



Status of SPADIC 1.0



Tim Armbruster

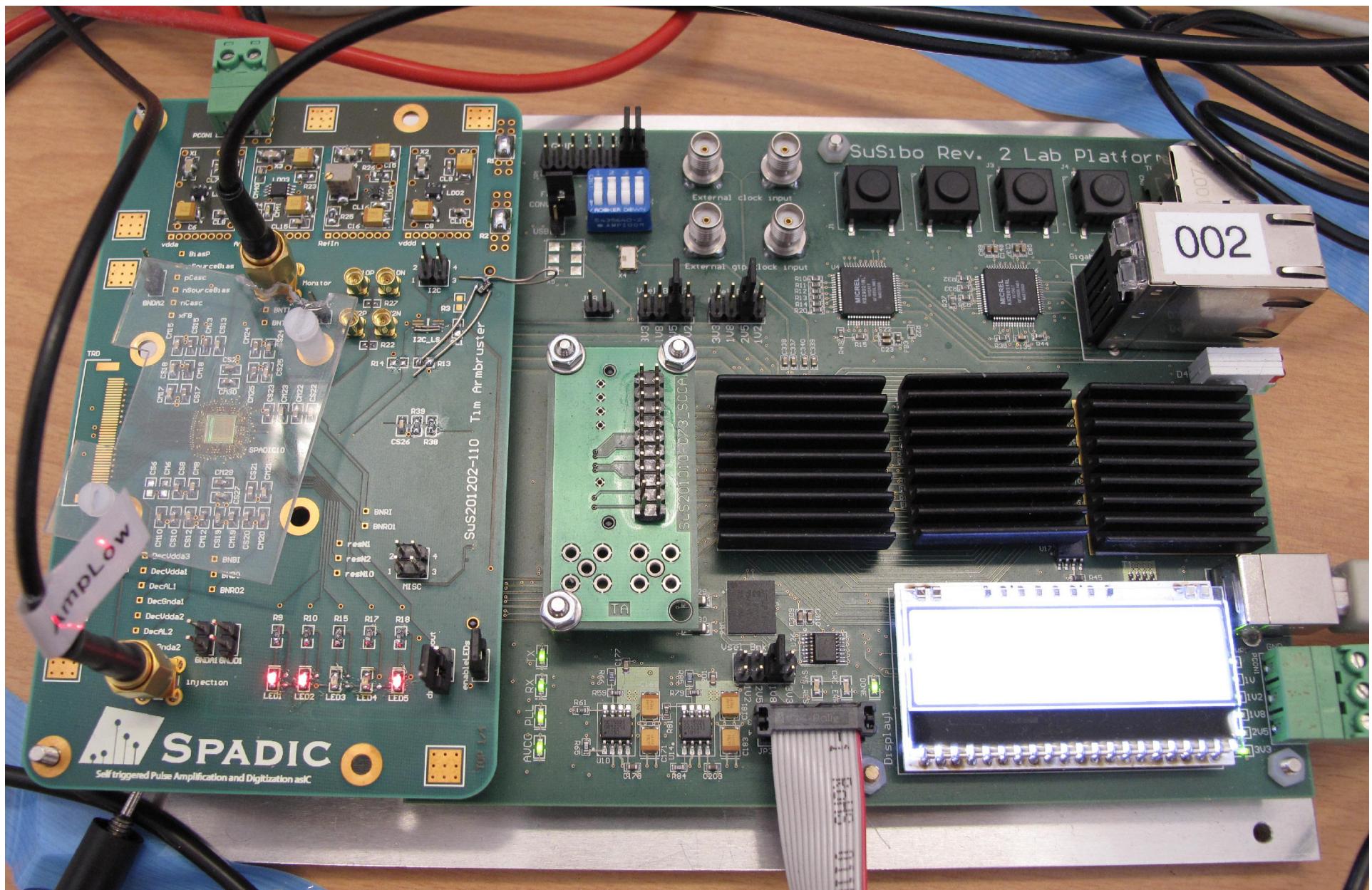
tim.armbruster@ziti.uni-heidelberg.de

SuS Meeting

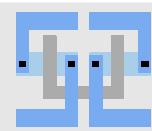
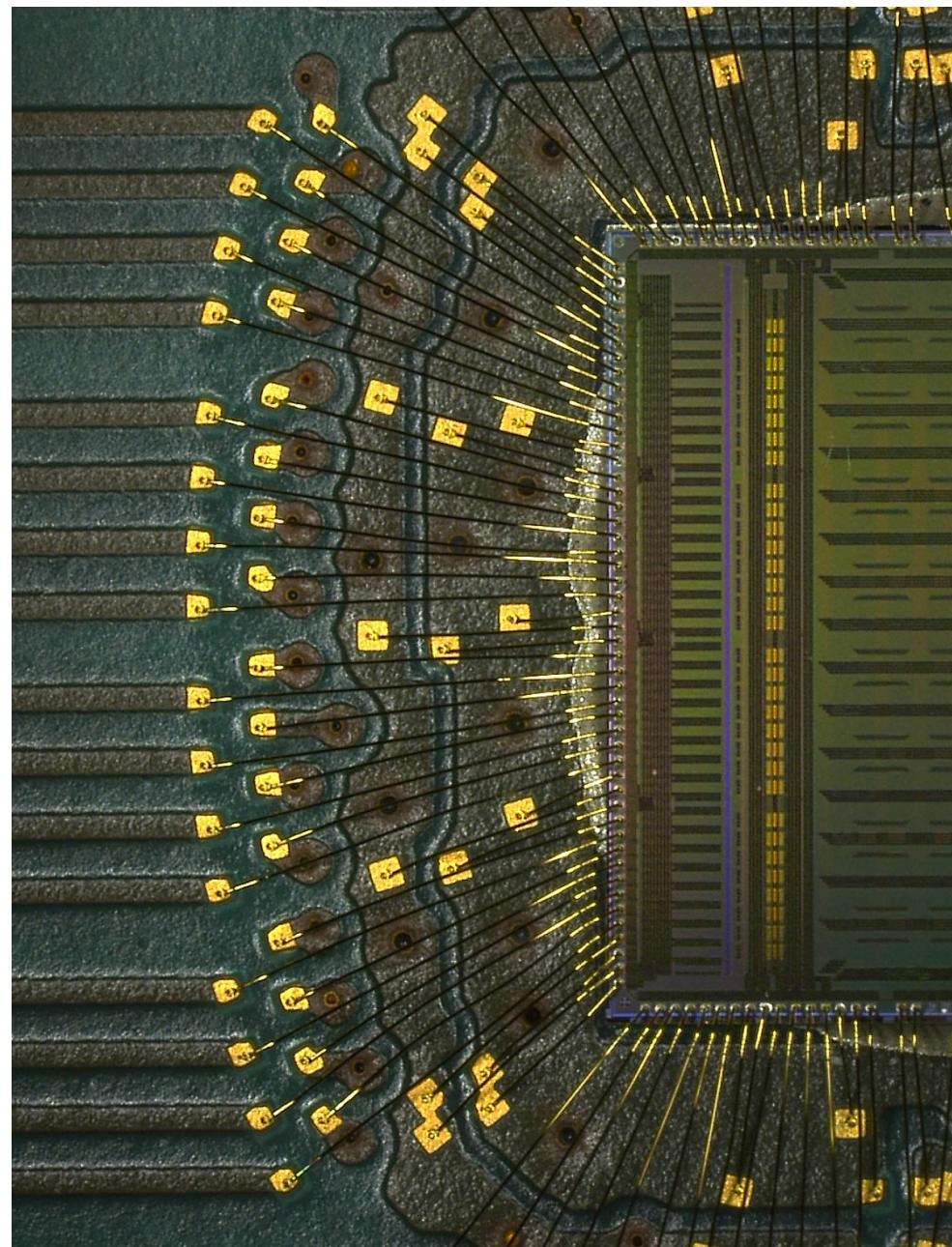
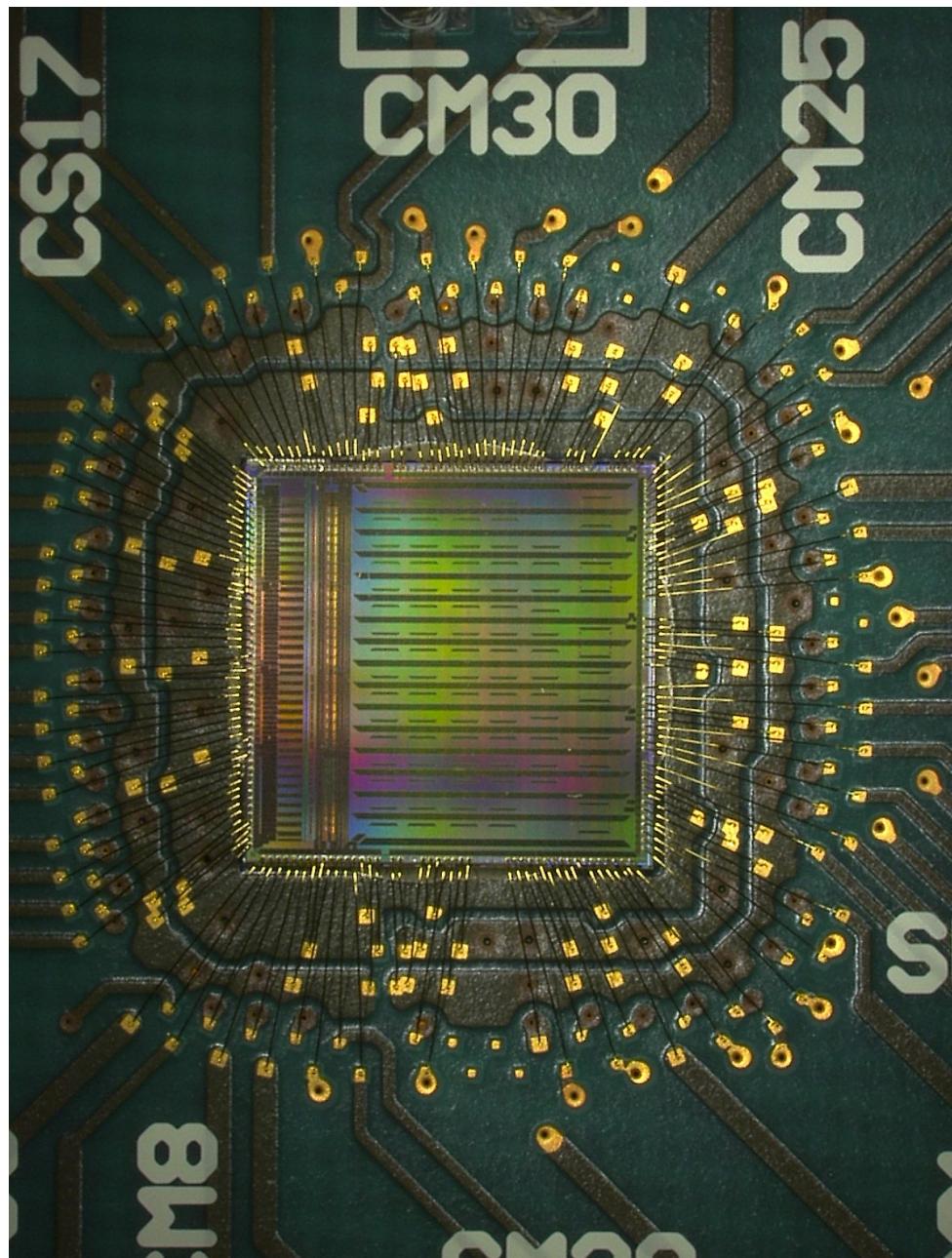
May 2012

Visit <http://www.spadic.uni-hd.de>

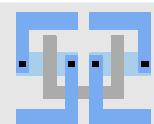
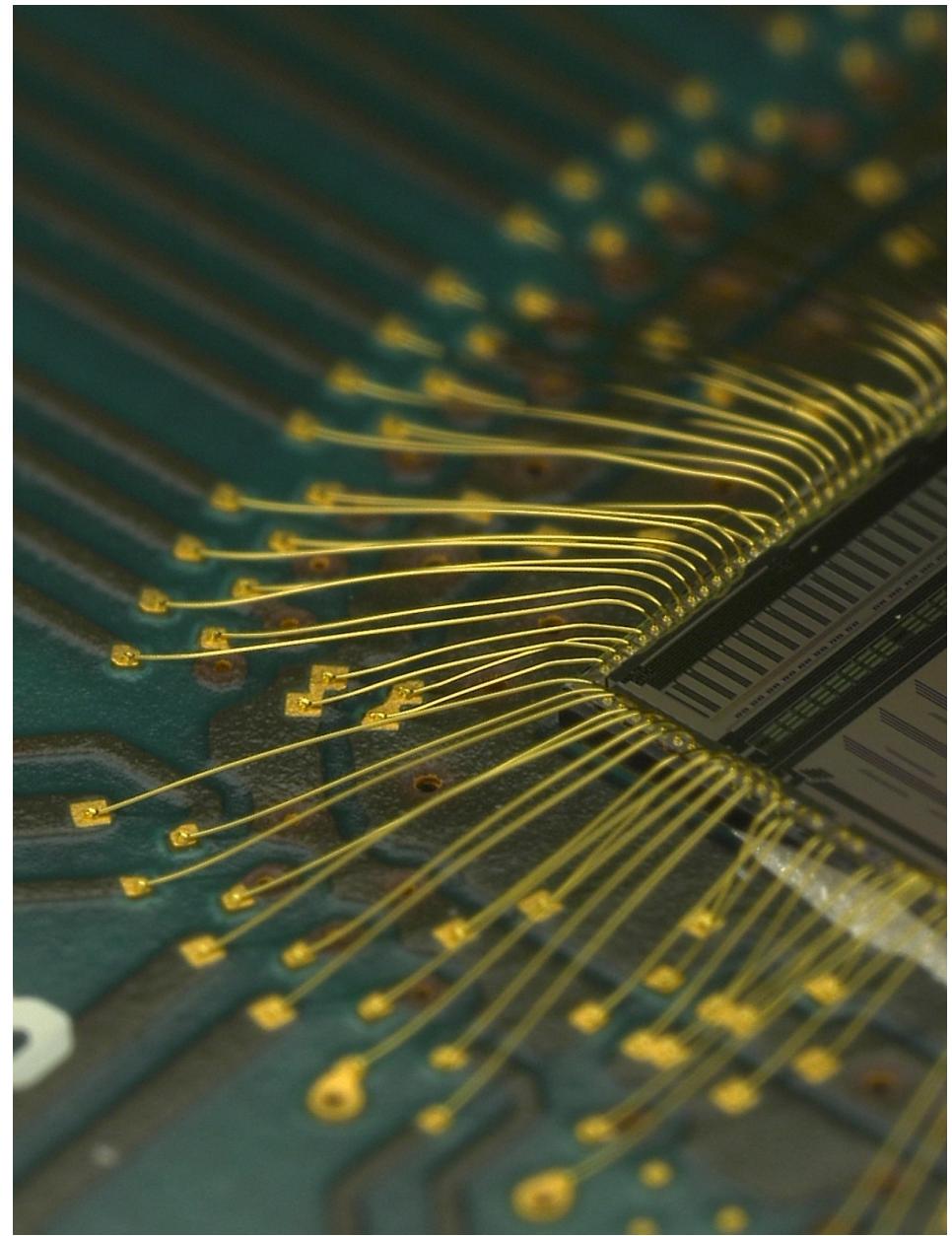
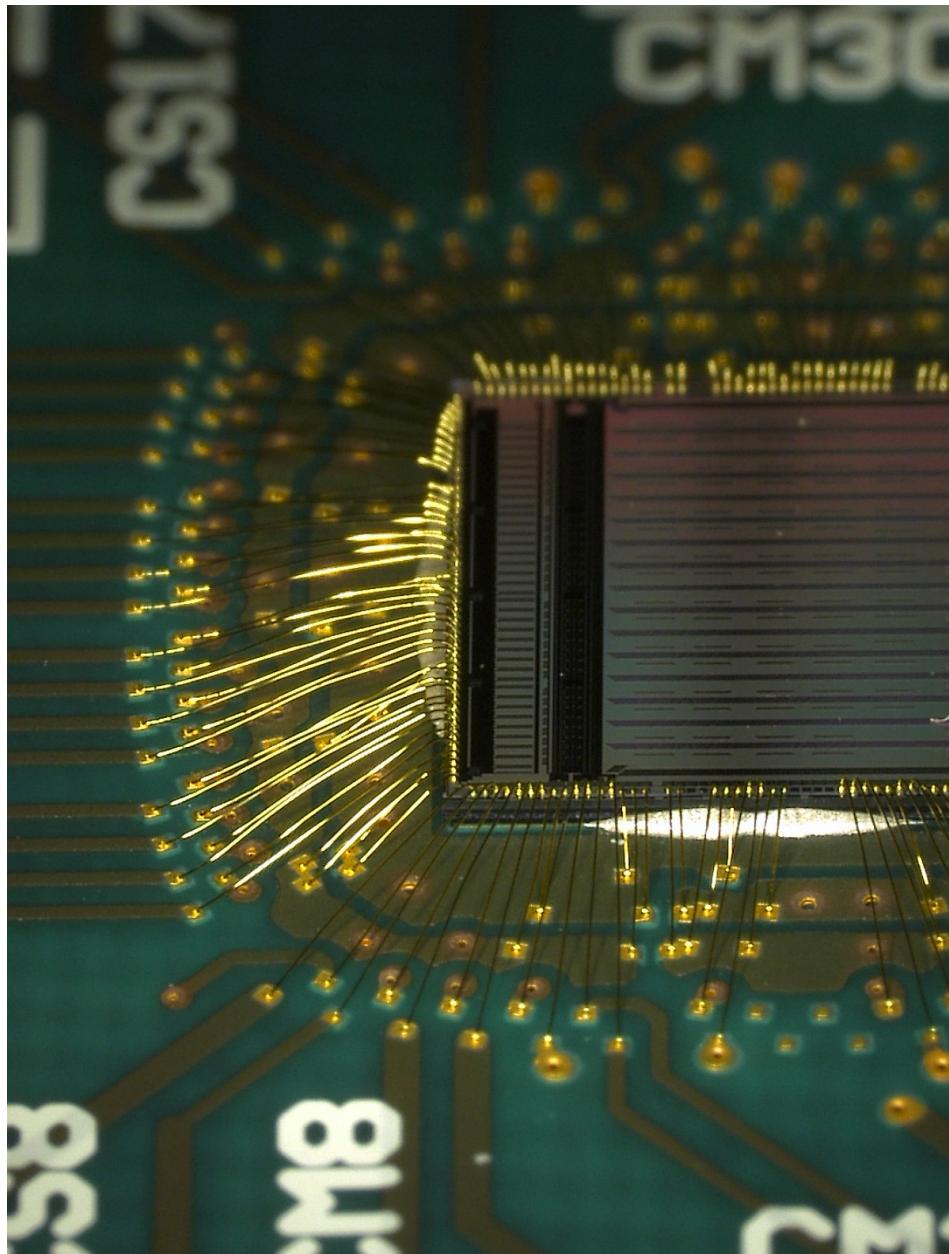
1st SPADIC 1.0 Setup: SuSibo 2.1 + 4 Layer PCB



Some Impressions (1/2)

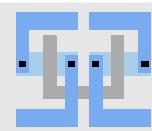
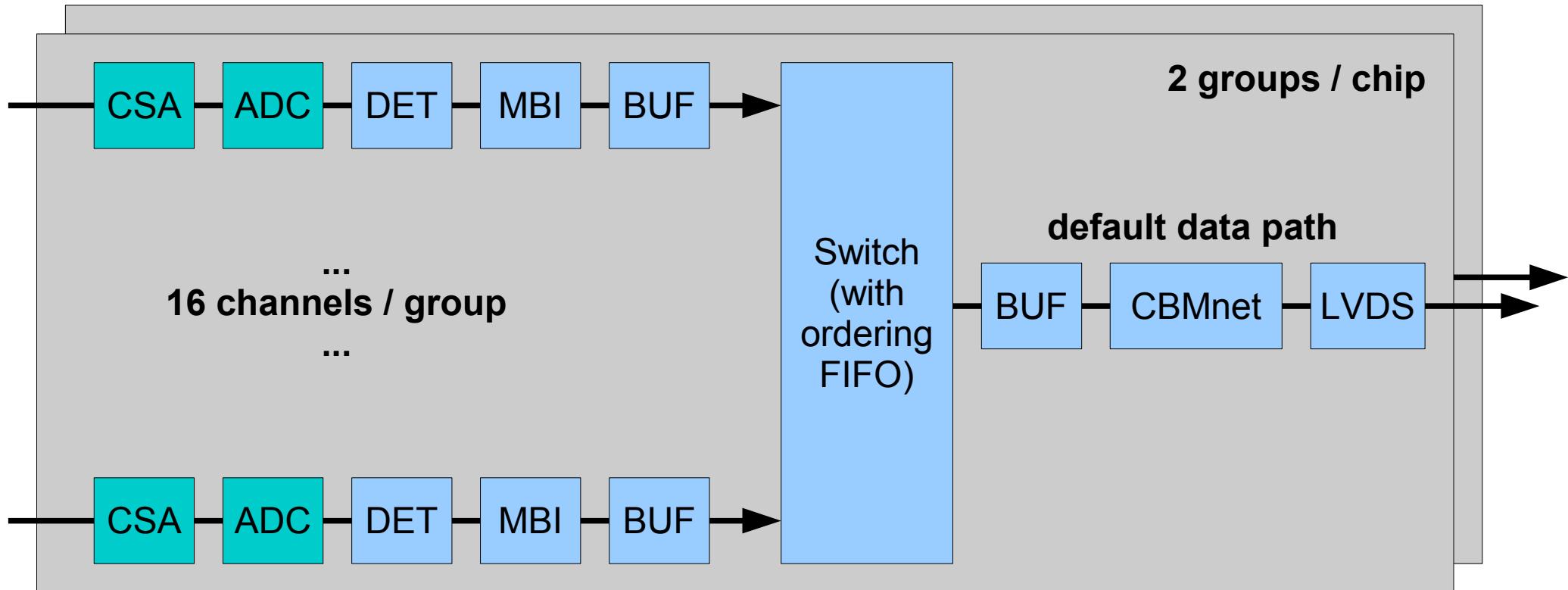


Some Impressions (2/2)

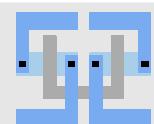
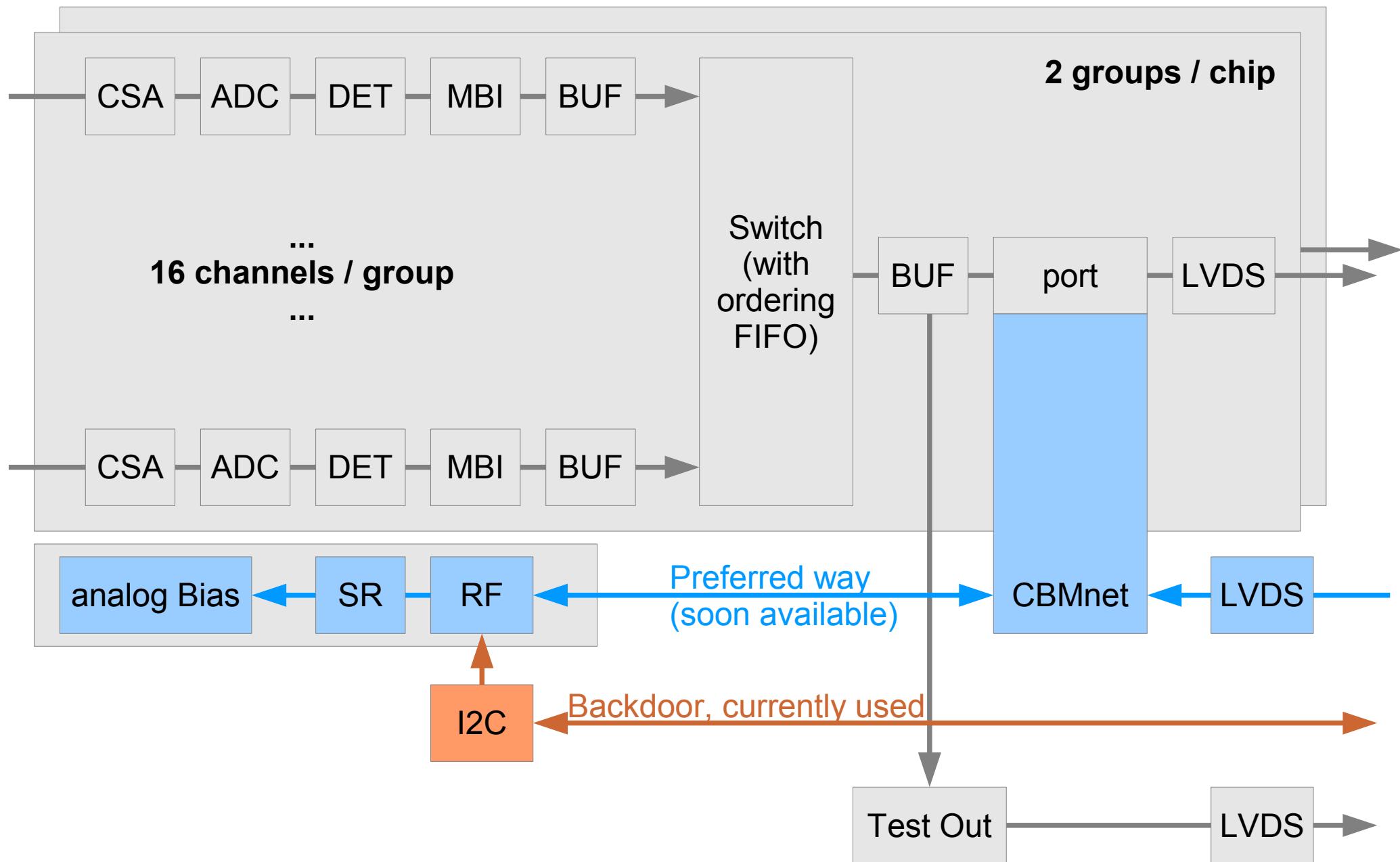


Reminder: SPADIC 1.0 Data Path

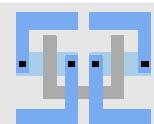
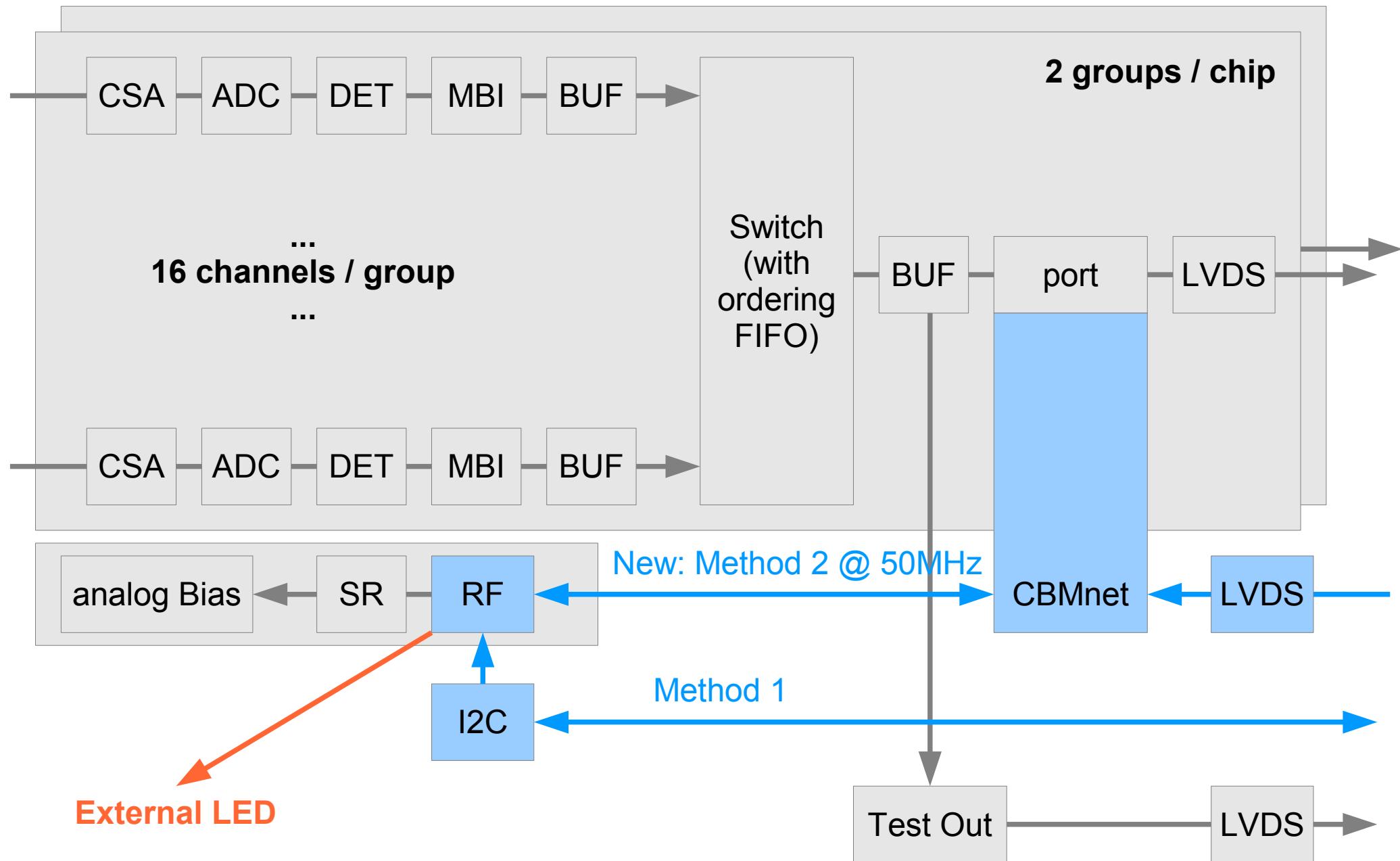
SPADIC: **S**elf-triggered **P**ulse **A**mplification and **D**igitization as **I**C



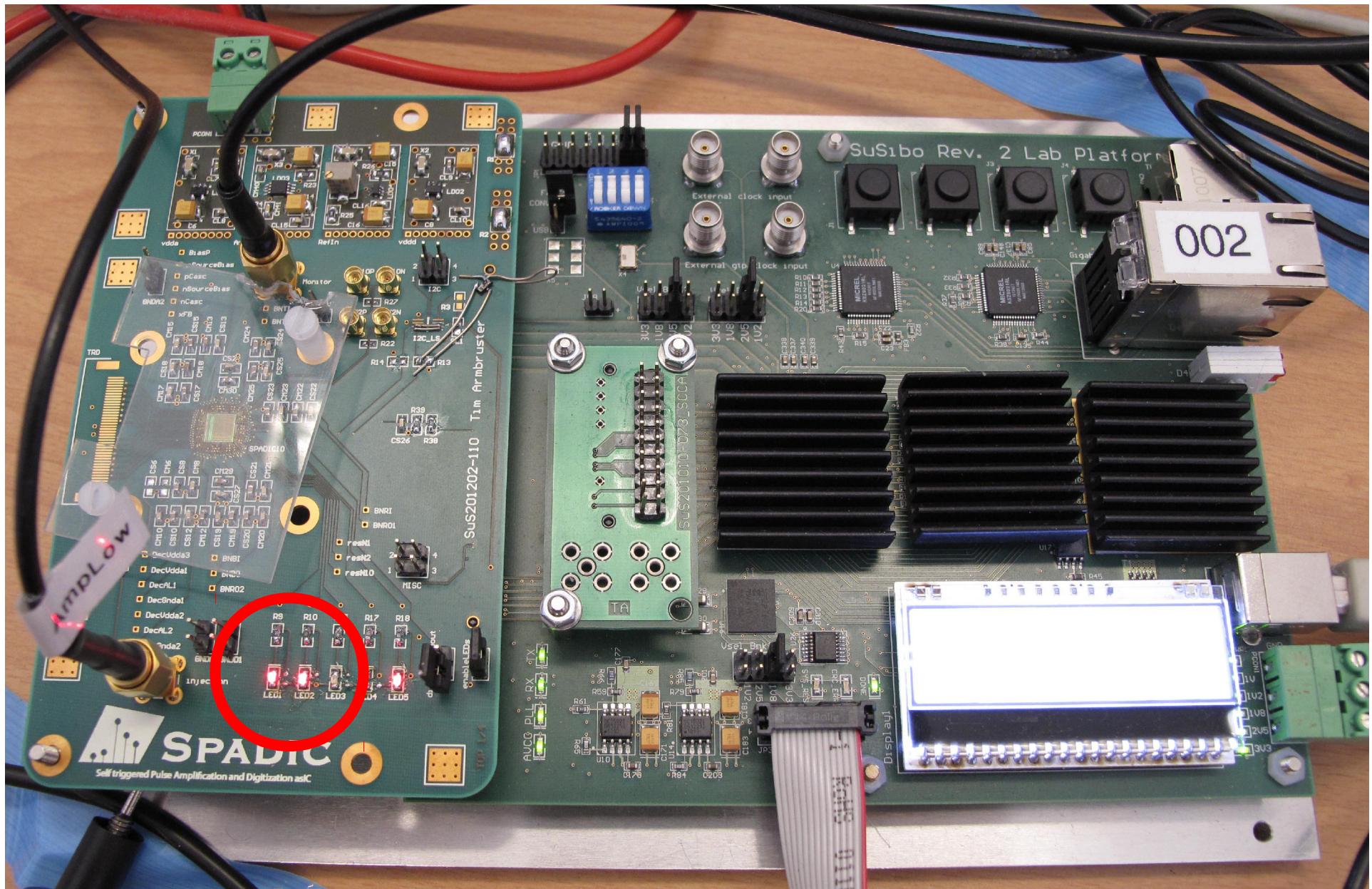
Writing the Configuration ...



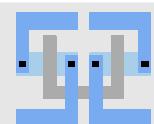
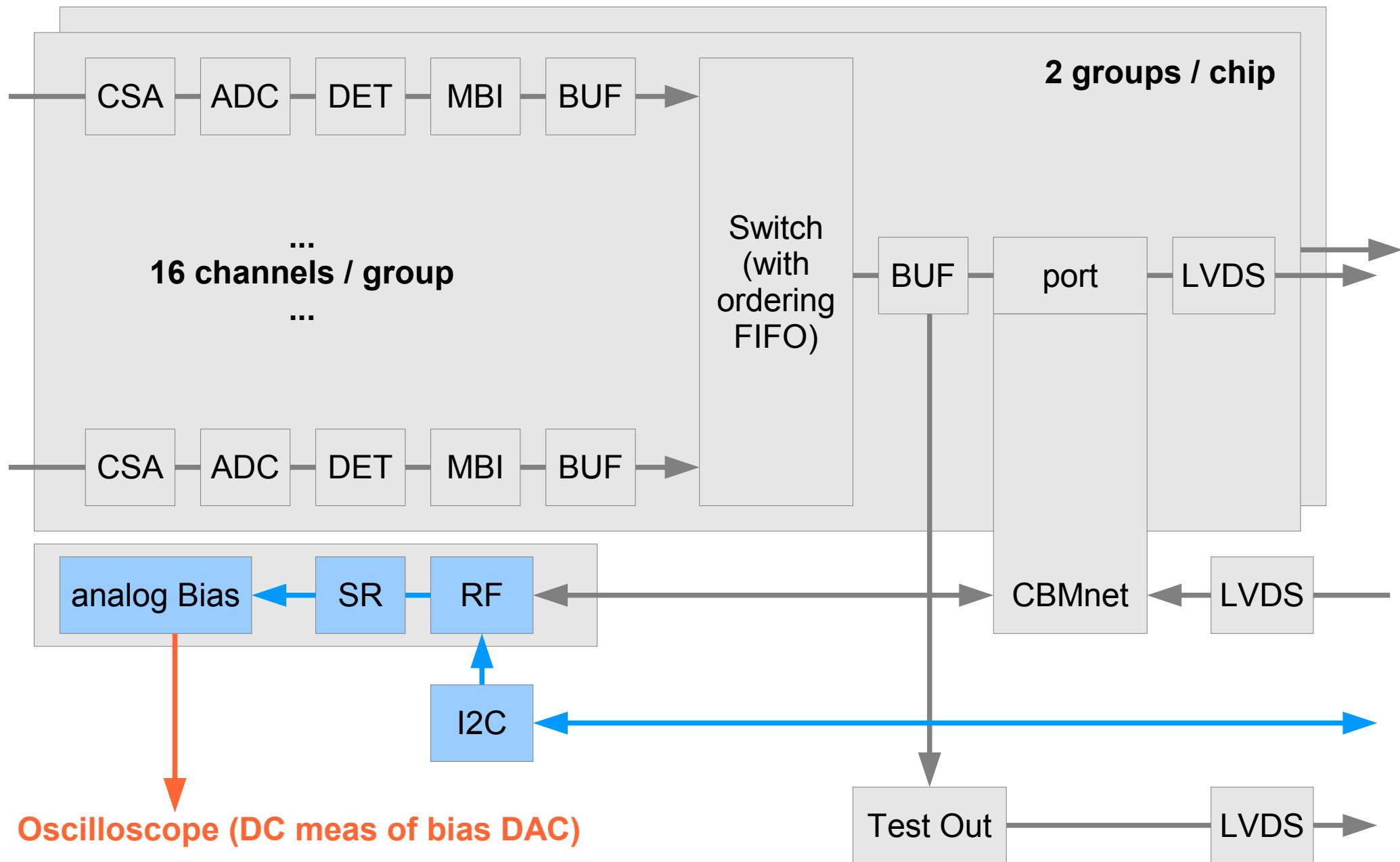
Test 1: Write Register of RF



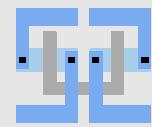
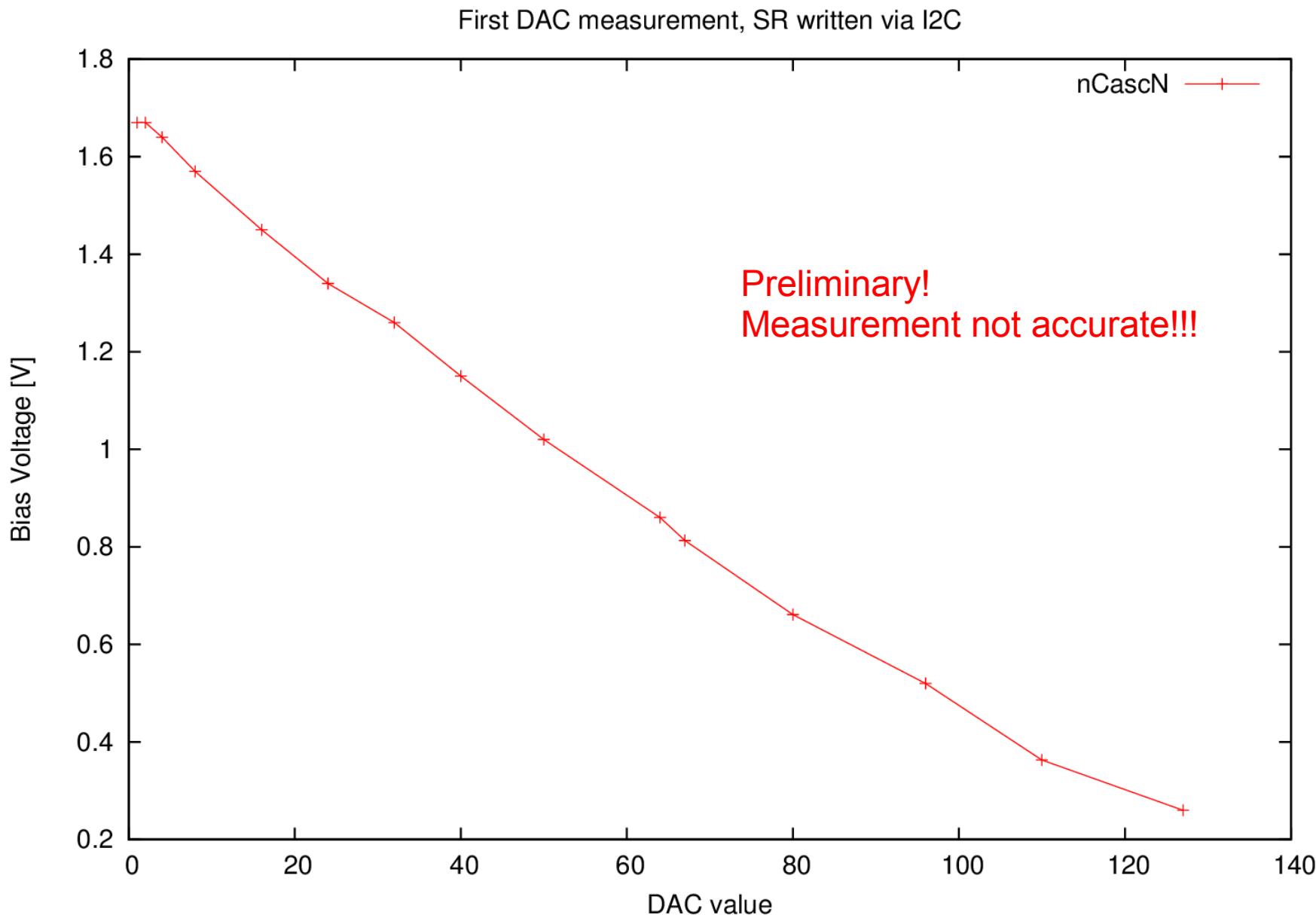
Test 1: Write Register of RF (connected to LED)



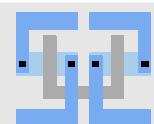
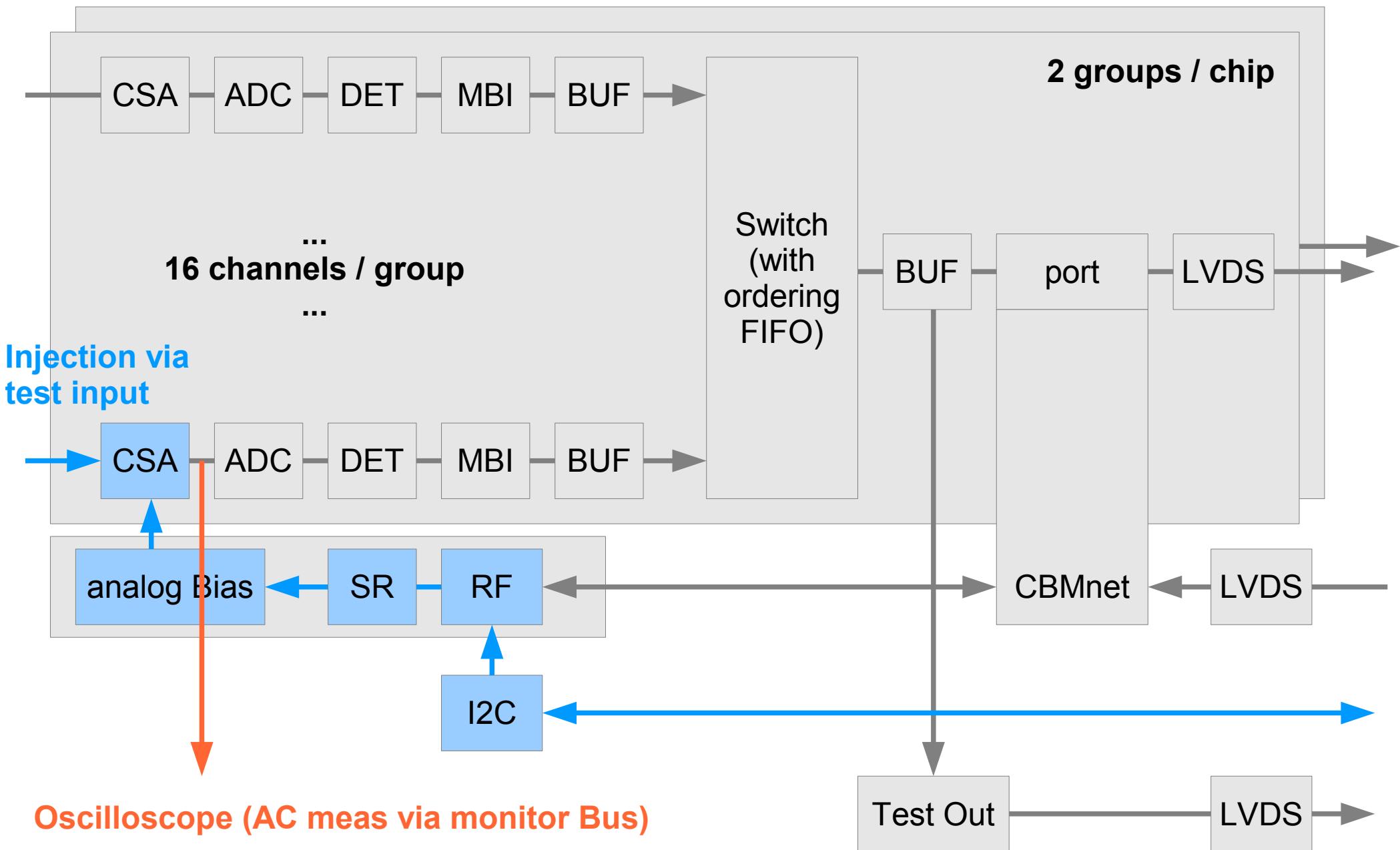
Test 2: Write analog SR → set some DAC value



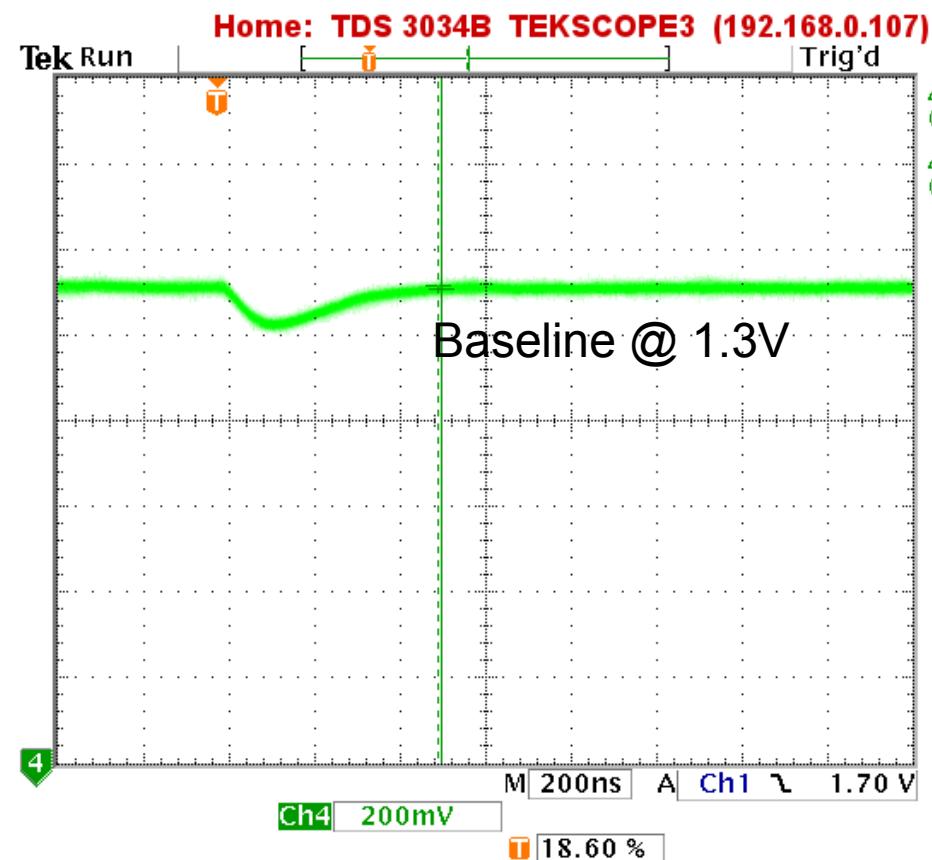
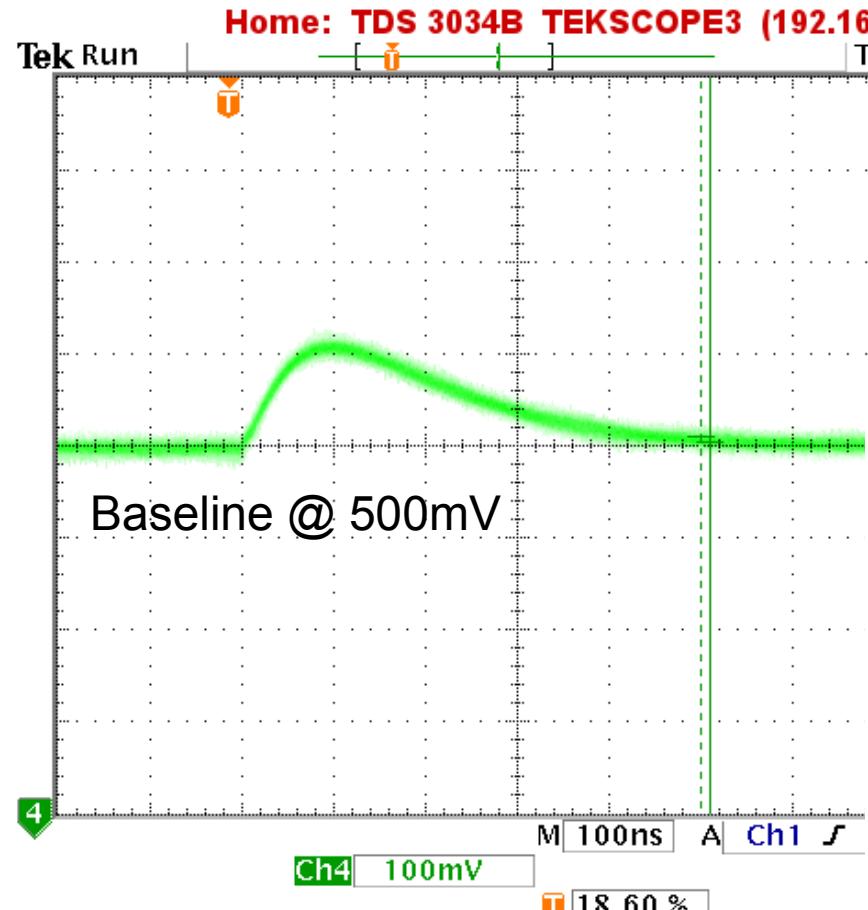
Test 2: DAC transfer characteristics



Test 3: Run CSA (pos + neg)

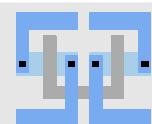
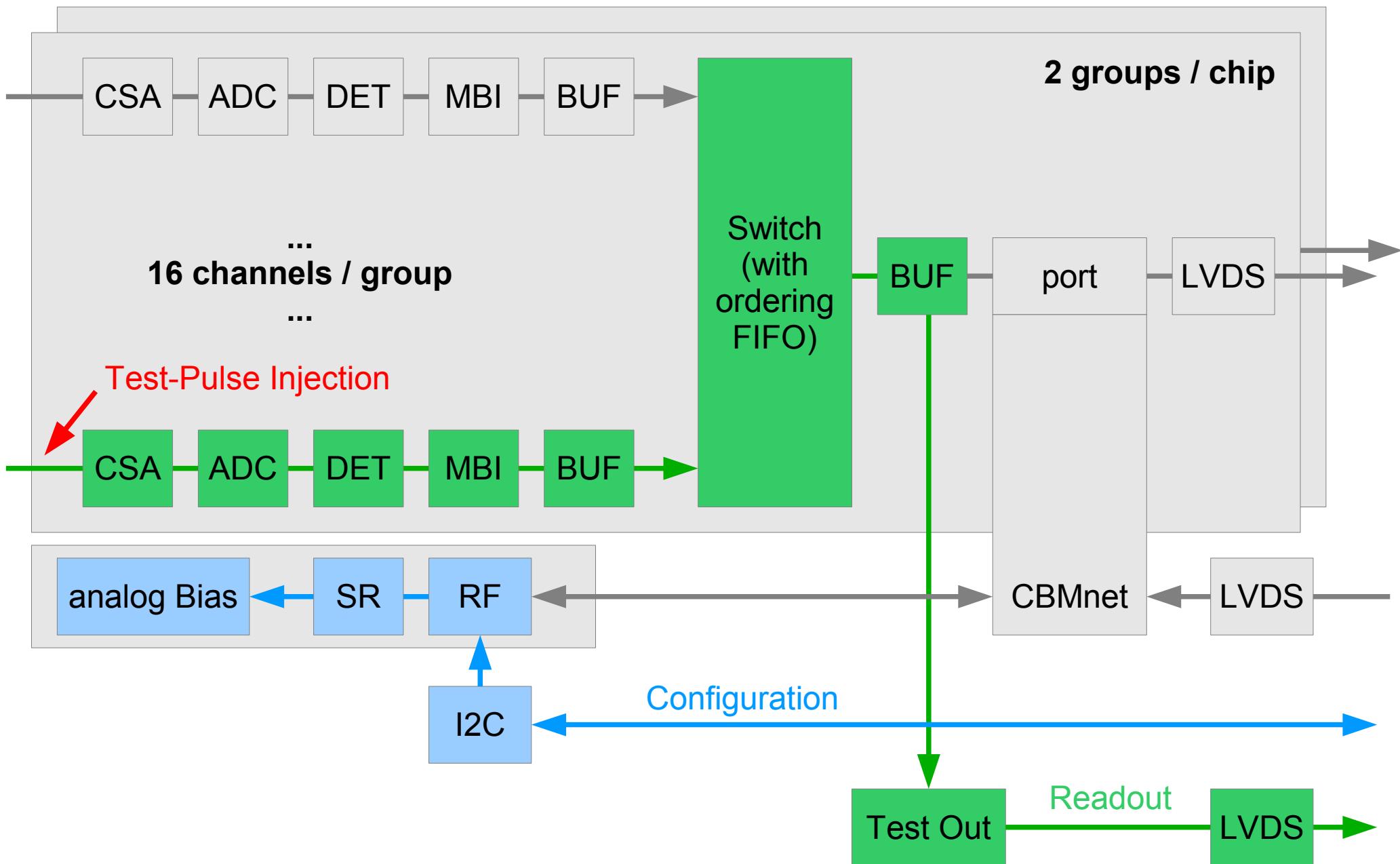


Test 3: CSA

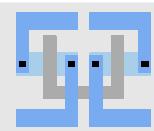
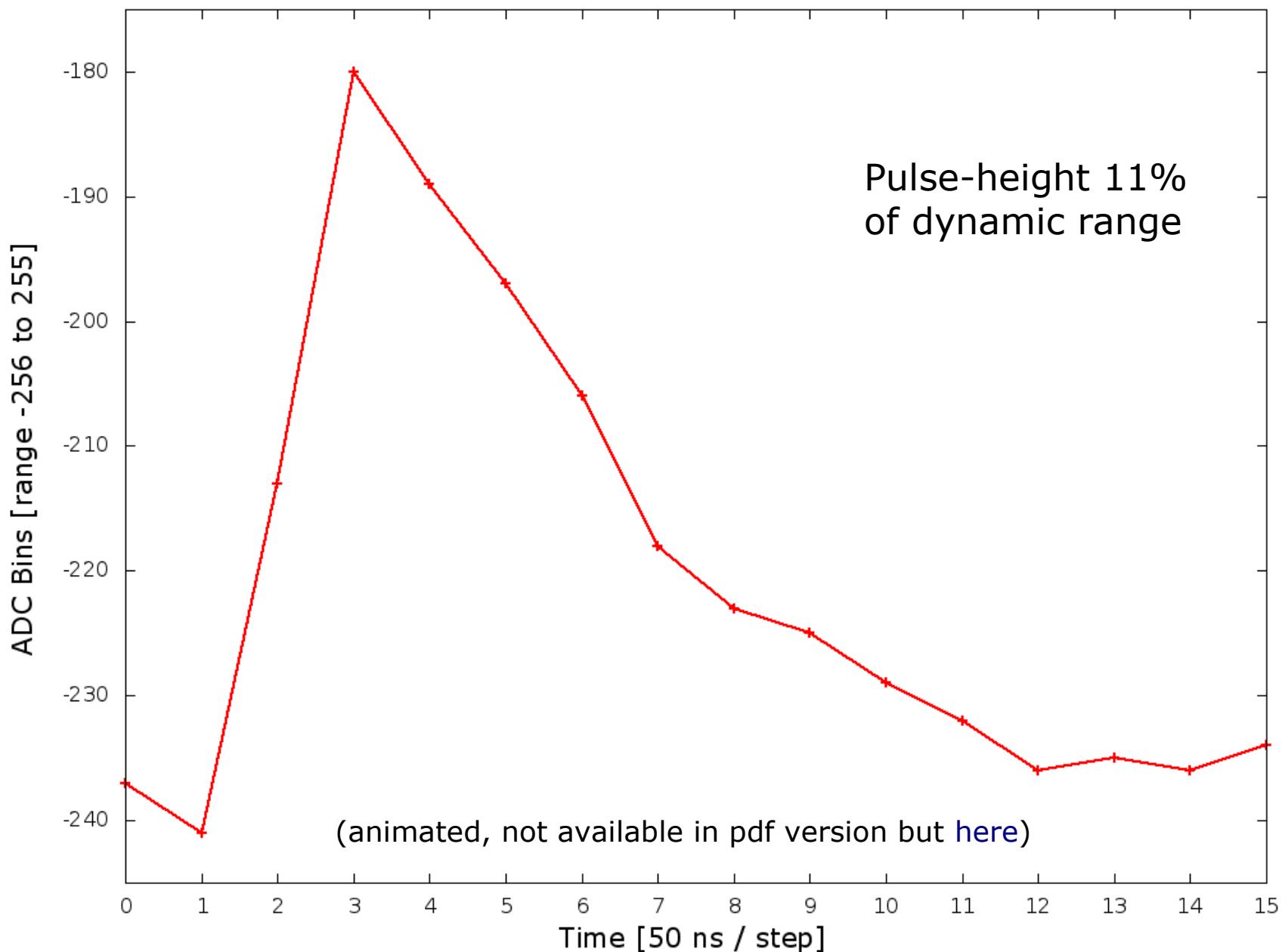


Preliminary!
Measurement not accurate!!!
Via monitor bus only!
Bias not optimal!

Test 4: Using Analog Test Injection



Test 4: First SPADIC 1.0 Hits

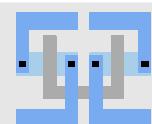


Next Step: New PCB Iteration

Long Todo-List:

- I2C patch, with jumper to disconnect transistor
- LDO enable pins (think about proper way how to connect grounds)
- new LDOs
 - digital: more current, new footprint (e.g. NCV8570B) $\geq 300\text{mA}$
 - new AmpLow LDO from e.g. 3V to 300mV (currently it's 5.5V to 300mV)
- LVDS impedance control not important -> cheaper and thicker PCB
- think about fuse (not so important)
- maybe add-on carrier board for ASIC (proper connector important)
- remove MMCX
- newer bonding diagram, maybe buried vias
- second power connector (optional) for digital part
- add one or two LEDs that can be controlled via FPGA
- think about LVDS AC coupling
- add HDMI type1 connector -> CBMnet
- Lattice Ispac power up chip or equivalent (or analog ADM1184) ...

Michael K. can start as soon as we know CBMnet is working @ full speed!



Towards CERN Beam-Time

2012 CBM Beam-Time @ CERN (Oct 25th till Nov 9th)

Goal: Read-out TRD prototypes from Frankfurt + Münster
with 10x SPADIC 1.0 setups

