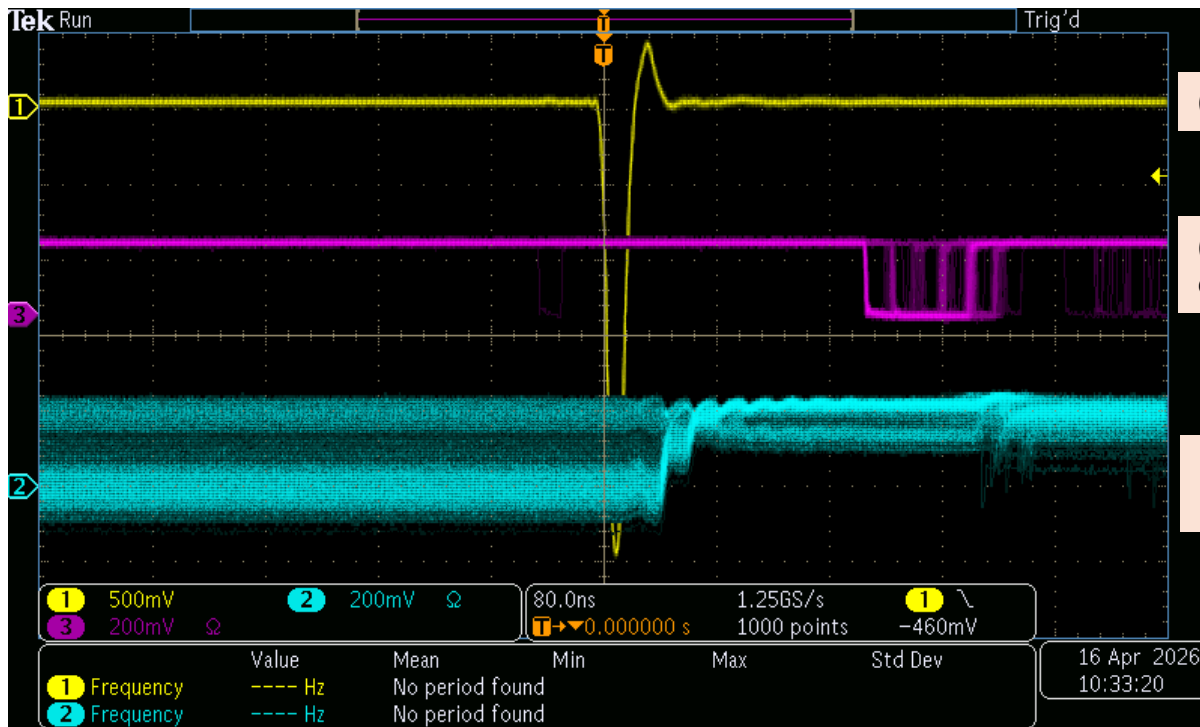
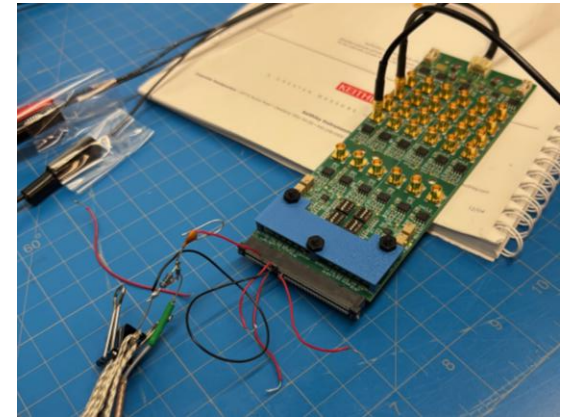
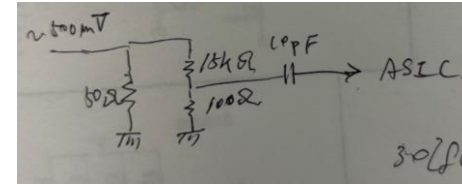


FCFD evaluation card test status

Takao Sakaguchi, BNL on Apr 23, 2026

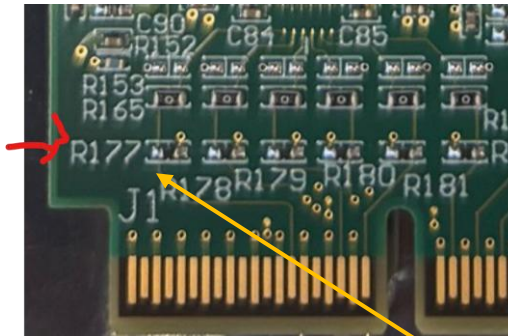
- Initial smoke test (power-on, check currents/voltage) passed (Apr 13).
- Fed pulse (rise time $\sim 10\text{nsec}$) to the card via a simple charge injection circuit (but no output, Apr 15).
- Removed a 66.5 Ohm resistor placed at the input (Raymond's suggestion), then the signal was seen.
 - Found input/output channel mapping issue.
 - Big noise due to the "on-the-fly" pulse injection system



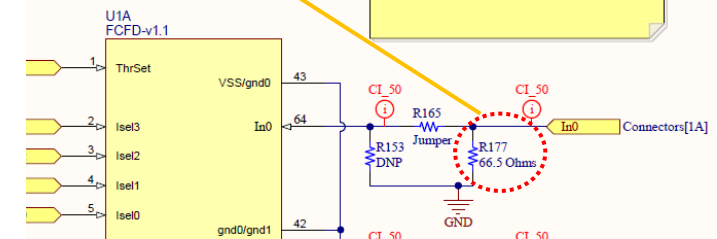
(1) Input pulse

(3) Discriminator output

(2) Analog (CSA?) output

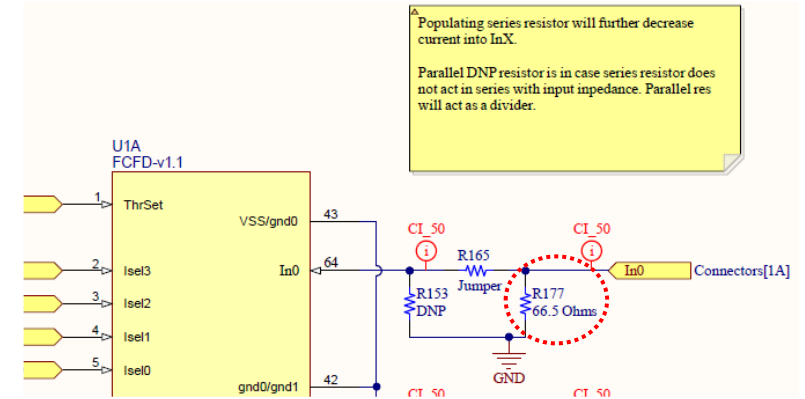


Populating series resistor will further decrease current into InX.
 Parallel DNP resistor is in case series resistor does not act in series with input impedance. Parallel res will act as a divider.

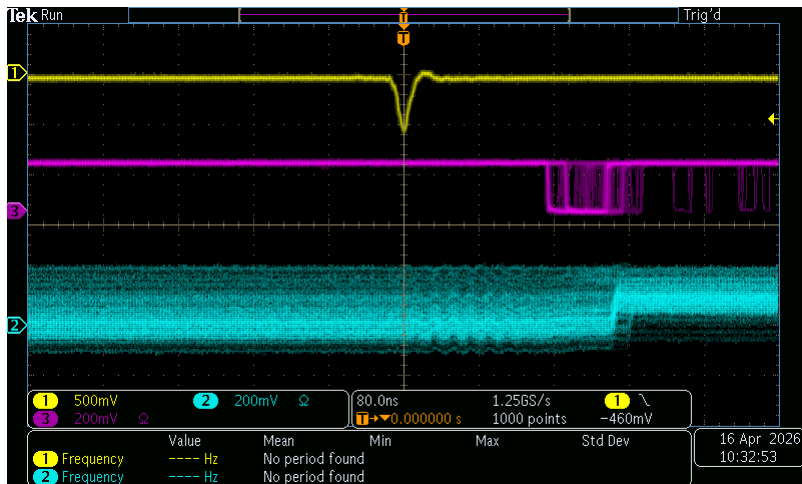


Issue and next step

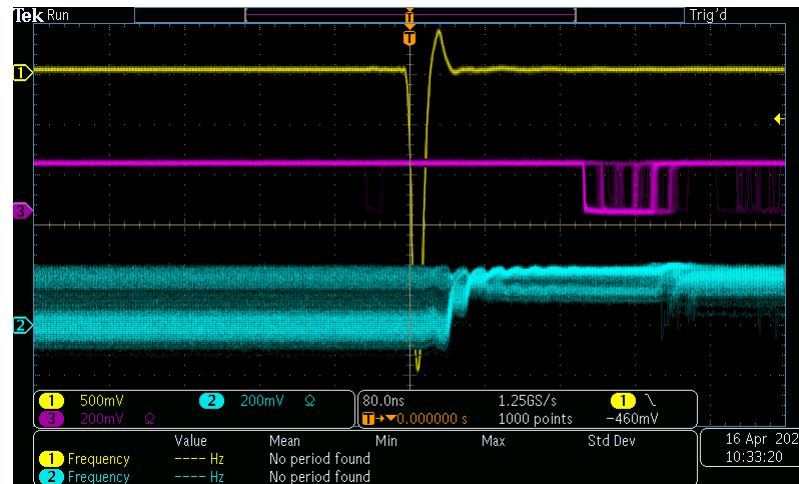
- More pictures from Oscilloscope.
- Issue
 - 66.5 Ohm was placed to make the input impedance of the card to 50 Ohm, and to attenuate the signal to 25% level. This is under the assumption that FCFD input impedance is 200 Ohm.
 - I measured the input impedance, and was 300kOhm (at power-off)
 - We are asking FCFD experts about an alternate solution. No response so far.
- Pending the issue resolved, the card is in service for testing with HRPPD.
- Next steps
 - IO started wire-bonding for the rest five cards last Monday.
 - They likely finish by Monday next week.
 - Will send one card to Raymond for his test.



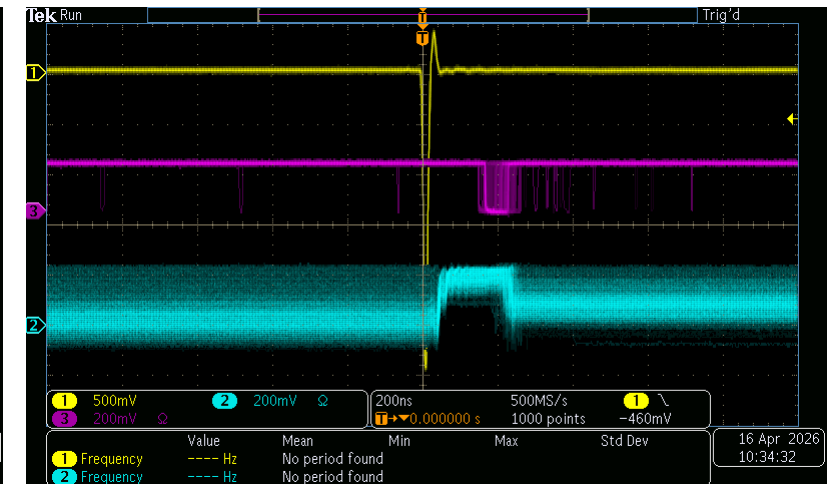
Lower input signal



Same one in the previous slide



Same as the left one but time bin is coarser.



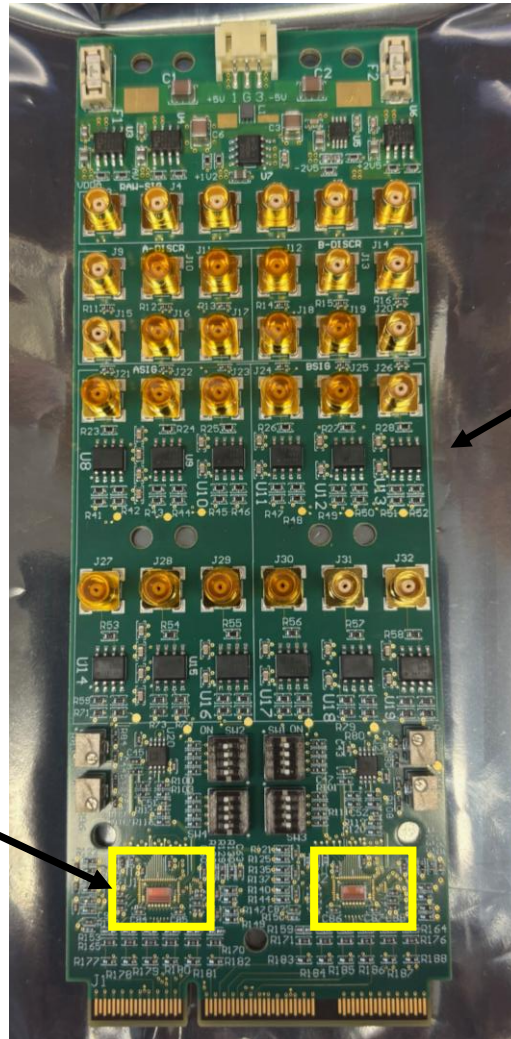
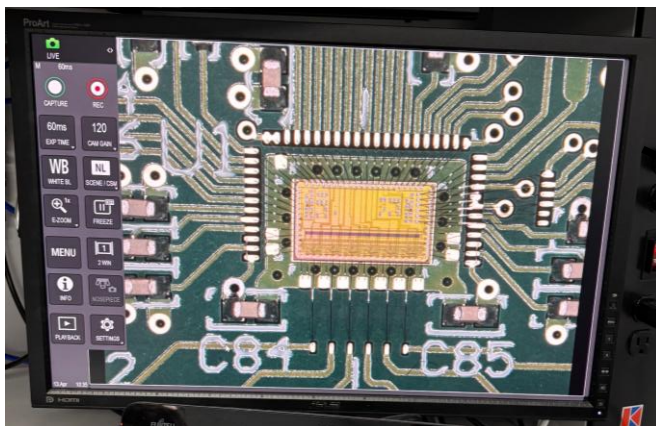
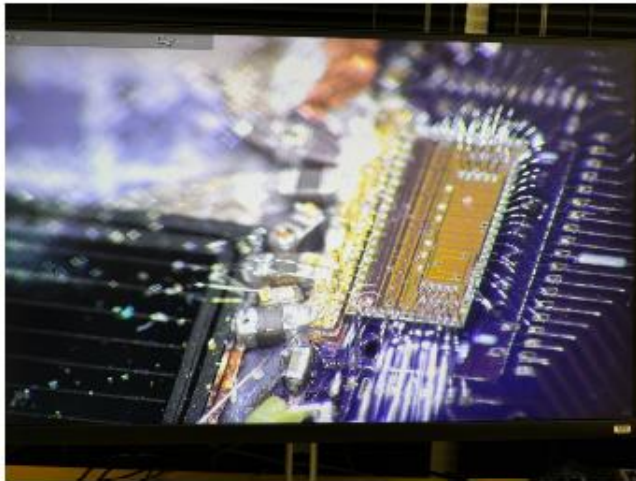
Backup

FCFD chip and testcard status

Takao Sakaguchi, BNL (Apr 16)

FCFDv1.1 has 6 channels of Analog-amp and CFD output (No ADC/TAC)

Picture of FCFD chips from Artur (FNAL)



Test board with chips wire-bonded at the IO at BNL. Board produced by Raymond

Thanks to Alexander and Jihee for producing the cover!

