-Trigger



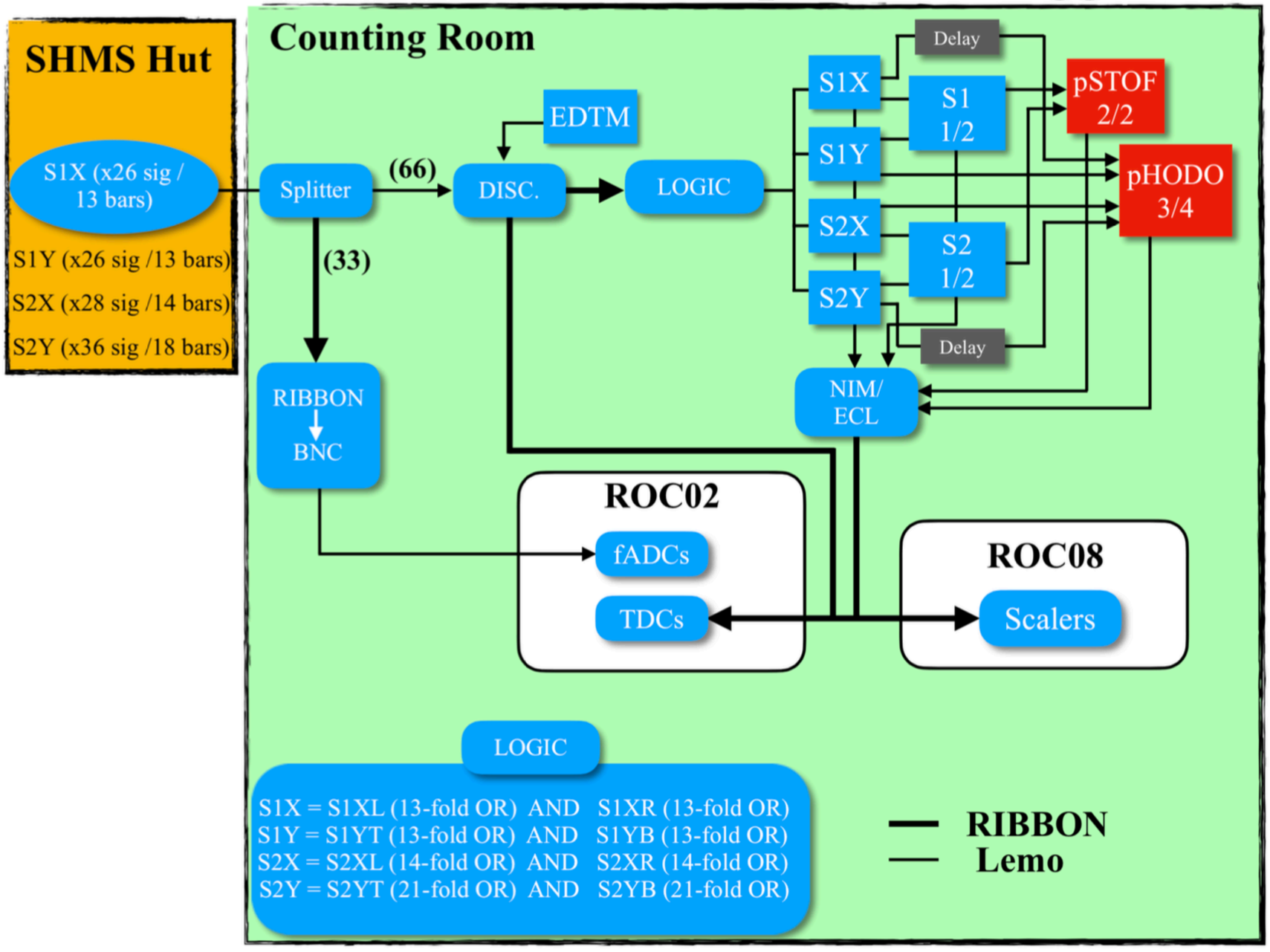
HMS Calorimeter Pre-Trigger



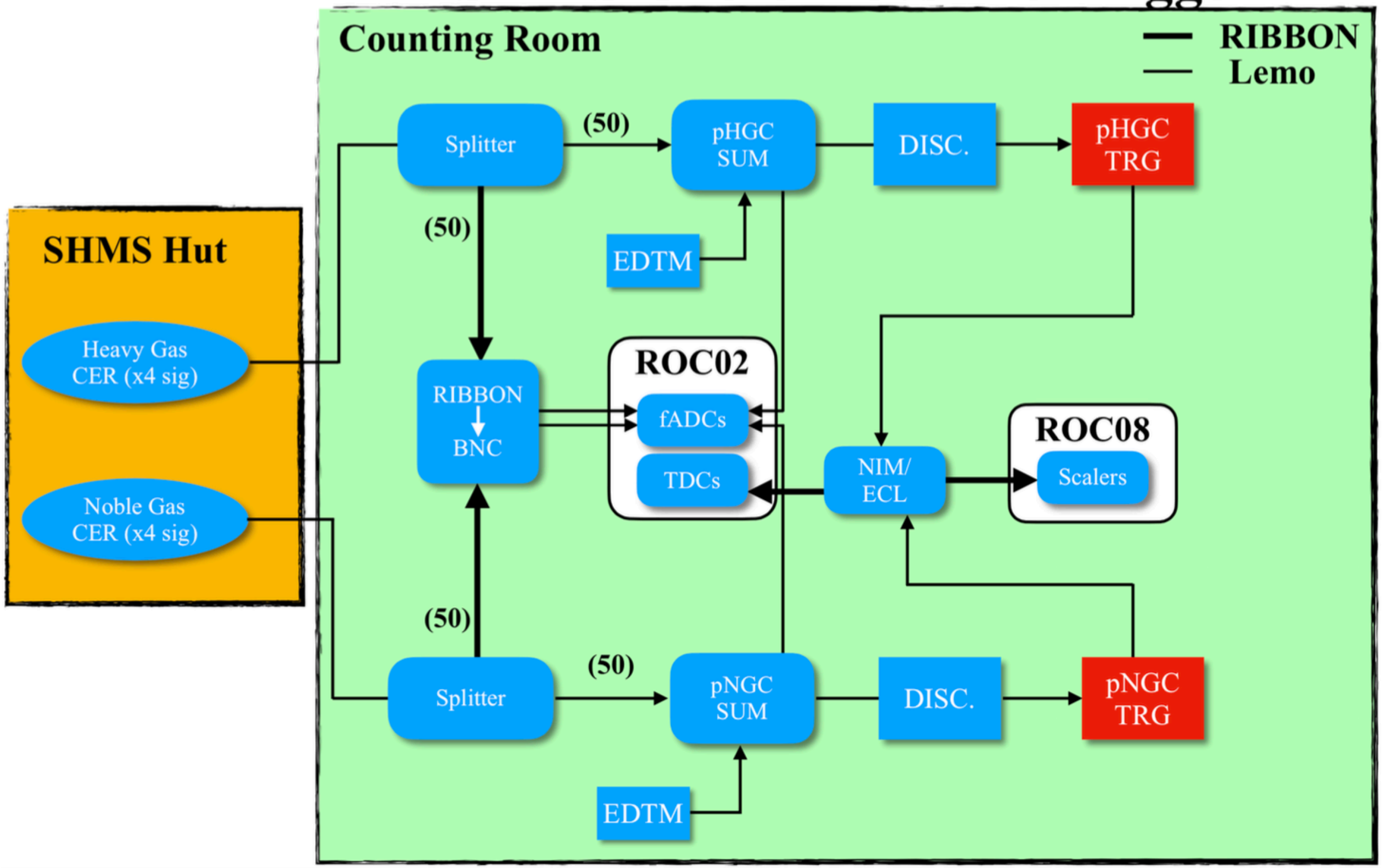
HMS Single Arm Pre-Trigger



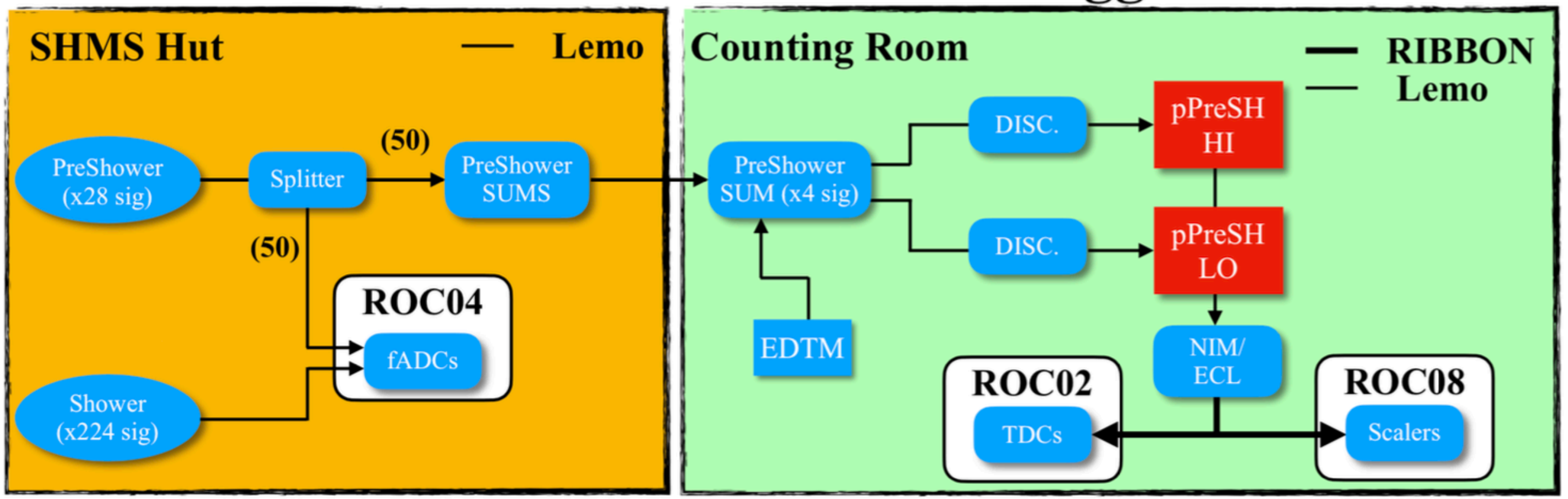
SHMS Hodoscopes Pre-Trigger



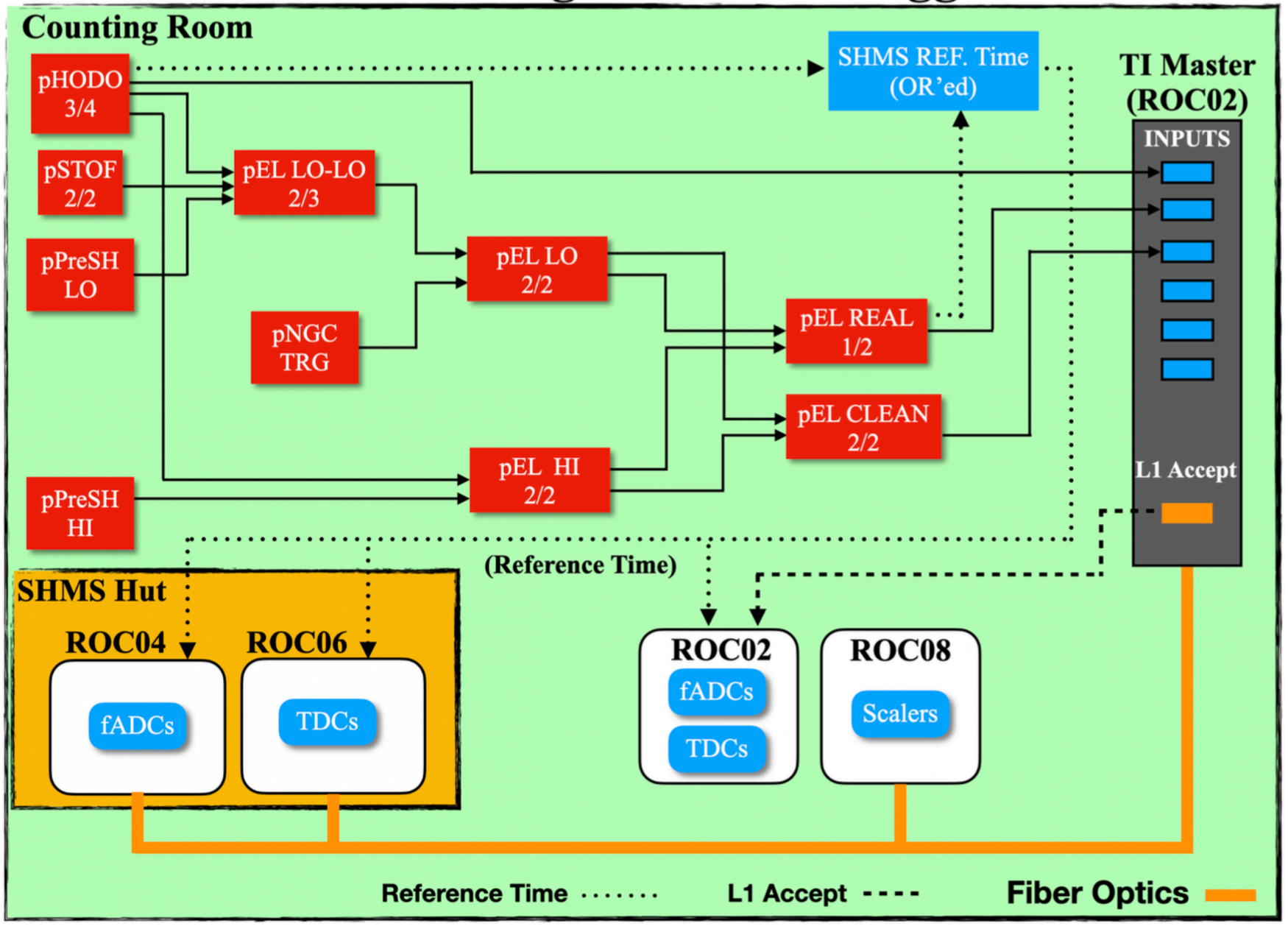
SHMS Cherenkovs Pre-Trigger



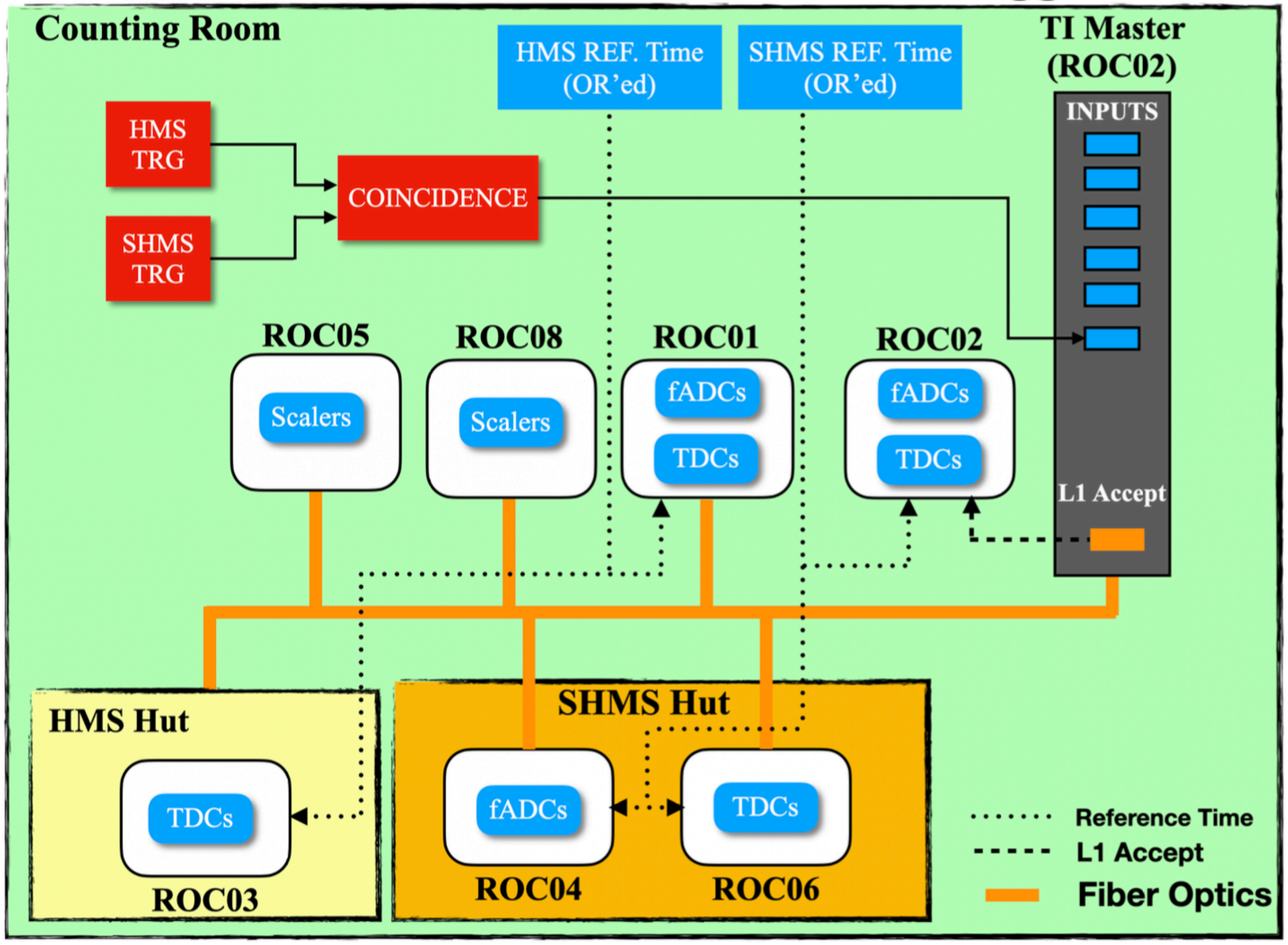
SHMS Calorimeter Pre-Trigger



SHMS Single Arm Pre-Trigger



HMS/SHMS Coincidence Pre-Trigger



Input from the collaboration:

1. Detector setup and notice us if there is any change requirement on the cabling (such as a new detector)
2. A conceptual trigger design
3. Trigger requirements: expected trigger rate, dead time requirement, prescale Ok or not, FADC pulse integrating mode or waveform mode
4. Special systematic study triggers
5. One postdoc or graduate student assigned in charge of the DAQ during running and that person will work with Hall staff on the DAQ setup (6 months before the experiment start)