Readiness for Phase 2

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TB meeting
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eZuce

Overview:

- Hardware status
- Firmware status
- HS link issues

DHH Hardware Status

- DHCC & DHRTM
  - Power and Interconnection test passed
  - Production of new PCBs with corrected layout submitted
  - Assembly in end of August in TUM workshop

- For Phase 2 existing DHCC and DHRTM will be used
- Full system test is being performed right now

DHH Firmware Status

- New hardware requires single serial interface between DHE and DHC supported by UCF protocol
- UCF protocol
  - Single serial interface for B2TT, IPBUS, Data
  - Test is carried on
  - Loss of two byte word with 1ppm probability for one frame observed
  - Work in progress
- If problem is fixed this week then system test at PERSY next week
- Task for September : provide existing DHH functionality but for new hardware

HS Link News

- Setup : 2-15 m Infiniband + Hybrid5 with DHPT1.2b, 76MHz
  - Copper HS links
  - HS very stable no need for DHPT parameters optimization
- Setup : CLC + 2 m Infiniband + Hybrid5 with DHPT1.2b, 76MHz
  - Optical links
  - Unstable even at 62.5 MHz
  - Link drops after 30 minutes – one hour
  - EYE diagram is very good : no visible difference with Infiniband
  - IBERT : reaches 10-12 then rises, errors occur in bunches of 20-30

Difference between two setups :

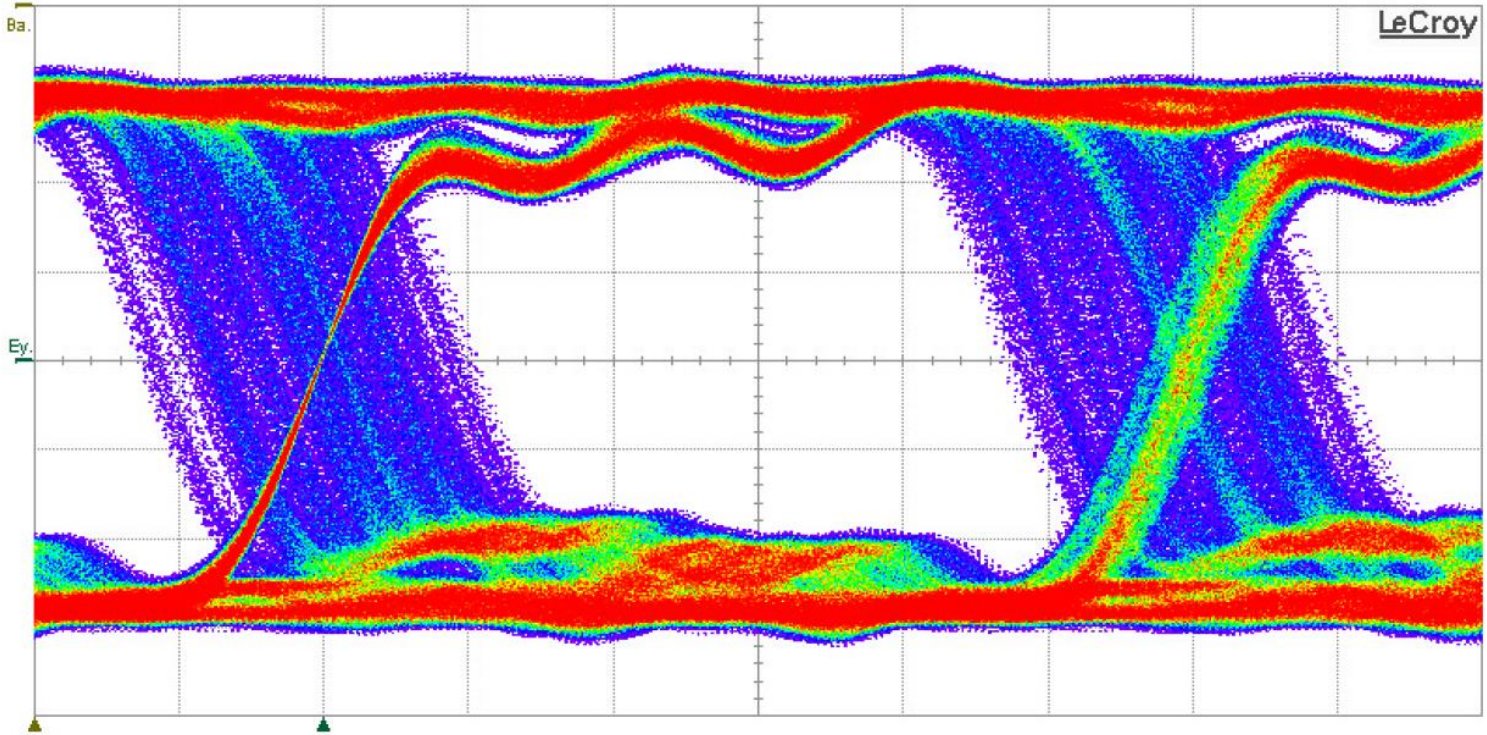
- Optics ☺
- VSS sense defines DHE ground with capacitive coupling of 100 nF to DGND at Dockbox PCB

- Setup : CLC + 2 m Infiniband + Hybrid5 with DHPT1.2b, 76MHz
  - Optical links
  - 100 nF capacitor shortened
  - Very stable, IBERT reaches 10-13 (2 hours of data taking)

HS Link News

- Setup : CLC + 2 m Infiniband + EMCM with DHPT1.2b, 76MHz
  - Requires tuning DHPT parameters
  - IBERT : no errors for 2 hours, EYE diagram has good openning
  - Normal mode with data : links stay UP for few seconds or minutes
  - Eye diagram reasonably good but with many well separated phases
  - Links unstable

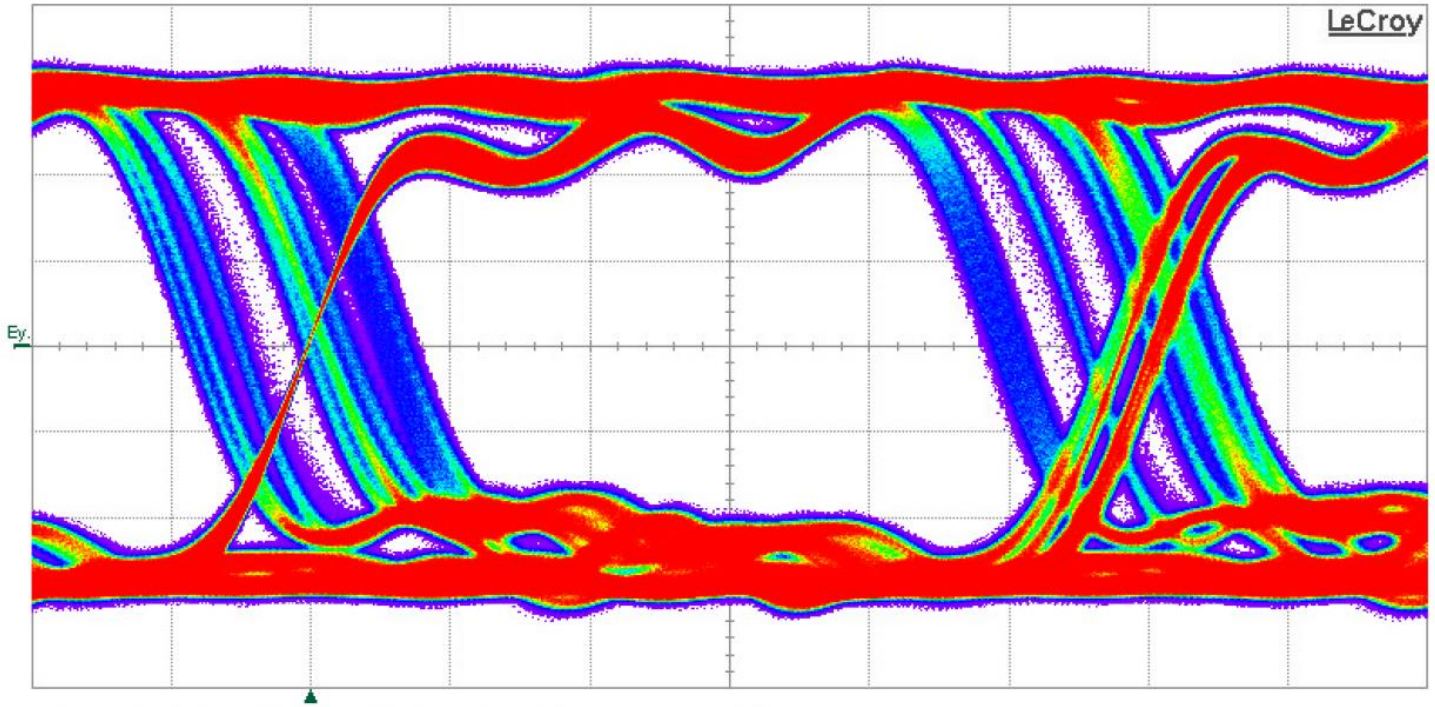
CLC, PRBS, Synch to data



SDA Jitter	Tj(1e-12)	Rj(nq)	Dj(nq)
value	---	---	---
status	⚠	⚠	⚠

SDA Eye	EyeCross	EyeWidth	EyeAmpl	EyeOne	EyeHeight	EyeBER
value	62.35 %	404 ps	1.602 V	817 mV	1.056 V	660.4e-21
status	✔	✔	✔	✔	✔	✔

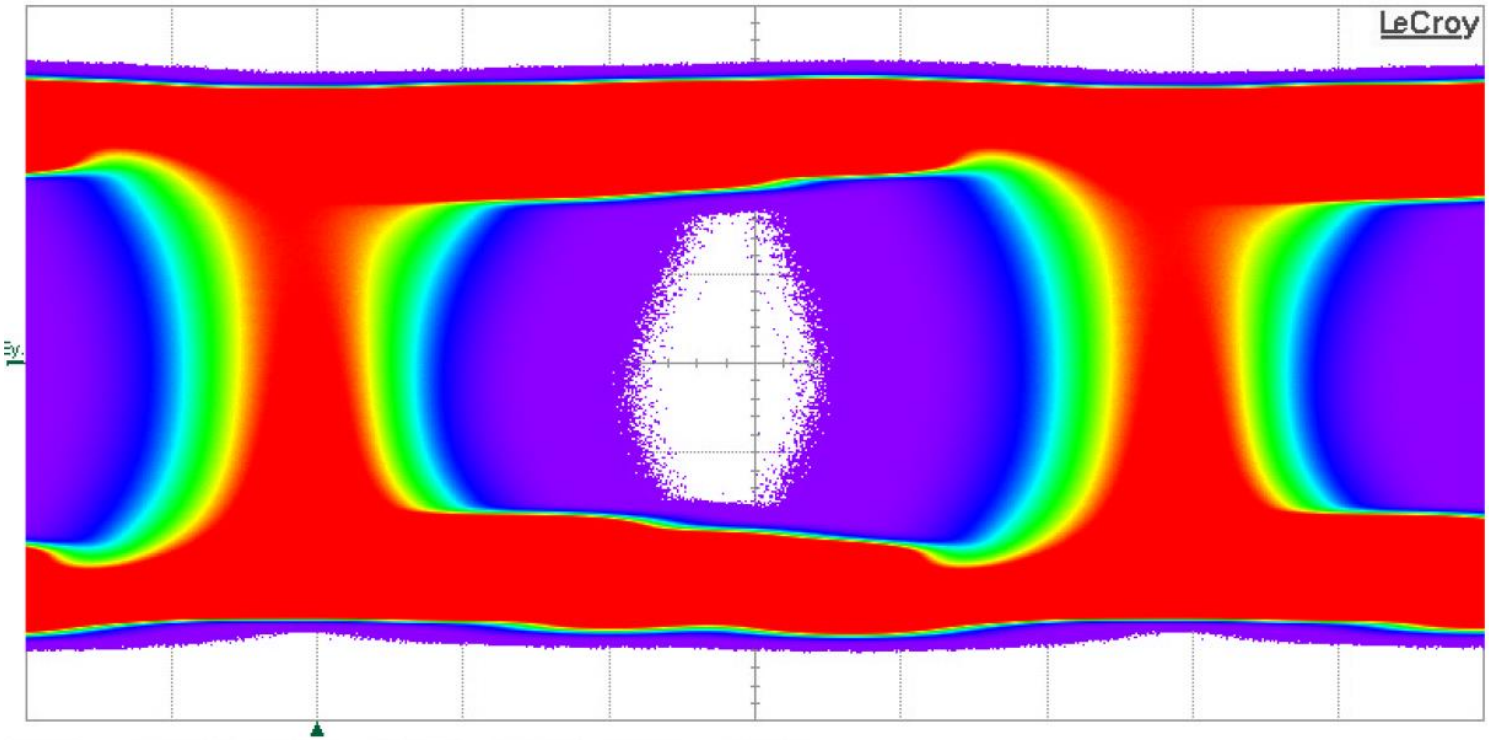
CLC, Data, Sync to Data



SDA Eye	EyeCross	EyeWidth	EyeAmpl	EyeOne	EyeHeight	EyeBER
value	53.19 %	407 ps	1.613 V	830 mV	1.070 V	244.9e-21
status	✔	✔	✔	✔	✔	✔

SDA Jitter	Tj(1e-12)	Rj(nq)	Dj(nq)
value	293.79 ps	6.90 ps	199.97 ps
status	✔	✔	✔

Data, LongTerm, PLL



SDA Eye	EyeCross	EyeWidth	EyeAmpl	EyeOne	EyeHeight	EyeBER
value	43.29 %	301 ps	1.629 V	838 mV	1.089 V	80.80e-21
status	✔	✔	✔	✔	✔	✔

SDA Jitter	Tj(1e-12)	Rj(nq)	Dj(nq)
value	771.3 ps	49.8 ps	93.5 ps
status	✔	✔	✔

Conclusion

- HS stability issue is complicated, many system components and system imperfections contribute to that
- Important new issue:

Grounding scheme is not perfect for GCK transmission and to be optimized