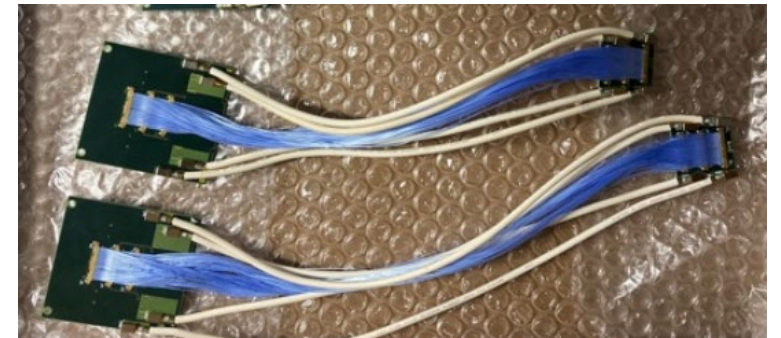


- BEX: 120cm FPC
 - 4 layers (Digital Power, Analog Power, GND, Signal)
 - Signal layer contains 62 LVDS pairs)
 - Signal line/space : 130um/130um
- Bias cable
 - 2 Coax for sensor A/B
- Micro-Coax (20cm)
 - Curving path
- Half ladder (40cm)
 - 26 ASIC : each ASIC has 2 data outputs (2 LVDS pairs)
 - 7 layers
 - Analog, Digital, Bias, GND, signal x 2
 - Signal layer : line/space 50um/50um

Micro-Coax

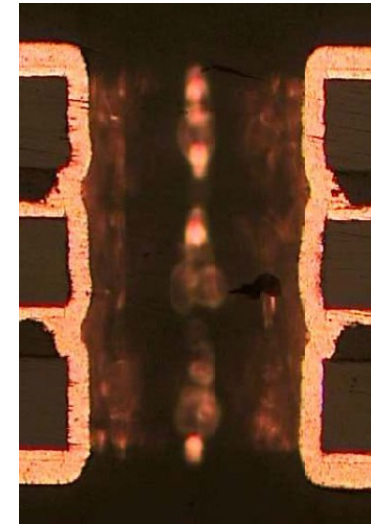
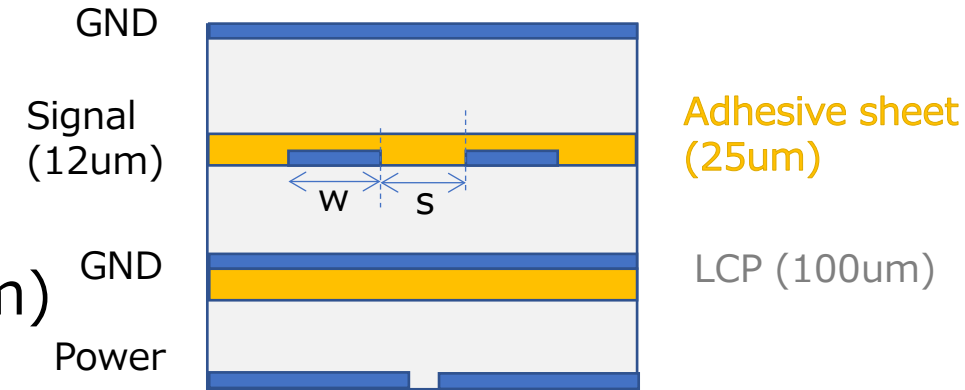


BEX

- Cable design (prototype)

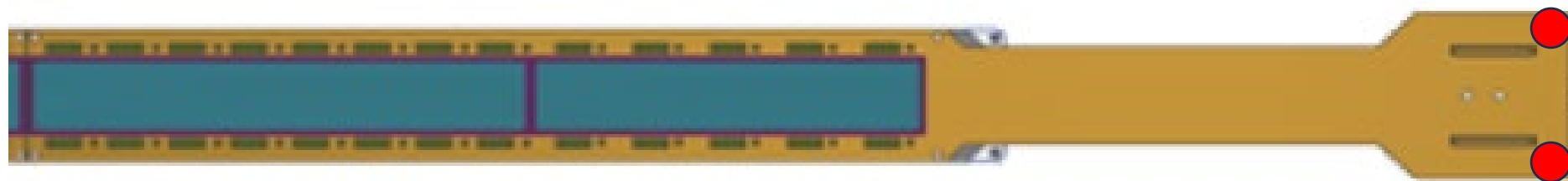
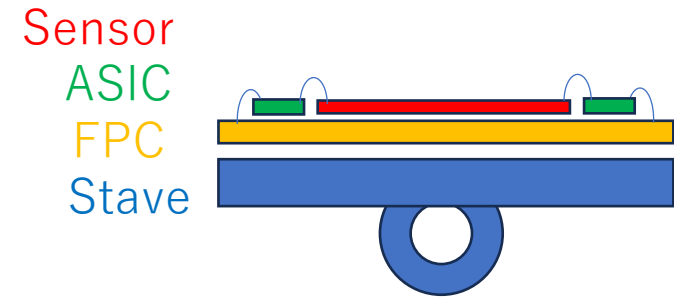
- Dimension (L x W): 120 x 5 cm²
- 4 layers (signal , 2xGND, PWR): $X = 0.8\% X_0$
 - Cu : 12um thick per layer + 30 um Cu plating on surface
- Lines : 124 lines (Line and space : 130 & 130 um)
- Z_{diff} : 100Ω by strip line structure
 - Signal layer is sandwiched by GND layers
- Liquid Crystal Polymer (LCP) as substrate
 - Less signal loss due to low di-electric constant & $\tan(\delta)$
 - Thick LCP available for Z_{diff} : 100um

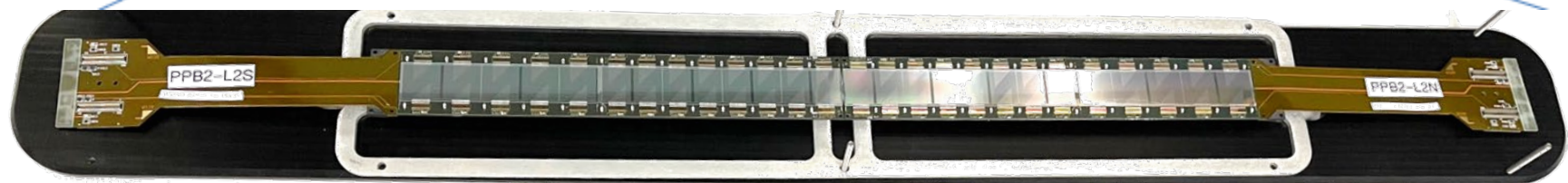
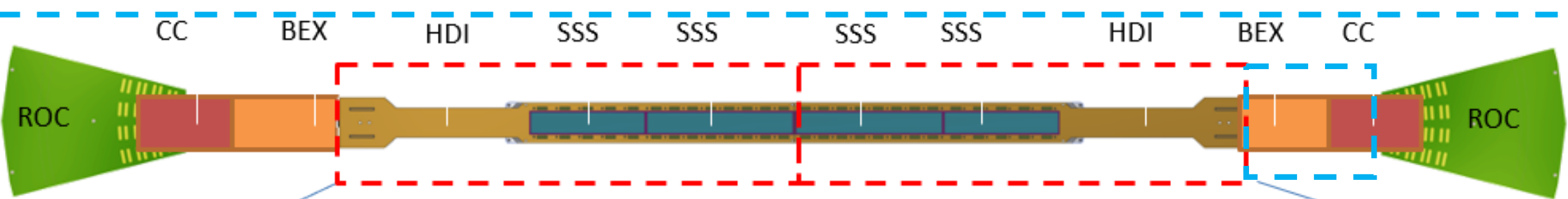
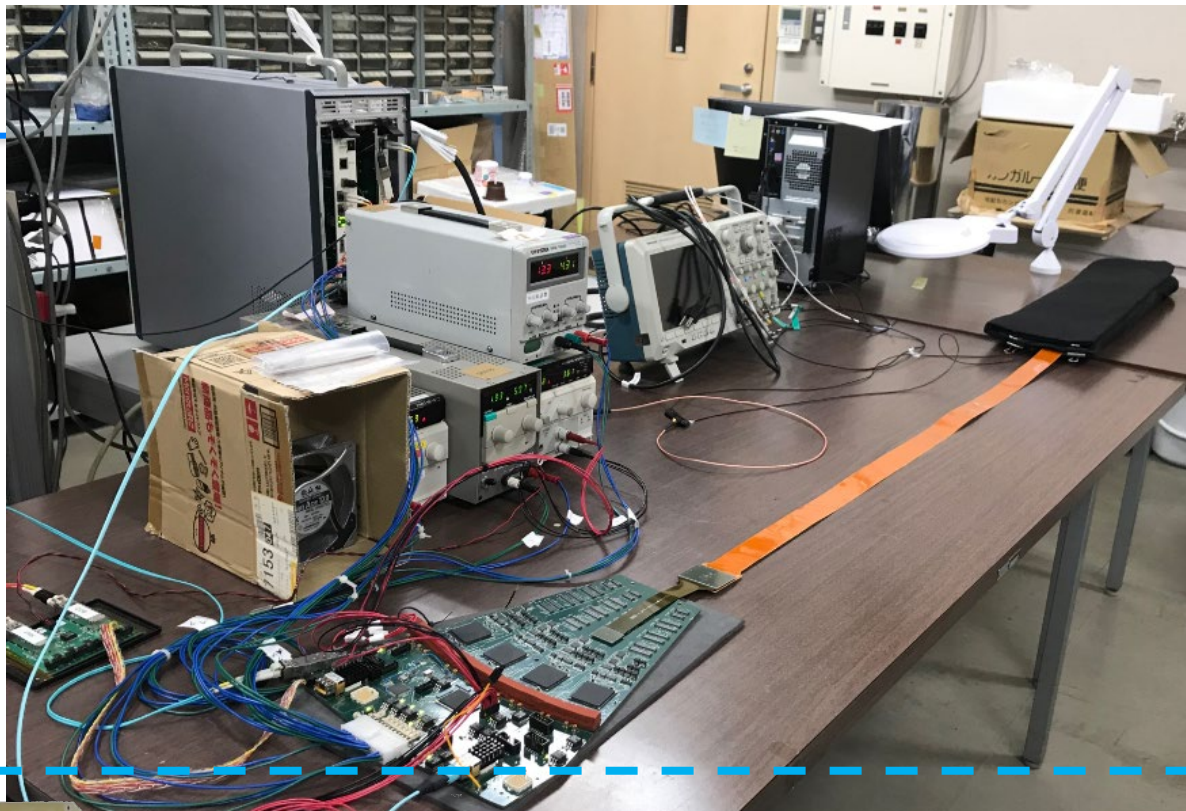
4 layers laminated by the adhesive sheet



Ladder

- Sensor
 - 320um thick
- ASIC
 - 40cm long
 - 7 Cu layers + Polyimide + Glue: X= 0.85%
 - 2GND + A/D power + Bias + 3 signal
 - Separated bias connections w/ signal & power
- Stave
 - CFRP w/ high heat conductivity
 - CFRP Tube for cooling liquid





- I2C
- CLK
- HV
- LV
- GND
- Data

