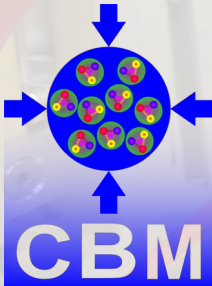
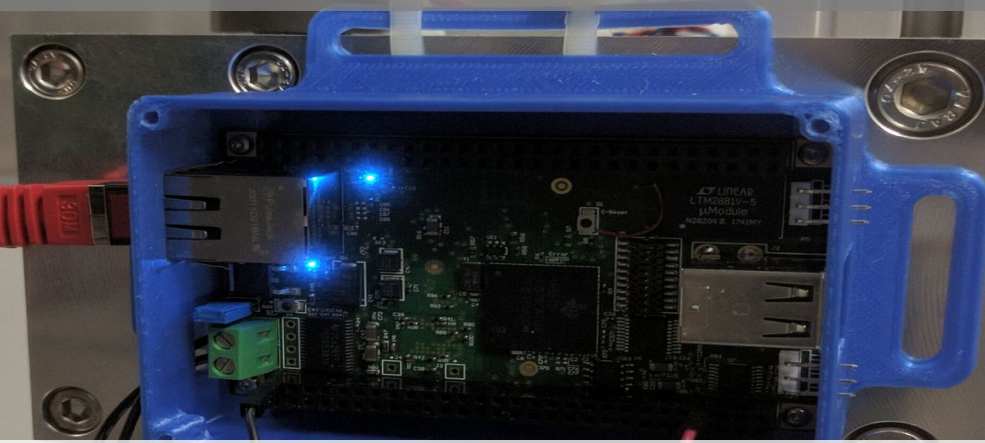


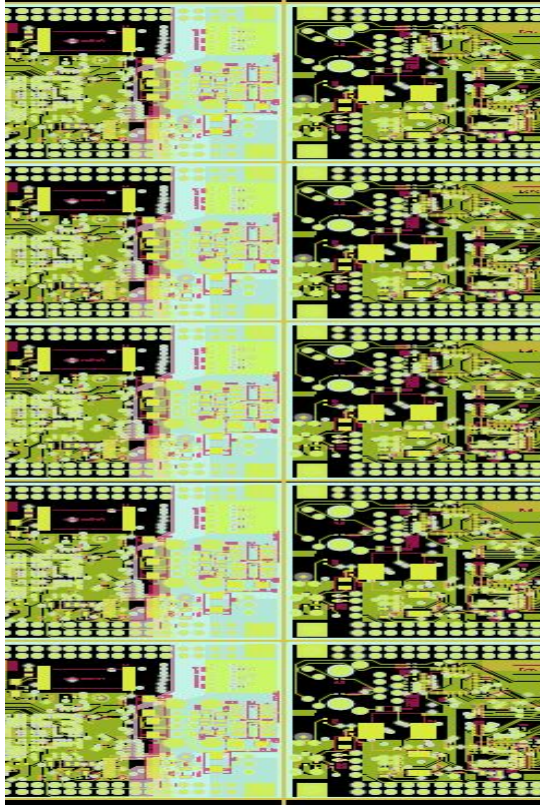
Fault Tolerant Local and Monitoring Control Board



Research group Prof. Udo Kebschull
José Antonio Lucio Martínez

Infrastructure and Computer Systems in Data Processing
Goethe Universität Frankfurt

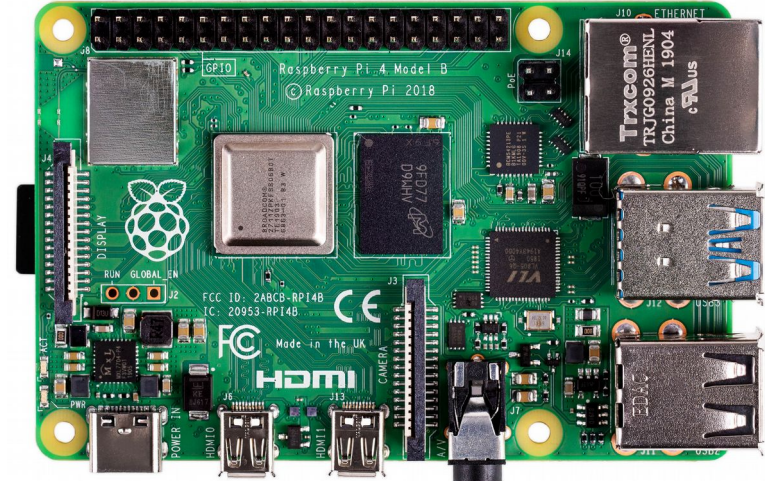
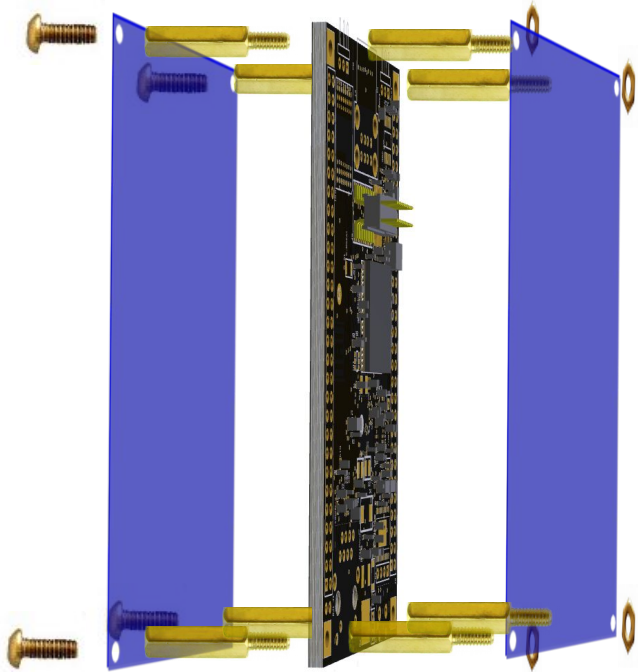
FTLMC Assembly Status



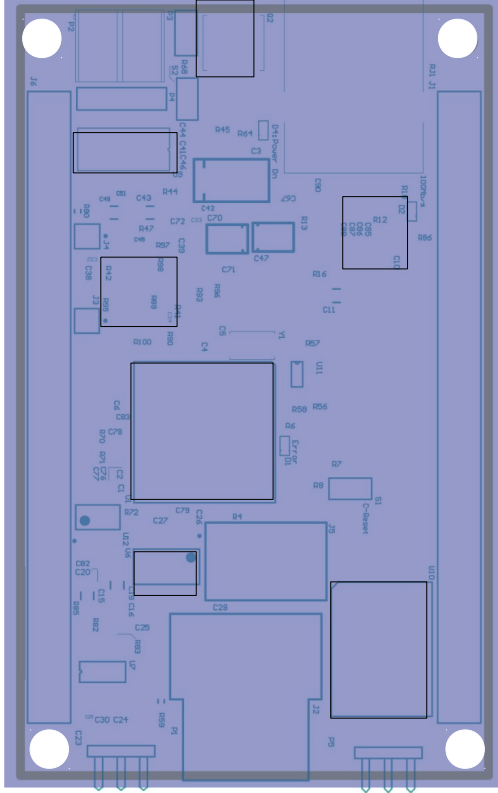
- 10 FTLMC's Delivered ✓

Beam- Time preparation

- Use EBT3 film dosimetry system
- Read all films before and after irradiation
- X-Y move sequence for every component
- Expand and integrate raspberry pi

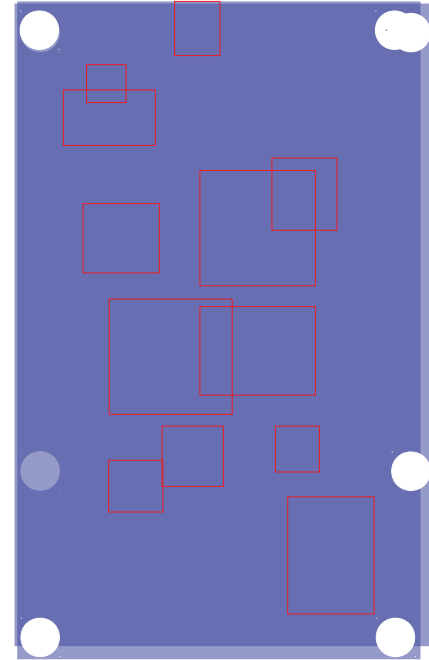
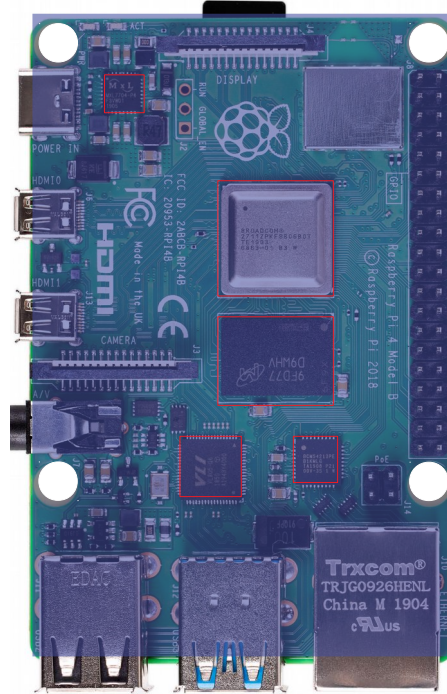
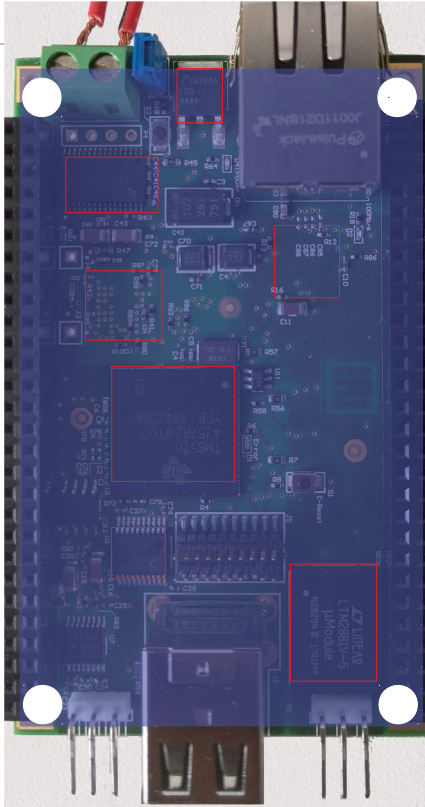


Beam- Time preparation

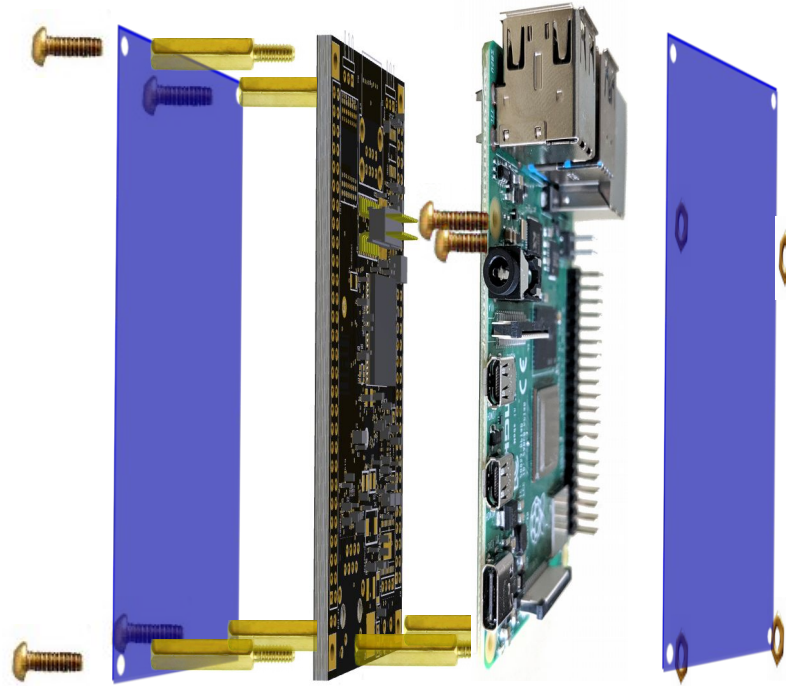
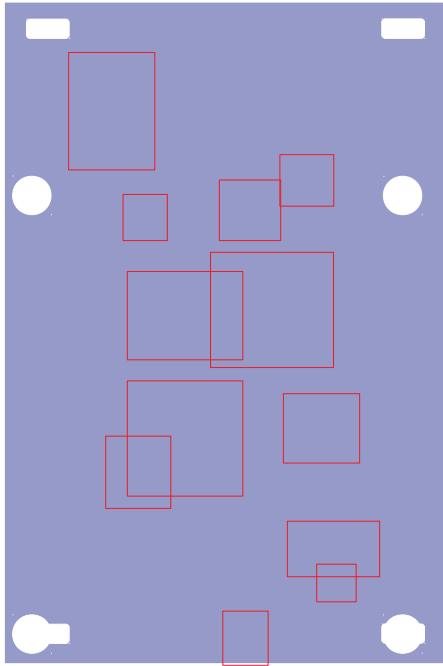


- Devices under test
 - U9: DC-DC converter
 - External FET for U9
 - U1: TMS570
 - U6: Logic galvanic isolator
 - U10: RS485 with galvanic isolation
 - U8: External SDRAM
 - U2: Ethernet Phy

Beam- Time preparation

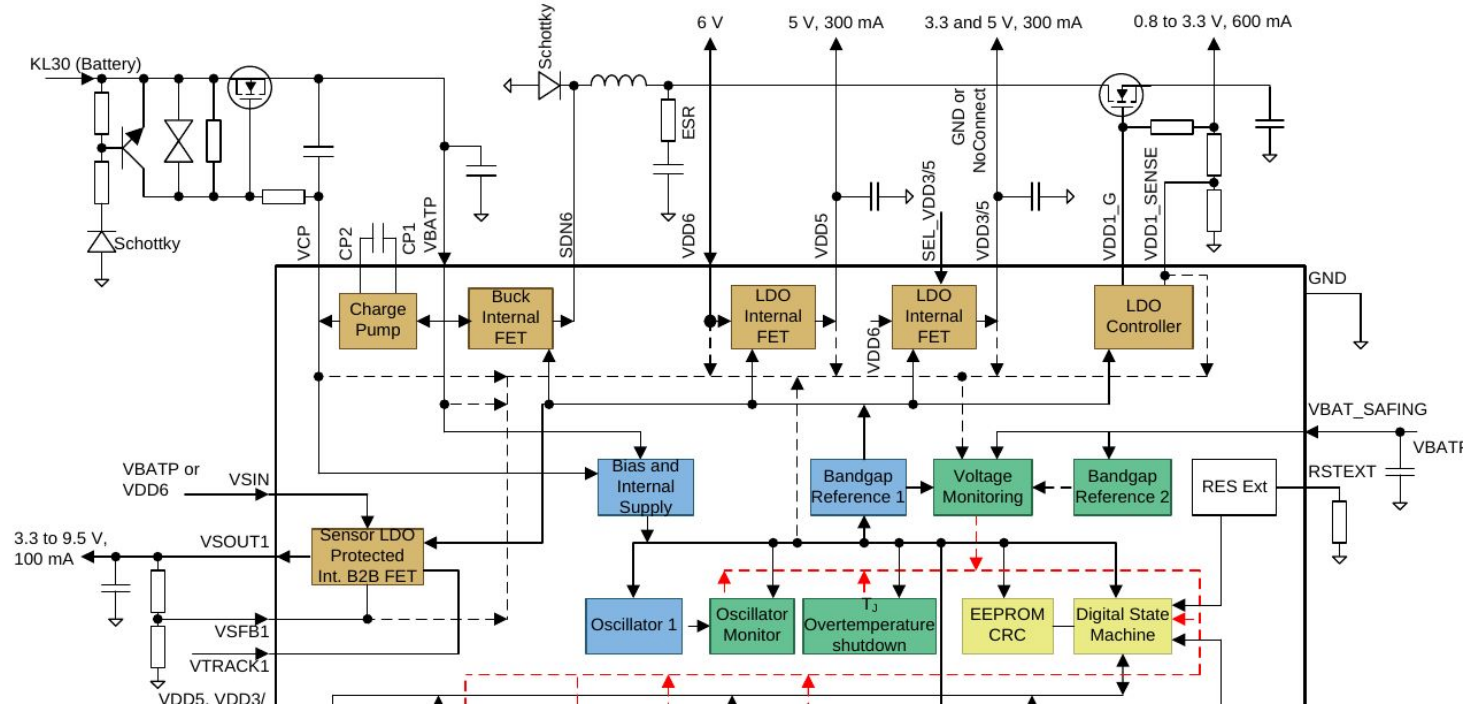


Beam- Time preparation



DC-DC Converter

- Part used in FTLMC: TPS65381A-Q1



U9 DC-DC TPS65381A-Q1 Test

- ADC output voltage measure from non-DUT board
 - General Input voltage (>6V)
 - 6V (Internal switching regulator output, MOSFET's input)
 - 3.3V MOSFET output
 - 1.2V MOSFET output
- Check self diagnosis capacity: U9 yields such measures through diag pin

Check self diagnosis

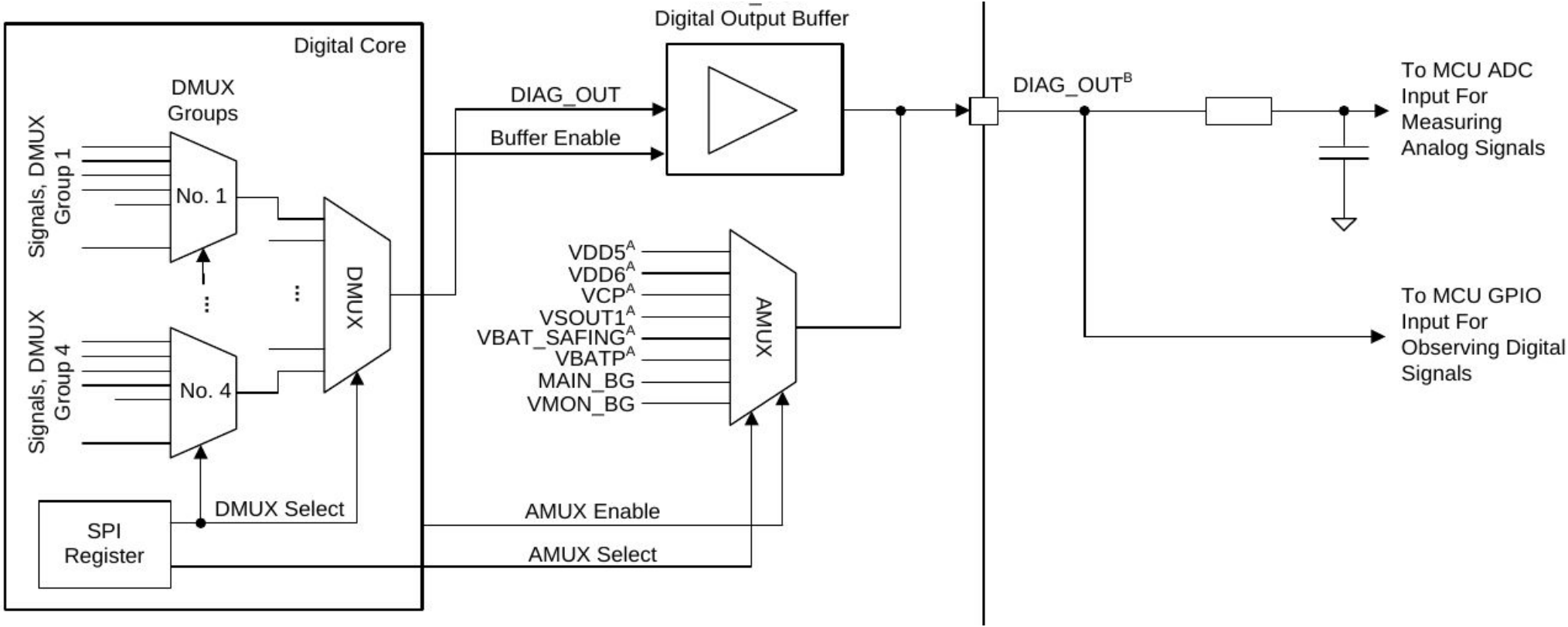
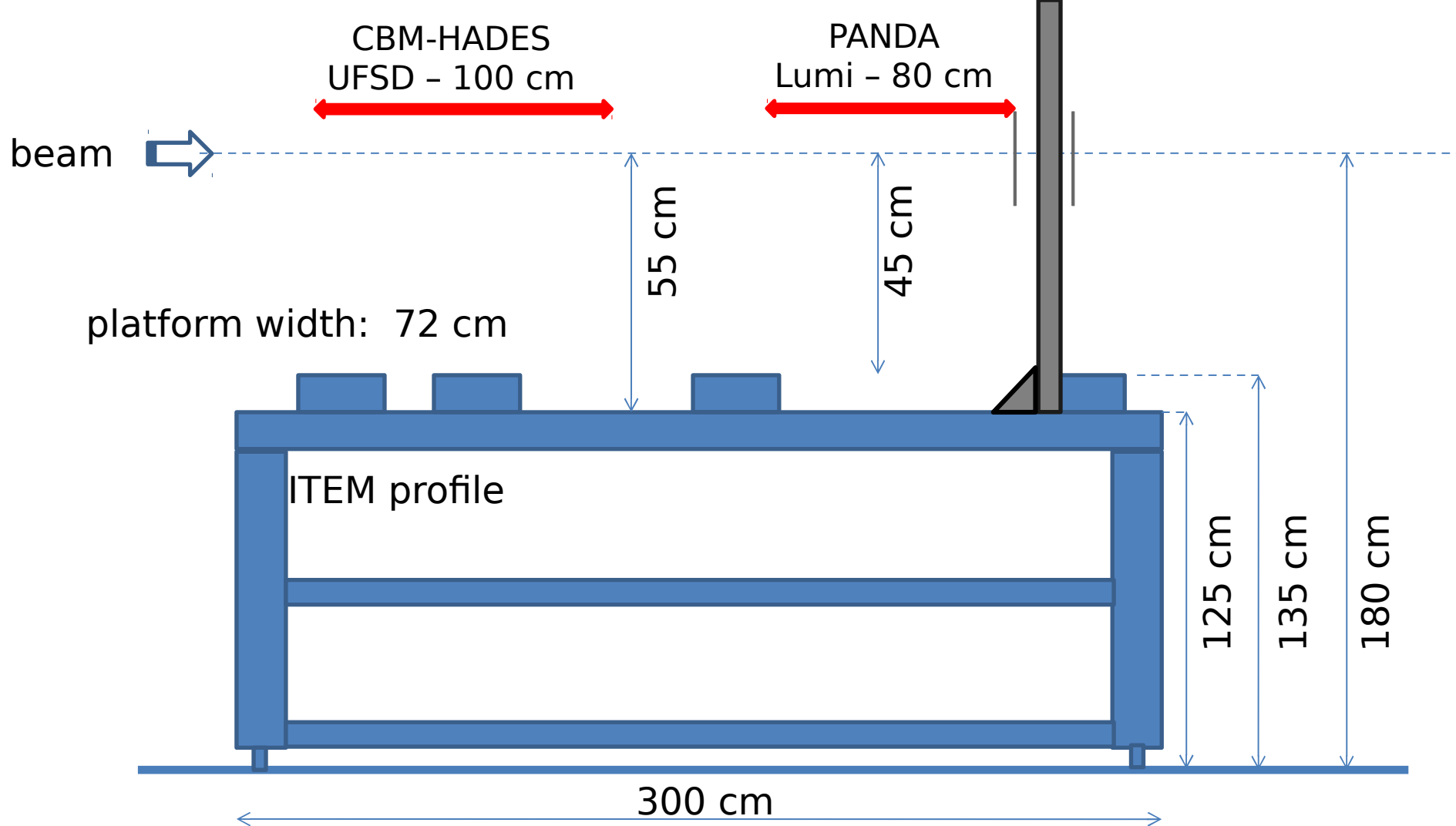


Table 5-4. Analog MUX Selection Table

| SIGNAL NUMBER | VOLTAGE RAIL or SIGNAL NAME | DESCRIPTION | SUPPLY RANGE ⁽¹⁾ | DIVIDE RATIO | DIVIDE RATIO ACCURACY ⁽²⁾ | | OUTPUT RESISTANCE (k Ω) | | DIAG_MUX_SEL[7:0] |
|---------------|-----------------------------|--|-----------------------------|--------------|--------------------------------------|---------|---------------------------------|---------|-------------------|
| | | | | | MINIMUM | MAXIMUM | MINIMUM | MAXIMUM | |
| A.1 | VDD5 | Linear VDD5 regulator output | 5.8 to 34 V | 2 | -2.25 % | 0.75 % | 20 | 50 | 0x01 |
| A.2 | VDD6 | Switch mode preregulator | 5.8 to 34 V | 3 | -3.75% | 0.5 % | 30 | 100 | 0x02 |
| A.3 | VCP | Charge pump | 5.8 to 18V | 13.5 | -6.25 % | 2.25 % | 90 | 200 | 0x04 |
| | | | 5.8 to 34 V | | -6.25% | 4.75 % | | | |
| A.4 | VSOUT1 | Sensor supply voltage | 5.8 to 34 V | 4 | -0.5 % | 1.2 % | 40 | 100 | 0x08 |
| A.5 | VBAT_SAFI NG | Battery (supply) input for monitoring (VMON) and BG2 functions | 5.8 to 18 V | 10 | -5 % | 0 % | 125 | 200 | 0x10 |
| | | | 5.8 to 34 V | | -5 % | 5.5 % | | | |
| A.6 | VBATP | Battery (supply), main power supply | 5.8 to 18V | 10 | -5 % | 0 % | 125 | 200 | 0x20 |
| | | | 5.8 to 34 V | | -5 % | 5.5 % | | | |
| A.7 | MAIN_BG | Regulators band-gap reference | 5.8 to 34 V | 1 | NA | | 3 | 15 | 0x40 |
| A.8 | VMON_BG | Voltage-monitor band gap | 5.8 to 34 V | 1 | NA | | 3 | 15 | 0x80 |



Notes on beam-time

| August | | | | | | | |
|--------|----|----|----|----|----|----|----|
| kw | Mo | Di | Mi | Do | Fr | Sa | So |
| 31 | | | | 1 | 2 | 3 | 4 |
| 32 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| 33 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 34 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 35 | 26 | 27 | 28 | 29 | 30 | 31 | |

| September | | | | | | | |
|-----------|----|----|----|----|----|----|----|
| kw | Mo | Di | Mi | Do | Fr | Sa | So |
| 35 | | | | | | | 1 |
| 36 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 37 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 38 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 39 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 40 | 30 | | | | | | |

- Item24 Profiles: Allows us to use only ~ 40 cm of z axis space
- motor mobility:
 - Y: 10cm, fixed height frame adjustable
 - X: 58cm.
- Dr. Feldbauer to confirm if z ~ 40cm of space is available
- Financing pending

Thank you!



Thank you!

