Neutron detector status

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LAMPS

CENuM

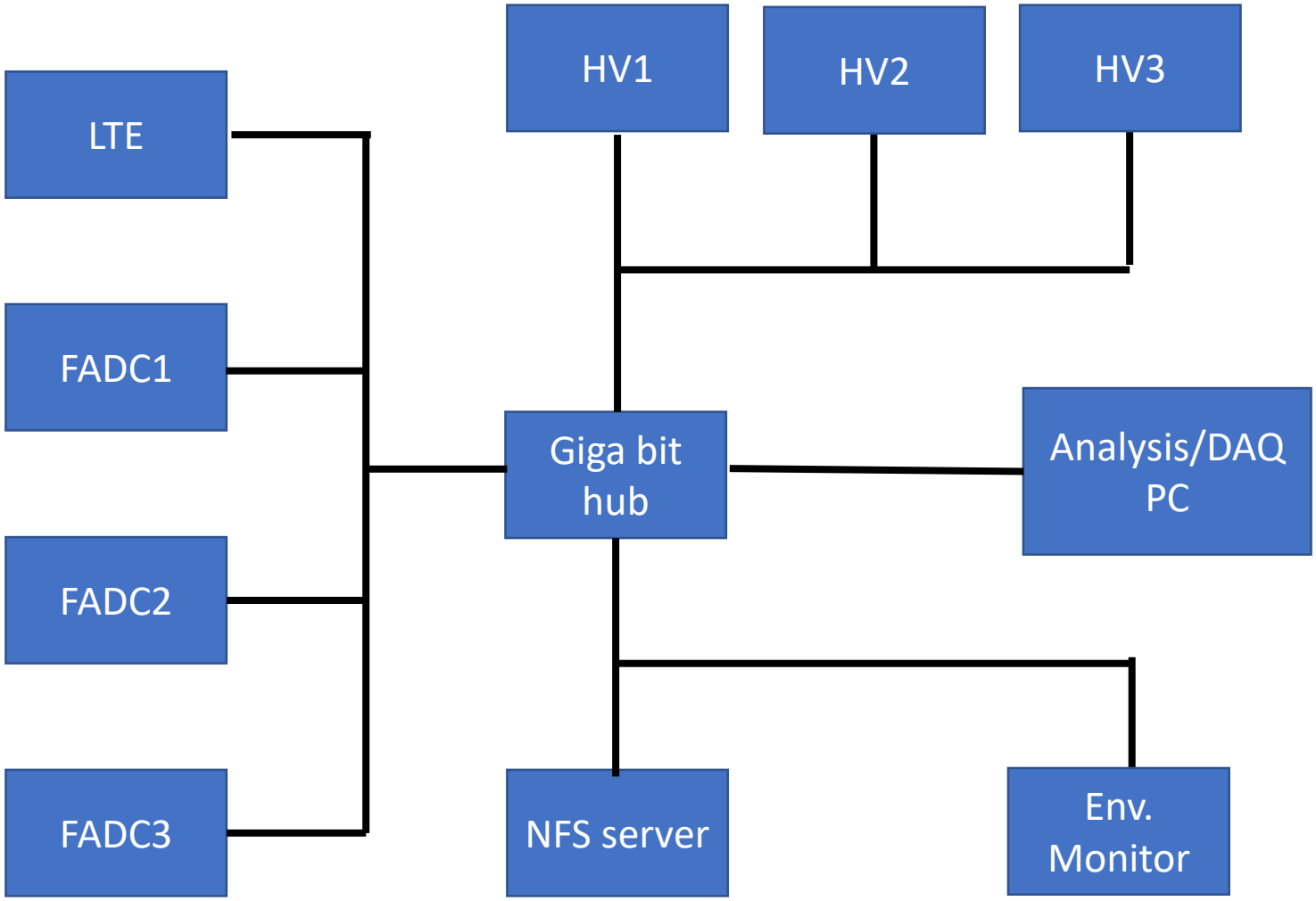
현재 상황

- DAQ setup for long term measurement - Done.
- New data format for semi-realtime event building - Done.
- Event builder – Done.
- Timing calibration programs & conversion – Undergoing

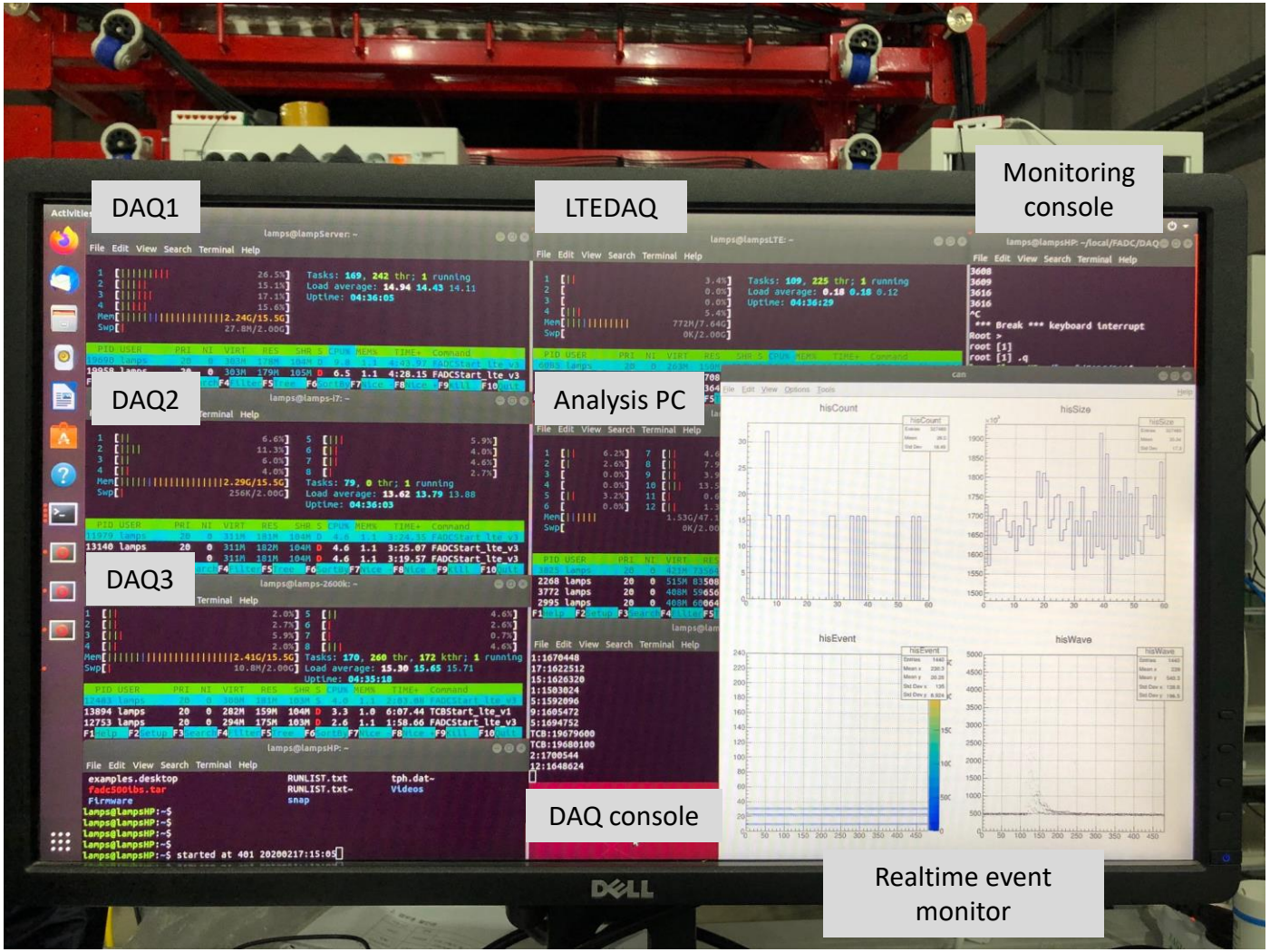
DAQ setup for long term measurement

- Average data production : 4 MB / sec (Roughly, network transfer speed)
  - 14 GB / hr, 350 GB / day -> Recorded raw data : 300 GB / day
  - Single event data size : 8.3GB / 4hr -> Event data : 50 GB / day
  - Required data storage space : 350 GB / day
  - Data storage size : 46 TB raid 5 system (storage PC, NFS mount) : 130 days
  - Data storage upgrade plan
    - Request budget : 600만원, ~ 100TB
- Current DAQ status
  - CUI base
  - LTE problem (DAQ stopped around 1M~10M triggers) solved.
  - Realtime event monitor developed.
  - Data format changed
    - Old : one tree for one FADC board (4 channel), events are not recorded chronologically.
    - New : one tree for one channel, events are recorded chronologically.
    - -> Became easy to event reconstruction.

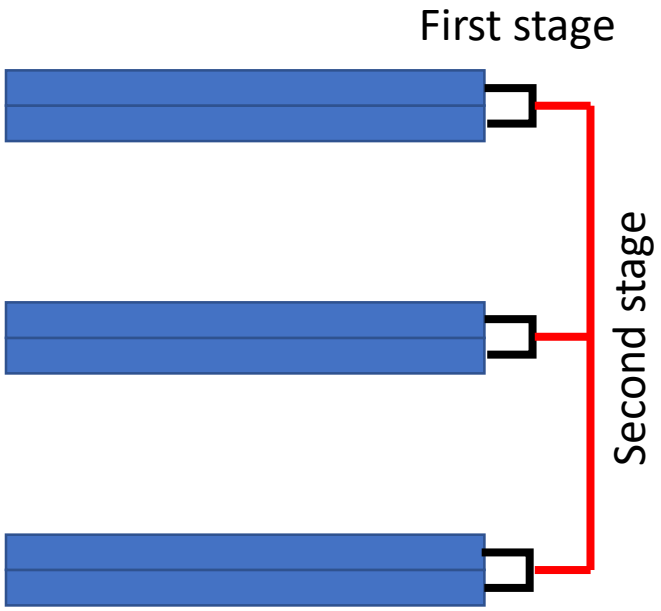
DAQ setup


HV1
HV2
HV3
LTE
FADC1
FADC2
FADC3
Giga bit hub
Analysis/DAQ PC
NFS server
Env. Monitor

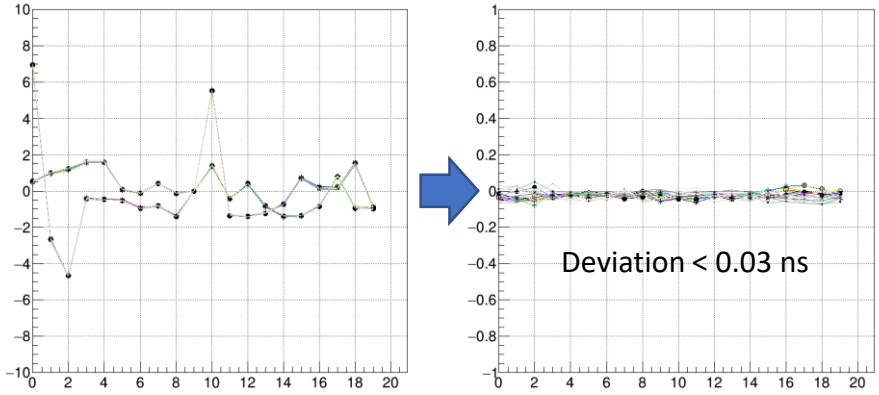
DAQ view - Sejong



Timing calibration



- Two stages
  - First stage : Compare timing between modules in same stage.
  - Second stage : Compare timing between modules in different stage, but same position.

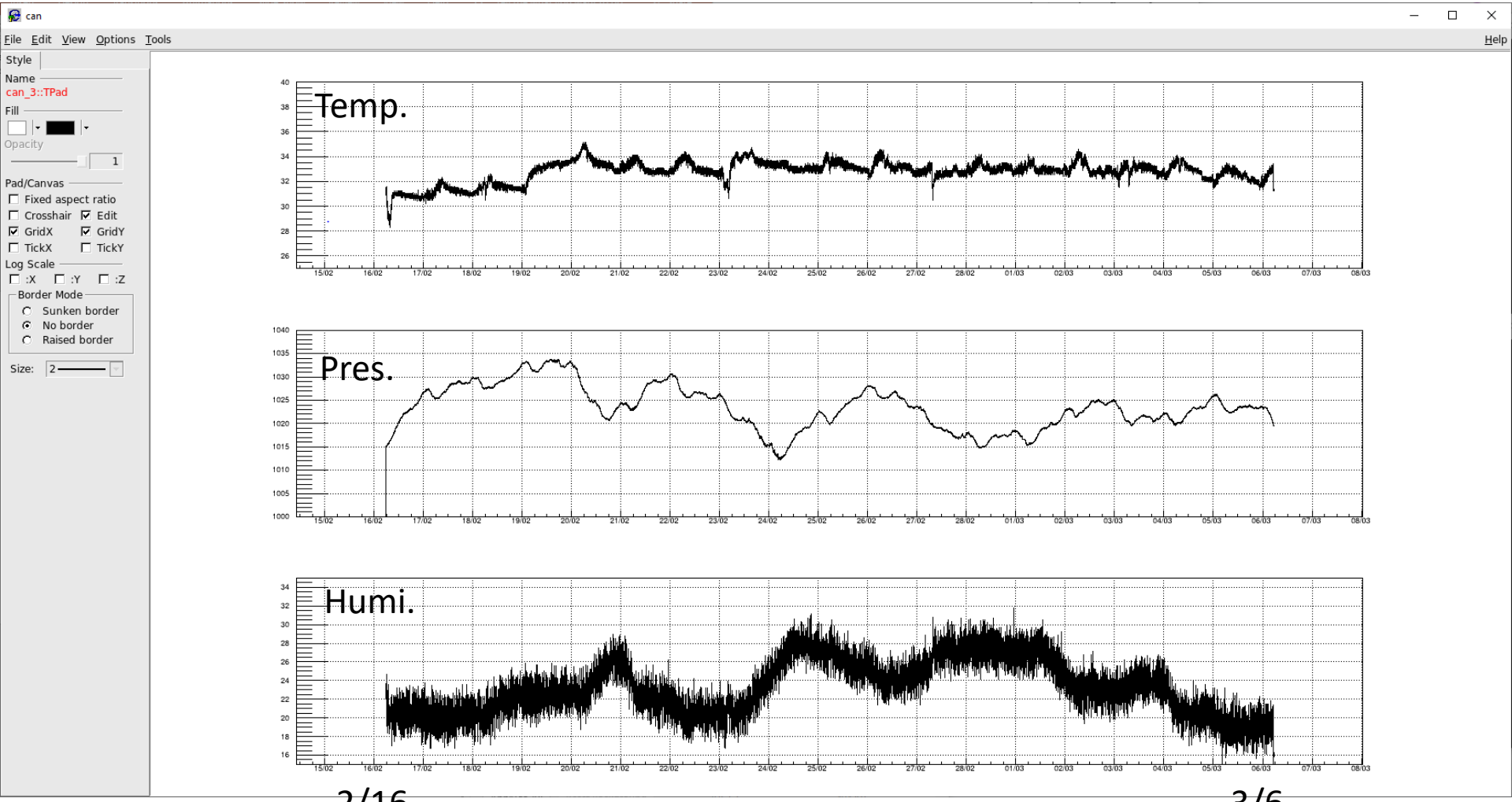


- Timing calibration will be done with ~0.03 ns

Current data taking status

- Started data taking from run #401, 17th Feb.
- Current #run is 480. ~ 2000 hr.
- Current total data size : ~ 4.5TB
- Now data conversion is undergoing.
  - Issue : data conversion is blocked sometime.
    - When DAQ stopped, conversion program works well.
    - When DAQ running, conversion program halted/stopped for minutes.
    - Using dual data storage (Writing / reading)

Env. Monitoring



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