Introduction to DAQ for LUXE

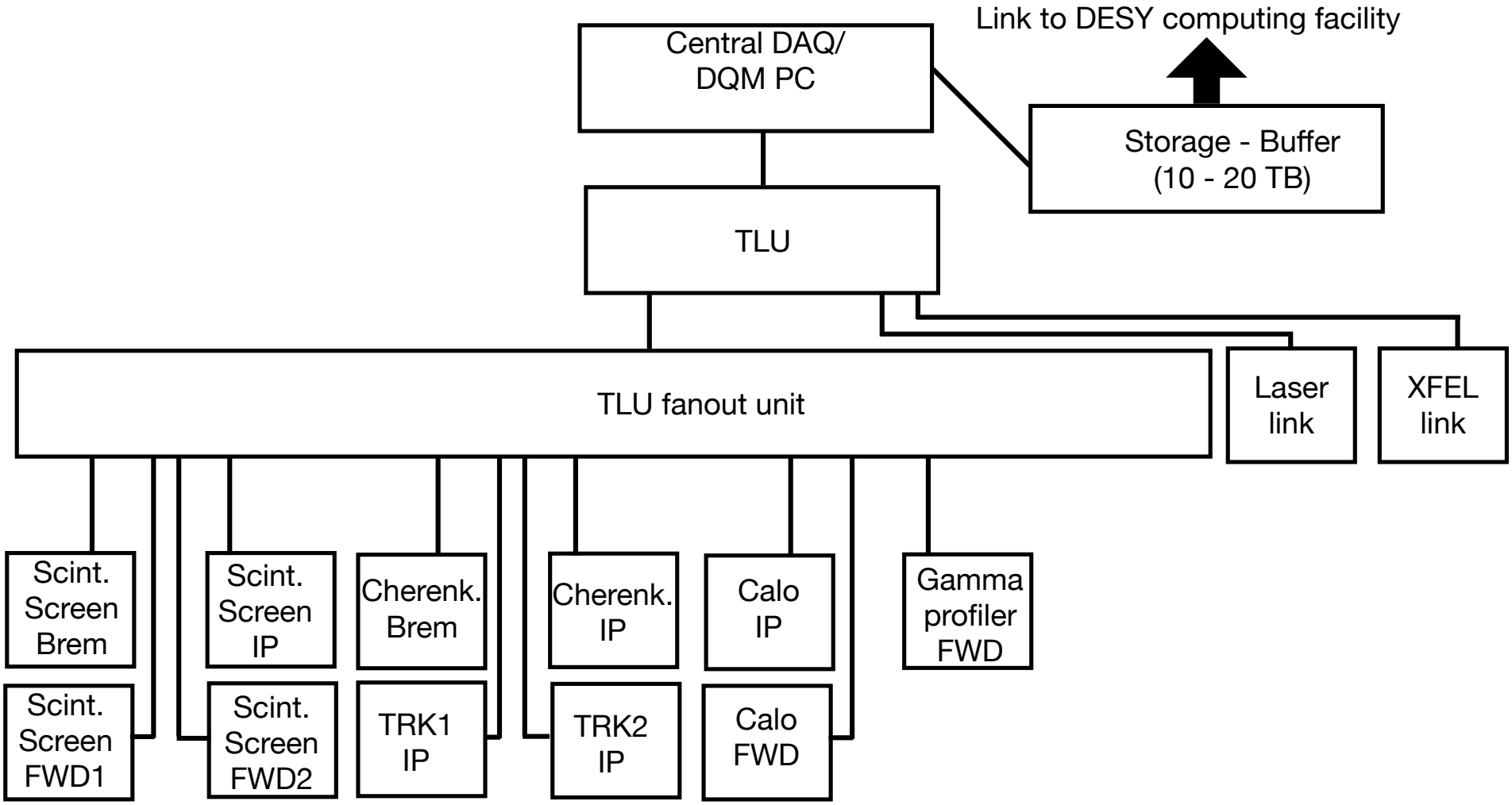
Matthew Wing

- General comments
- DAQ scheme
- Agenda for today

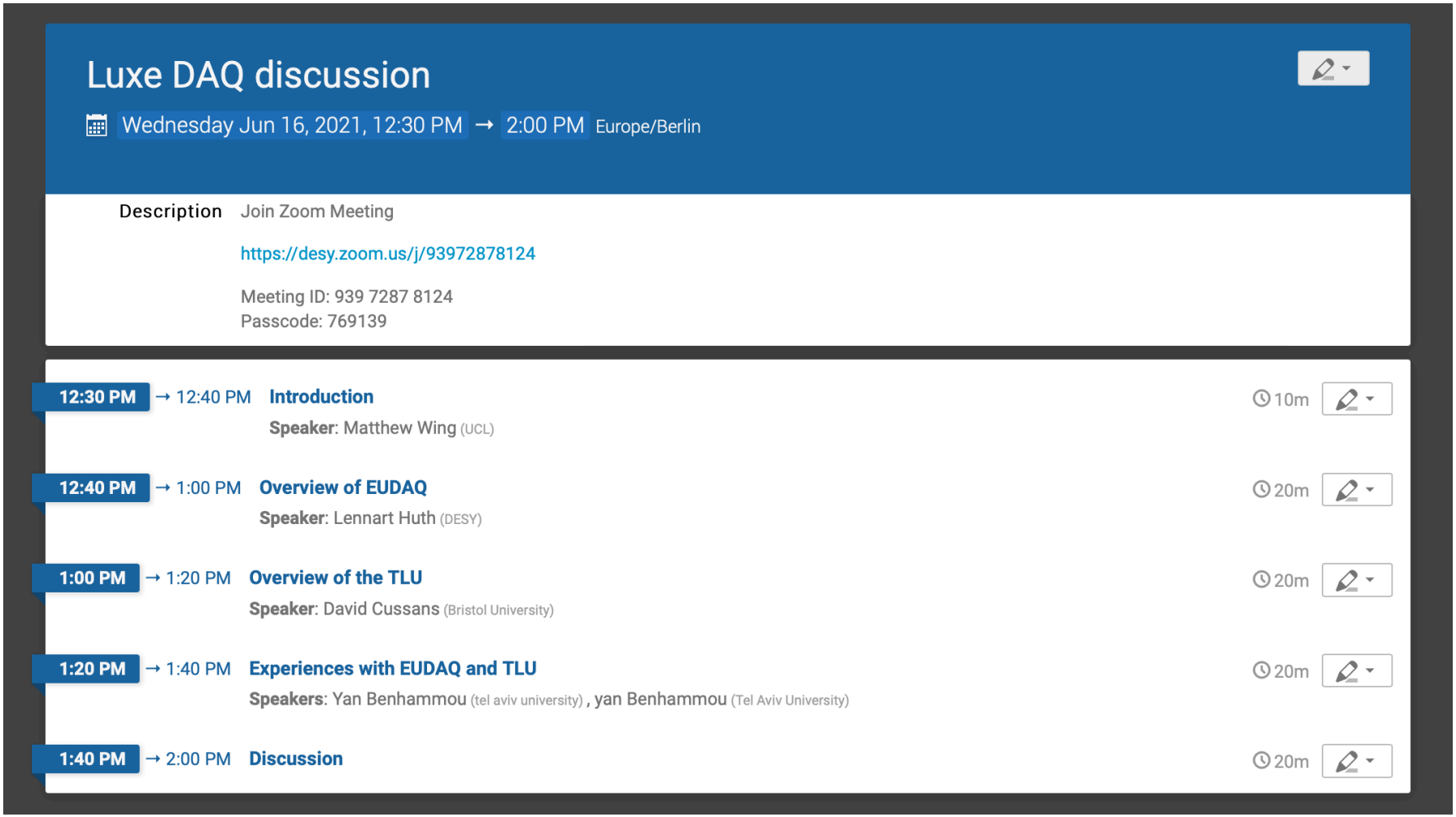
General comments

- LUXE will not be a high rate experiment, with a maximum of *10 Hz* data-taking frequency.
- The detectors will generally be small.
  - Should not need a massive PC farm, huge data reduction, etc.
  - Typical rate per sub-detector, *O(10 MB/s)*, so need ~one PC per sub-detector.
  - All data will be kept — no physics trigger.
- Use current DAQ solutions.
  - LUXE is more the size of detector beam test than a HEP experiment.
  - There are clock and timing modules used for the other experiments. E.g. Trigger Logic Unit.
  - EUDAQ2 software which is used in CERN and DESY test beams.
  - Already have links with ECAL, ALPIDE sensors, Cherenkov detectors.
- Should not forget about DQM and slow control.

DAQ scheme


Link to DESY computing facility
Central DAQ/
DQM PC
Storage - Buffer
(10 - 20 TB)
TLU
TLU fanout unit
Laser
link
XFEL
link
Scint.
Screen
Brem
Scint.
Screen
FWD1
Scint.
Screen
IP
Scint.
Screen
FWD2
Cherenk.
Brem
TRK1
IP
Cherenk.
IP
TRK2
IP
Calo
IP
Calo
FWD
Gamma
profiler
FWD

Agenda



Luxe DAQ discussion

Wednesday Jun 16, 2021, 12:30 PM → 2:00 PM Europe/Berlin

Description Join Zoom Meeting

https://desy.zoom.us/j/93972878124

Meeting ID: 939 7287 8124
Passcode: 769139

12:30 PM → 12:40 PM	**Introduction** **Speaker**: Matthew Wing (UCL)	10m
12:40 PM → 1:00 PM	**Overview of EUDAQ** **Speaker**: Lennart Huth (DESY)	20m
1:00 PM → 1:20 PM	**Overview of the TLU** **Speaker**: David Cussans (Bristol University)	20m
1:20 PM → 1:40 PM	**Experiences with EUDAQ and TLU** **Speakers**: Yan Benhammou (tel aviv university) , yan Benhammou (Tel Aviv University)	20m
1:40 PM → 2:00 PM	**Discussion**	20m