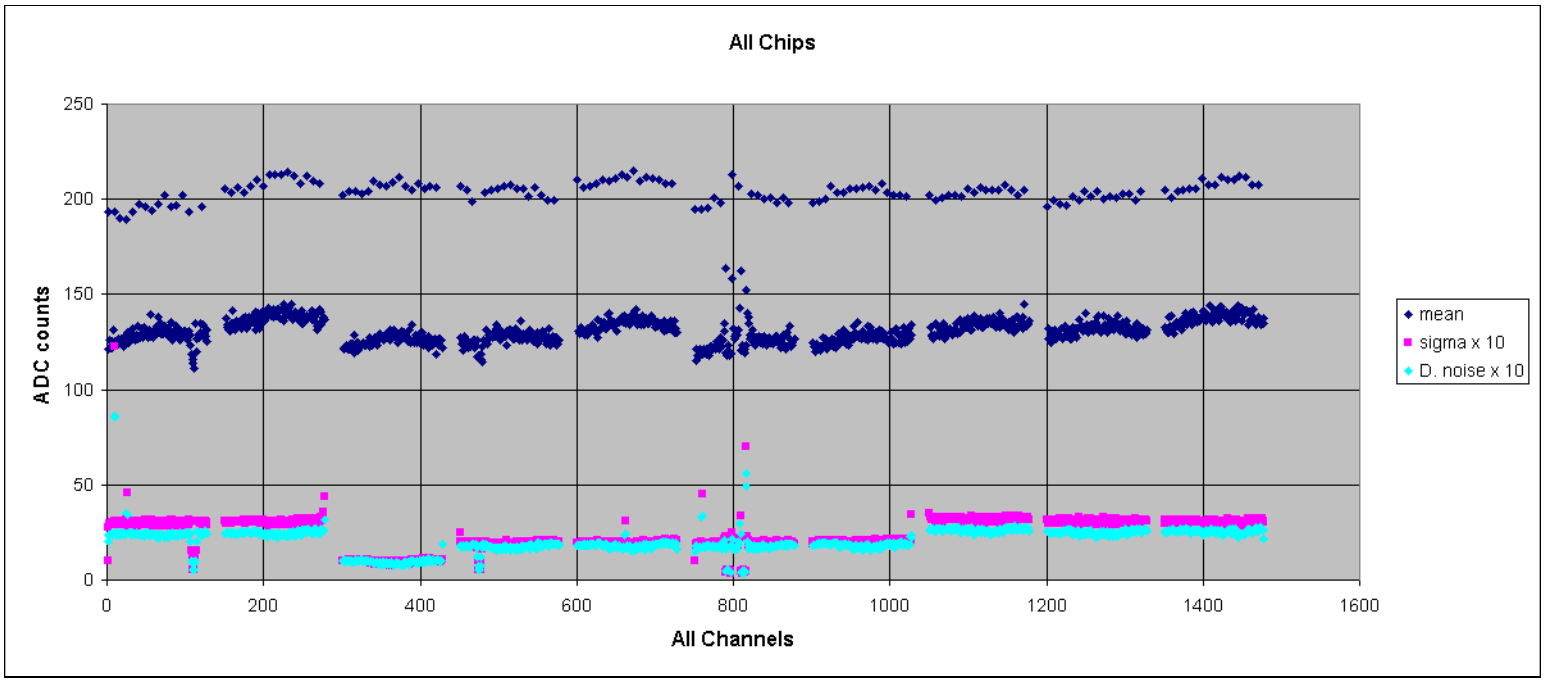
News

Andrei Nomerotski, 2/24/2003

- Have good performance of L2A 20-20 module with full chain



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  - the full chain moved from DAB to SiDet
  - will proceed with full chain tests

Hybrid Testing

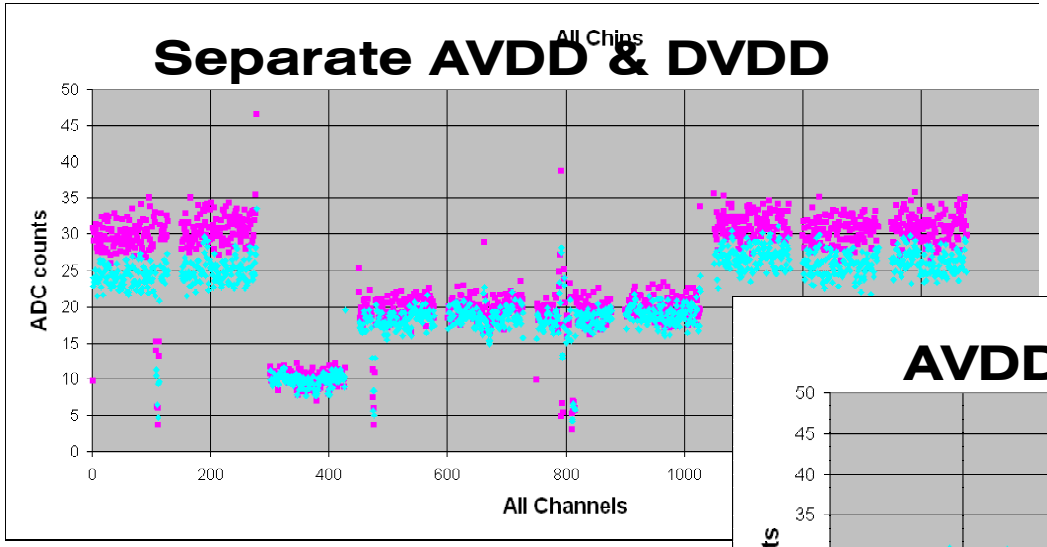
- Connector decision
  - 2.5 kg to plug in 2.5 mm connector (1.5 kg for 3 mm connector)
    - Checked that stave can take much more than that (~20 kg?)
  - Will use
    - 2.5 mm plug on L2A and L2S hybrids, 2.5 mm receptacle on DJC
    - do not remove latch on 2.5 mm connectors
    - use 3, 3.5, 4 mm plugs on the JC side of the DJC
    - use 3 mm receptacle on the JC
- L0 hybrid : found error in the connector pitch in the top layer - fixed
- L2A 10-10 module with irradiated sensors is ready
  - Started tests – first results are encouraging

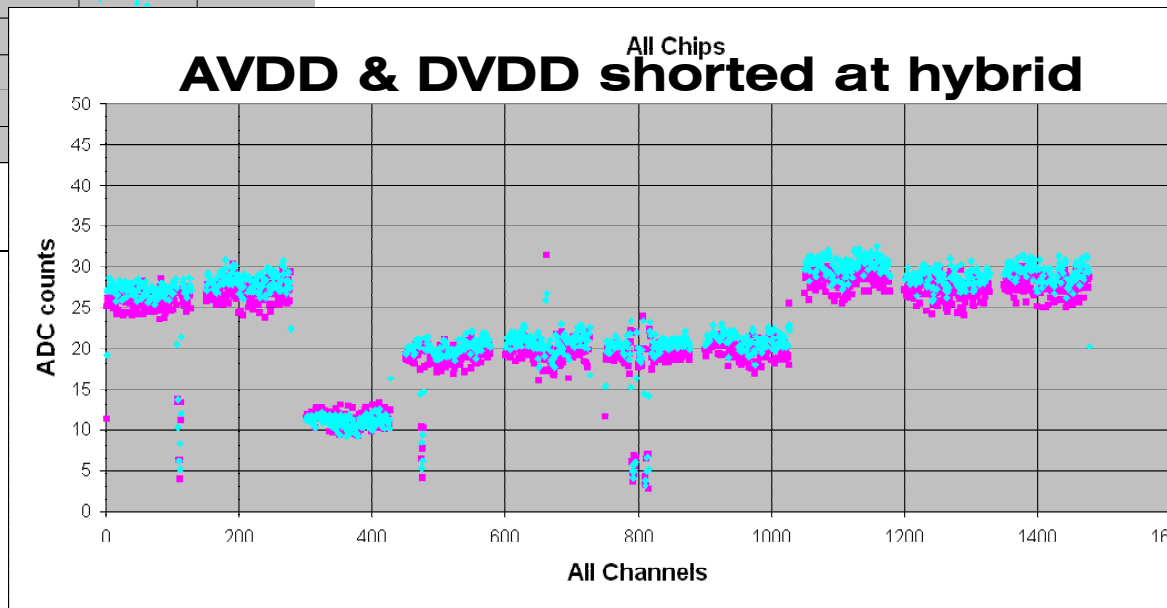
L2A/S Hybrids : revision 2

- We are ready for next revision of the hybrids
  - specs for the SVX4.2A and SVX4.2B are frozen
  - SVX4 output interface is not changing
  - testing of the rev.1 hybrids mostly complete
  - scheduled to start now
- Mechanical issues
  - Bonding tested OK for all 3 cases : L2A, L2S 10-10, L2S 20-20
  - mechanical dimensions OK
  - agreed on the nut locations - some surface components will move

L2A/S Hybrids : revision 2

- **Electrical issues**
  - Combined AVDD and DVDD power
  - Tested noise at bare hybrid and L2A 20-20 module - OK
    - total noise is a bit better with combined power



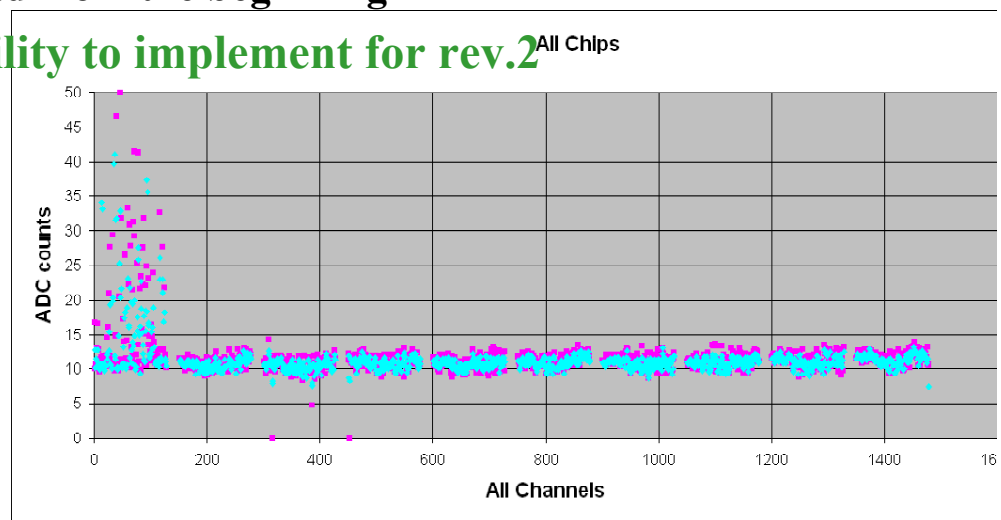


L2A/S Hybrids : revision 2

- **Electrical issues : combined AVDD & DVDD**
  - **Have common GND and combined AVDD & DVDD return anyway**
  - **SVX4 designers (Tom Zimmerman) recommend common power**
  - **Will allow better referencing of signal traces on the hybrid**
  - **Will allow use mesh for the power layer (=>less material)**
  - **Will simplify hybrid, adapter card and power supply designs**

L2A/S Hybrids : revision 2

- **Power bypassing**
  - Checked voltage variations as function of bypass
  - voltage variation can be decreased increasing the bypass
    - no effect on the noise for hybrids
    - found bigger capacitors, same size (10 uF vs. 2.2 uF)
    - need to check noise performance of L2A 20-20 as function of bypass
  - Designers recommend different way of DVDD bypassing
    - checked on 10-chip hybrid - no effect on noise (chips 1 and 6 modified)
      - Chip 1 was bad from the beginning
    - will study possibility to implement for rev.2



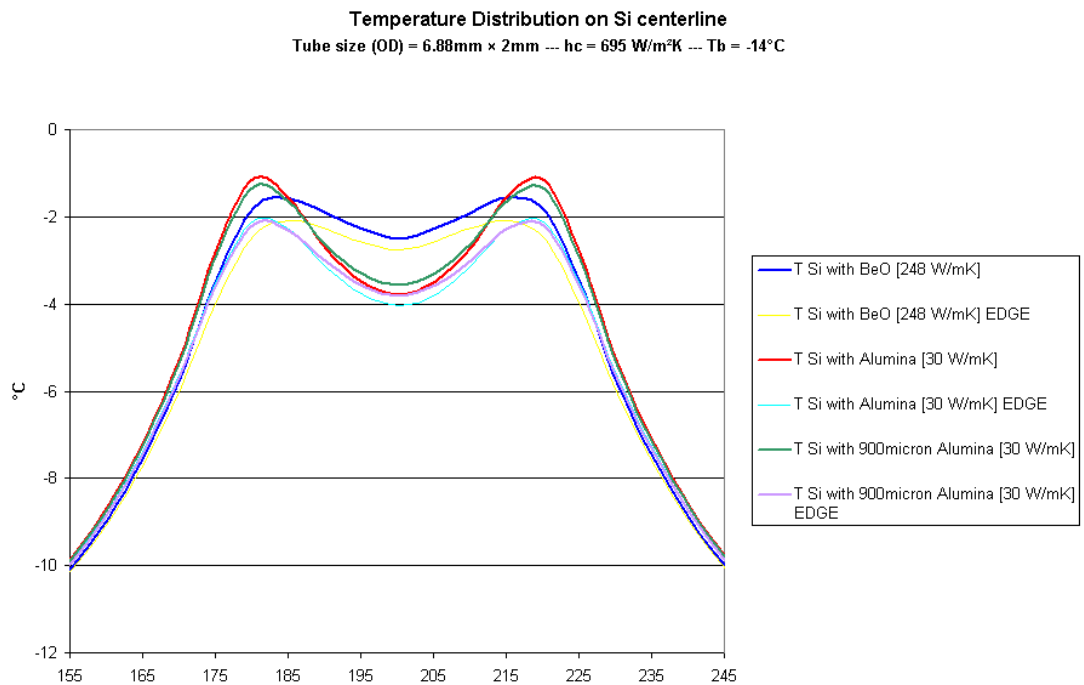
L2A/S Hybrids : revision 2

- Preamp BIAS bypassing
  - Power supply rejection can be optimized by two capacitors, one to AVDD, one to GND
  - Large capacitive load requires C to AVDD (like in present hybrid)
  - SVX4.2B will have on-chip BIAS bypass to AVDD
  - if the above works it can be left unloaded
    - in any event TZ claims this bypass is not relevant for D0 operation
- Terminations
  - Studied with full chain, presented at the December workshop
    - Differential signals : source termination at AC
    - Single ended signals : can use source termination as well - removes 3 resistors from the hybrid
- VCAL : remove serial 100 Ohm
- Remove as much material as practical from the top ground layer

L2A/S Hybrids : revision 2

- **Assembly issues**
  - **Bonding at vendor checked OK**
  - **Reflow soldering at vendor checked OK**
  - **need to double check the connector alignment**
  - **Fiducials - OK where they are?**

L2A/S Hybrids : revision 2

Other issues : Substrate Alumina vs. Beryllia ceramic

- Temperature performance is comparable
- going to alumina increases total stave radiation length by 3%
- benefits : easier manufacturing, no safety issues - lower risk
- issues to understand
  - bowing control with alumina hybrids (=> hybrid thickness)
  - stresses