

Results of the P3-2 batch IB modules

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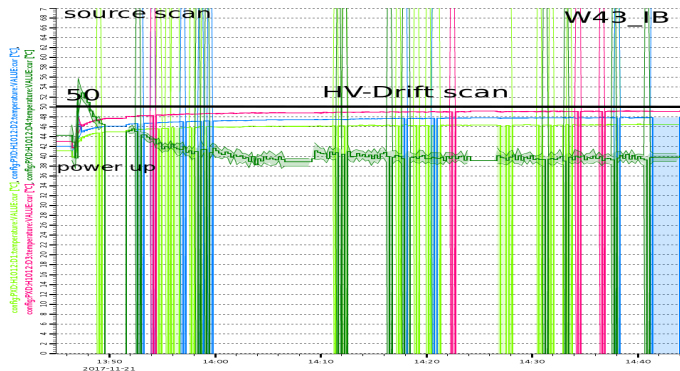
W43_IB - Setup

- from P3-2 batch
- using **plastic clamp** to press module on the base jig
- **vacuum** applied
- **water chiller** set to 18°C
- using L1 Al **cooling adapter**
- module fully powered, gate-on voltages at -2000 mV

W43_IB - HS Links - Stability

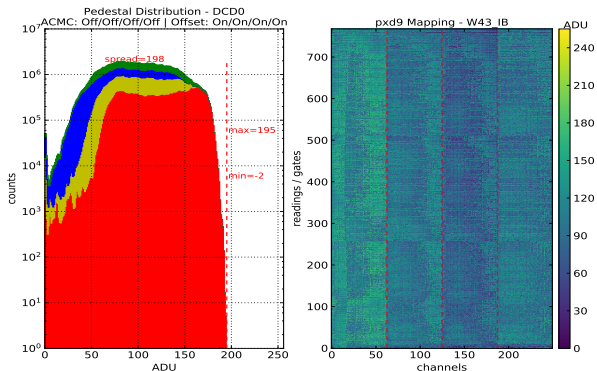
- link 4 instable also with optimized parameters in STANDBY
- link 3 semi-stable, link 1 and 2 stable in STANDBY
- link stability improves when powering matrix and going to negative gate-on voltages

W43_IB - Temperatures



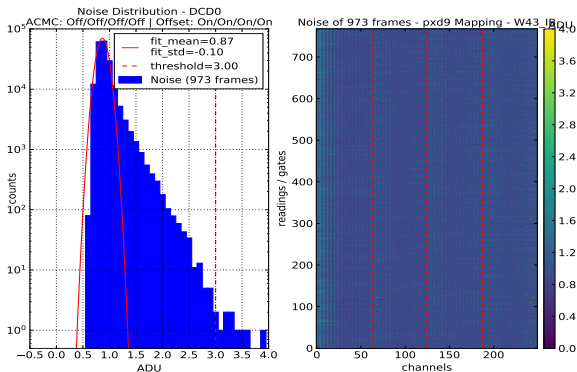
- mean temperatures around 45 – 50
- 2 – 4 units difference among DHPs
- DHP4 showing strange readings

W43_IB - Pedestals with offsets



- gate-on voltage –2000 mV
- no **ACMC** , **offsets** calibrated

W43_IB - Noise with offsets

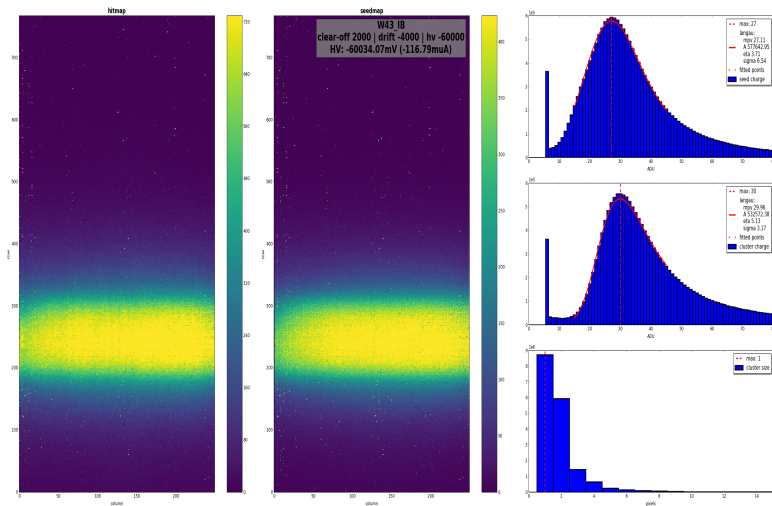


- gate-on voltage –2000 mV
- no **ACMC** , **offsets** calibrated

W43_IB - ADC Optimization

variable	range	optimal	grade
IPSource	55-75	75	A
IPSource2	60-80	65	
Refln	400-800	750	A
AmpLow	200-400	250	
IFBPBias	65-85	80	A
IPSourceMiddle	-	72	A

W43_IB - Source Scan



• optimal voltages:

HV -60000 mV, Drift -4000 mV, Clear-Off 2000 mV, MPV \approx 30

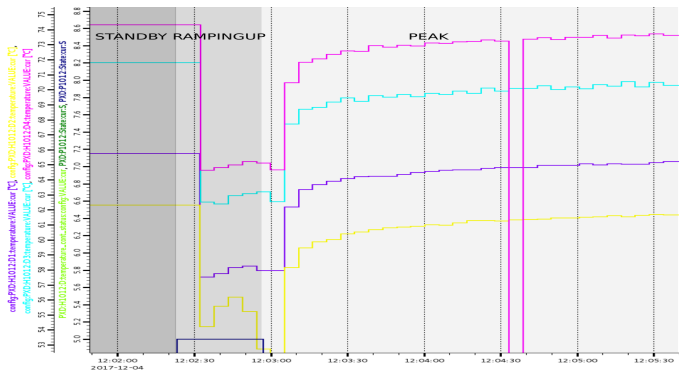
W03_IB - Setup

- from P3-2 batch
- using **plastic clamp** to press module on the base jig
- **vacuum** applied
- **water chiller** set to 15 °C
- using L1 Al **cooling adapter**
- module fully powered, gate-on voltages at -2000 mV

W03_IB - HS Links - Stability

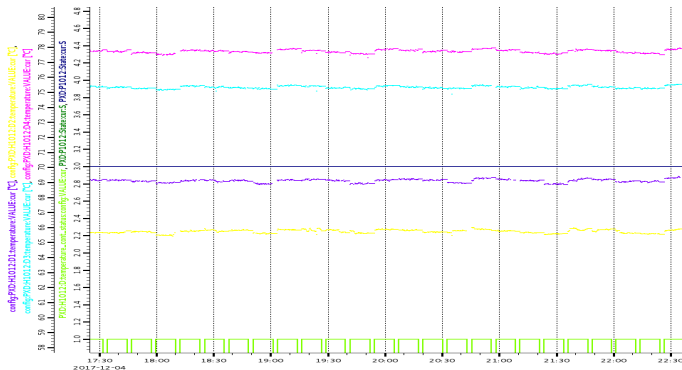
- link 4 instable also with optimized parameters in STANDBY
- link 1 - 3 stable in STANDBY
- link stability improves when powering matrix and going to negative gate-on voltages/higher DCD_AVDD currents

W03_IB - Temperatures



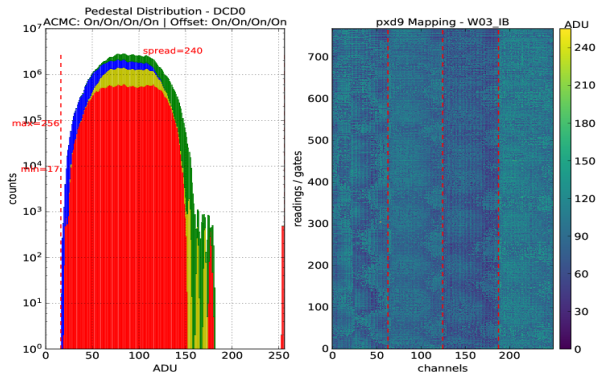
- mean temperatures around 60 – 70
- 4 – 10 units difference among DHPs

W03_IB - Temperatures during Source Scan



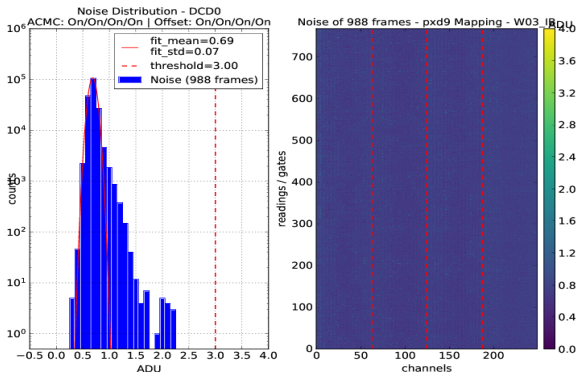
- DHP4 reaching 78 degrees
- spread of 13 degrees among DHPs
- worse thermal contact? DHP voltage drop?

W03_IB - Pedestals with offsets



- gate-on voltage –2000 mV
- **ACMC** , **offsets** calibrated

W03_IB - Noise with offsets

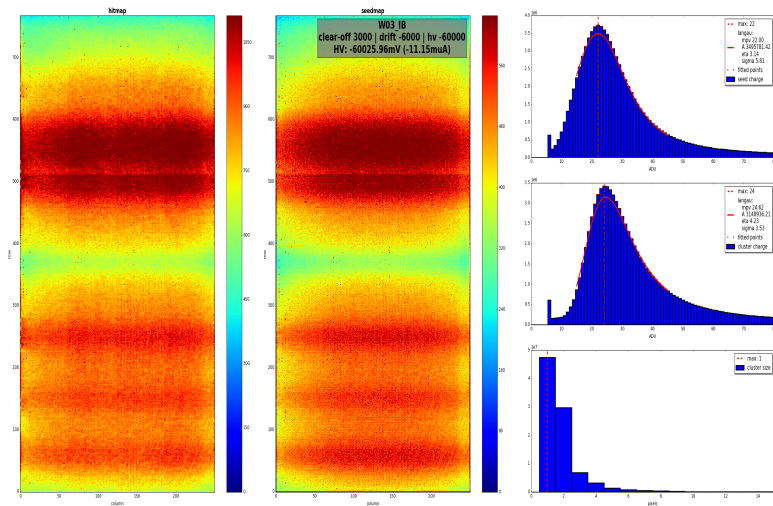


- gate-on voltage –2000 mV
- **ACMC** , **offsets** calibrated

W03_IB - ADC Optimization

variable	range	optimal	grade
IPSource	55-75	75	A
IPSource2	60-80	60,60,70,70	
RefIn	650-800	725	A
AmpLow	200-400	400	
IFBPBias	65-85	75,80,75,65	A
IPSourceMiddle	-	72	A

W03_IB - Source Scan



• optimal voltages:

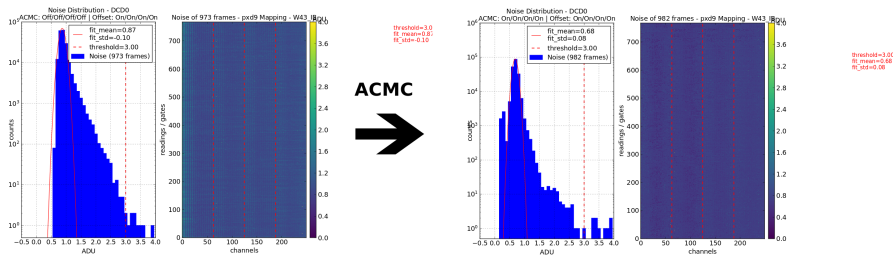
HV –60000 mV, Drift –6000 mV, Clear-Off 3000 mV, MPV \approx 25

Conclusion

- both IBs tested and functional
- W43_IB transported back to MPP on friday (01.12.2017)
- W03_IB ready to be transported
- two OB modules arrived in Göttingen, to be tested in the next 2 weeks

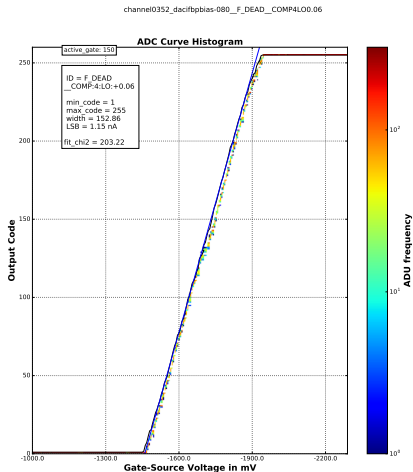
Backup

W43_IB - Noise - ACMC Effect



→ mean noise decreases from 0.87 ADU ⇒ 0.68 ADU

W43_IB - ADC Optimization - Dead channels - DCD2



ADC Optimization - Dead channels - DCD4

