

# Readbacker, Source test

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# Status

- Readbacker
  - 1<sup>st</sup> version completed. Testing with RIKEN test bench
- Setup the fixture and darkbox for source test
- 1<sup>st</sup> results of source test with fixture

# Readbacker

- Implementation and Test done at NWU test bench
  - Additional test with the RIKEN bench
- Readback value is appeared when pushing "Read" button after the command transmission is activated

Testing the readbacker at RIKEN

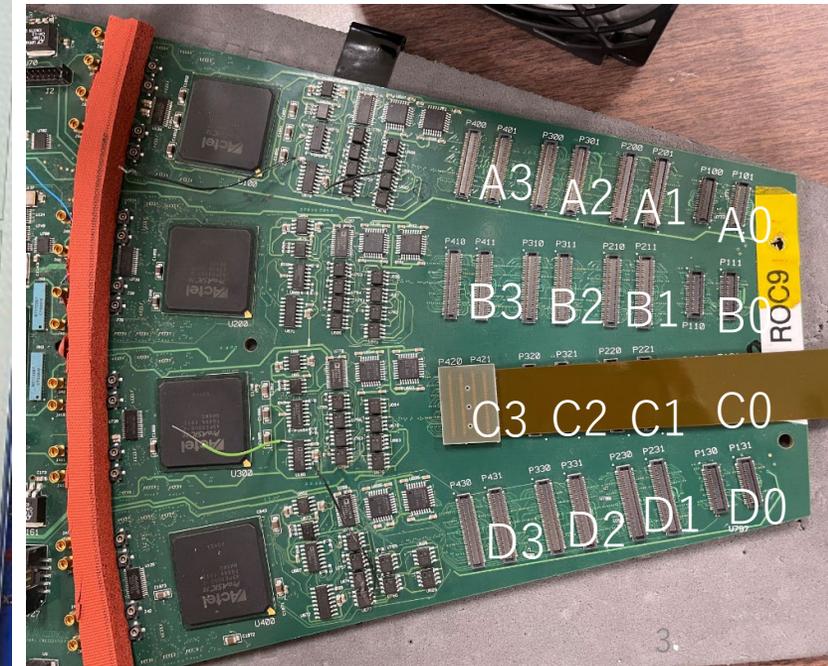
Conn. name and its position

The screenshot shows the FPIX TestStand GUI. A red box highlights the 'Module -> Conn. name' header in the top table. Another red box highlights the 'Chip Control' section, showing 'Side=15: both', '0: top', and '1: bottom'. A third red box highlights the 'Module Enable' section, showing a list of modules (Module 15 to Module 1) with 'On' and 'Off' radio buttons and 'Both' checkboxes.

Reg	Desc	To Chip	From Chip	Chip Command	Default
*	Wild			Read Write Set255 Reset	Default
1	Mask			Read Write Set255 Reset	Default
2	Dig Ctrl	1		Read Write Set255 Reset	Default
3	Vref	1		Read Write Set255 Reset	Default
4	DAC0	20	8	Read Write Set255 Reset	Default
5	DAC1	28	16	Read Write Set255 Reset	Default
6	DAC2	30	32	Read Write Set255 Reset	Default
7	DAC3	35	48	Read Write Set255 Reset	Default
8	DAC4	40	80	Read Write Set255 Reset	Default
9	DAC5	45	112	Read Write Set255 Reset	Default
10	DAC6	50	144	Read Write Set255 Reset	Default
11	DAC7	55	176	Read Write Set255 Reset	Default
12	N1Sel <3:0>	6	4	Read Write Set255 Reset	Default
13	N2Sel <7:4>	4	4	Read Write Set255 Reset	Default
14	P3Sel <1:0>	0	0	Read Write Set255 Reset	Default
15	G5Sel <2:0>	3	1	Read Write Set255 Reset	Default
16	P1Sel <2:0>	5	5	Read Write Set255 Reset	Default
17	LVDS Current	1	1	Read Write Set255 Reset	Default
18	Reset	0	0	Read Write Set255 Reset	Default

Module	On	Off	Both	Side 0	Side 1
Module 15	On	Off	Both	Side 0	Side 1
Module 0	On	Off	Both	Side 0	Side 1
Module 1	On	Off	Both	Side 0	Side 1
Module 2	On	Off	Both	Side 0	Side 1
Module 3	On	Off	Both	Side 0	Side 1
Module 4	On	Off	Both	Side 0	Side 1
Module 5	On	Off	Both	Side 0	Side 1
Module 6	On	Off	Both	Side 0	Side 1
Module 7	On	Off	Both	Side 0	Side 1
Module 8	On	Off	Both	Side 0	Side 1
Module 9	On	Off	Both	Side 0	Side 1
Module 10	On	Off	Both	Side 0	Side 1
Module 11	On	Off	Both	Side 0	Side 1
Module 12	On	Off	Both	Side 0	Side 1
Module 13	On	Off	Both	Side 0	Side 1
Module 14	On	Off	Both	Side 0	Side 1



# Source test fixture at darkbox

- The stage at the fixture is higher compared with the thru. hole of the box
  - Top is open. We can access from top
  - Conversion cable could be damaged.



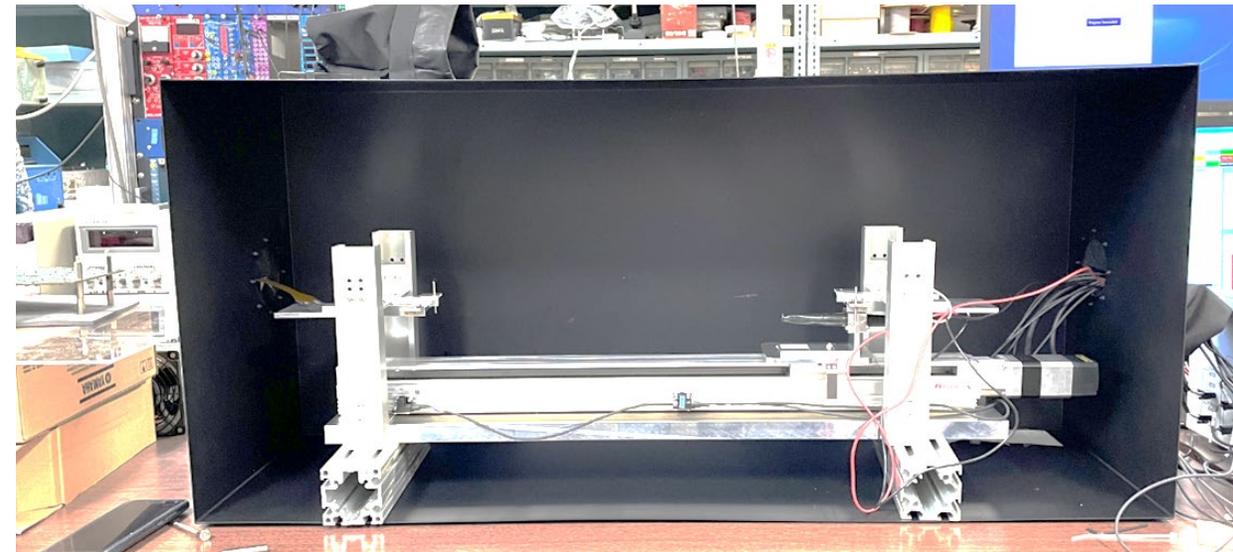
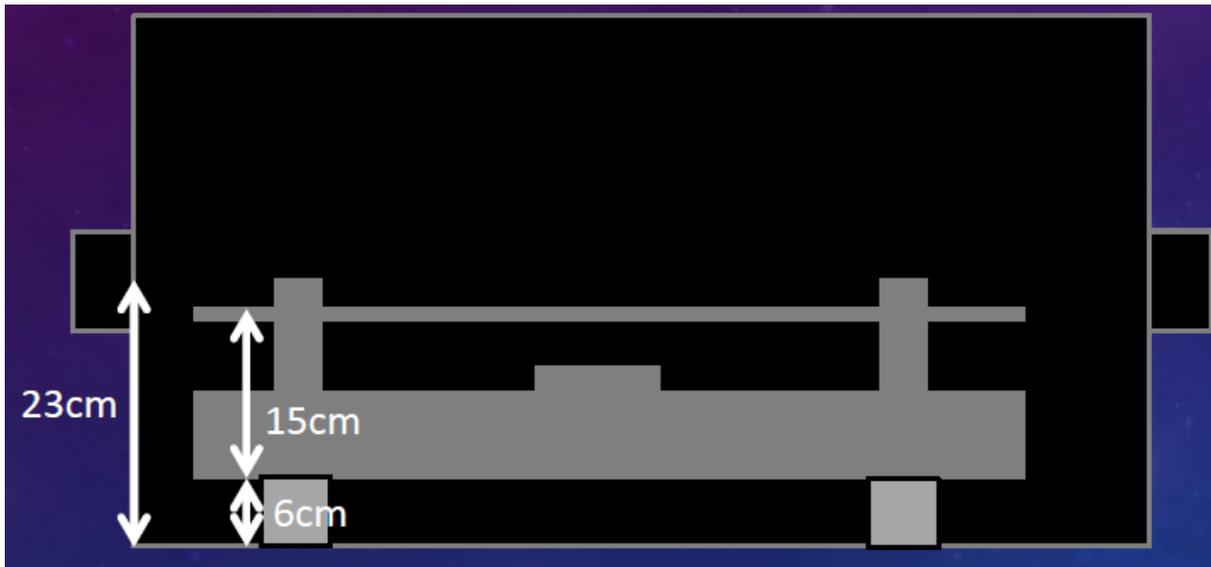
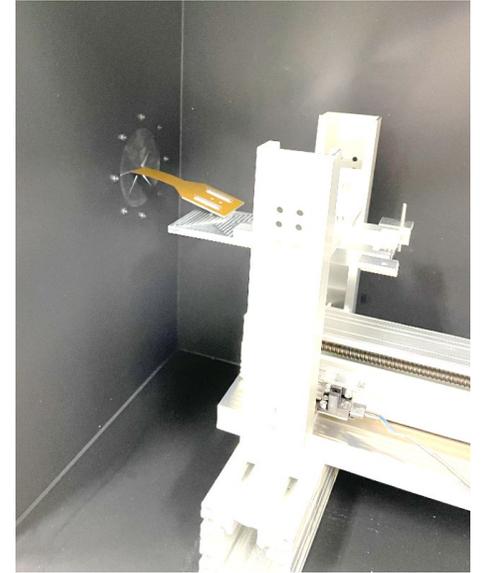
2021/6/24

Activity at NWU



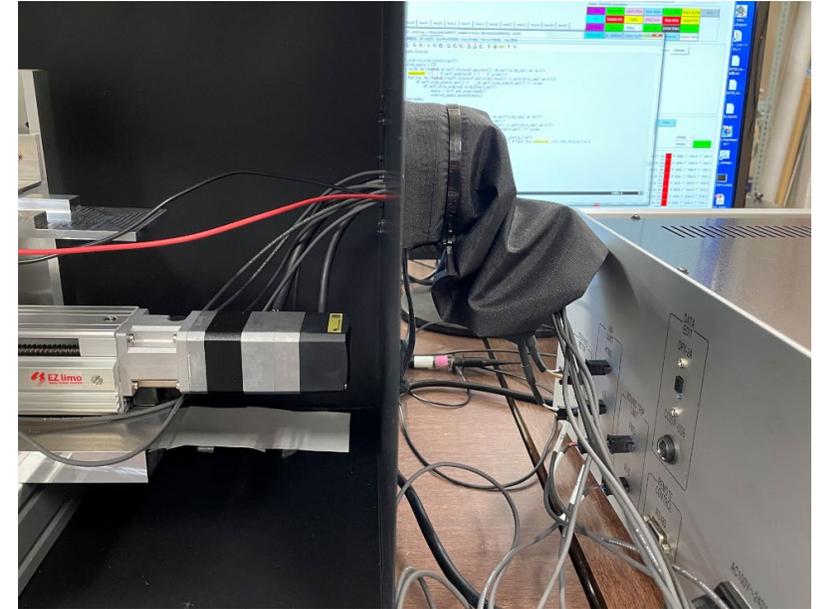
# Source test fixture at darkbox 2

- To match the stage at the fixture and the thru. hole of the box, the darkbox is 90 rotated.
  - Fixture is lifted up by
  - Side is open. Accessible from side
- Hole position should be fit with the fixture

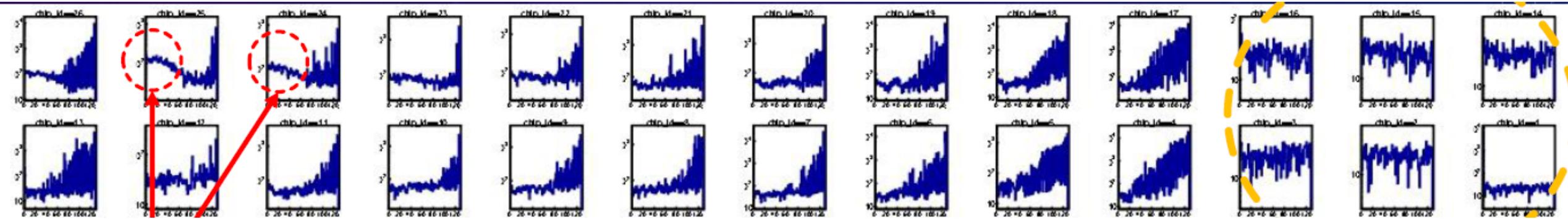
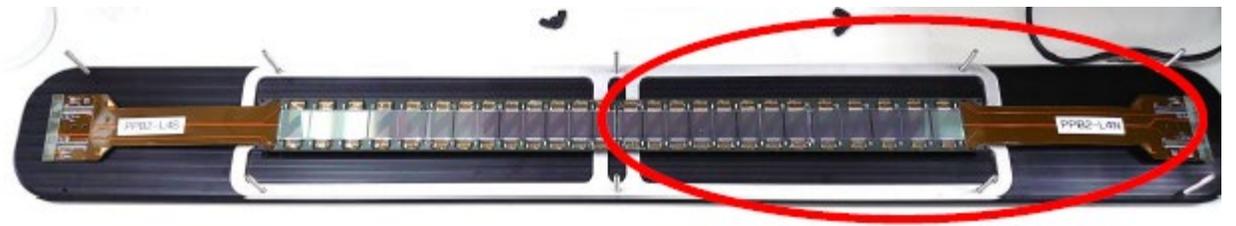


# Problems

- Cables for the control box is too short
- Lid of the box is locked by the clamp
- We plan to update with
  - The clamp will be changed to the snap lock
  - Lubber legs will be added
- The signal/power cable of PMT should be properly routed and held.
  - Cable is moving unexpectedly when running the stage



# Source test result



- Sr90 source is put on the stage
  - Stage is moving from side to side repeatedly
- the signal from beta-ray is seen
  - Fixture is working nicely

# Summary

- Readbacker development is completed at NWU
  - 1<sup>st</sup> version is under test at RIKEN
- Source test fixture is installed to the darkbox
  - Some issues are found and fixed
- Source test with the setup
  - Fixture works nicely
  - Data looks strange. Need further investigation