Electric Patch Panel Problems

- Shorts
- Assembly
- Testing

- Digital Ground and GateOff are shorted to patch panel cover via screws
 - \rightarrow screws connect vias on the PCB with the cover



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- Digital Ground and GateOff are shorted to patch panel cover via screws
 - \rightarrow screws connect vias on the PCB with the cover
- Proposed solution: <u>Isolate with tape</u>



- Shorts between Infiniband drain wires and outer shield
- Shorts between Infiniband drain wires and PP cover



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- Shorts between Infiniband drain wires and PP cover



Assembly of Patch Panel

- Shorts between Infiniband drain wires and outer shield
- Shorts between Infiniband drain wires and PP cover
- Proposed solution: <u>do not cut drain wires at end of cable isolation</u>, <u>but keep it clamped under the Infiniband bridge</u>

From Tscharlie's assembly instruction:

4. Infini Probemontage mit Markierung der richtigen Längen 6. PCB angeschraubt, Infin geklemmt und gelötet





Cut drain wires here

Final drain wire routing, safe from bending back and contacting cover or outer shield

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Assembly of Patch Panel

- Better <u>quality checks</u> necessary \rightarrow gluing was omitted on all PP
- <u>Special care</u> must be taken to properly separate outer and inner shields of Infiniband, outer shield of Ethernet and housing of patch panel from each other (make it clear to people who do assembly)
 - they are not the same and must not touch

From Tscharlie's assembly instruction:

2. Power gelötet und vergossen mit Epoxy GP 2011





Testing

- Cable tests were done with cover removed
 → Gate-Off DGND short was missed
- Testing should be done in final configuration
 → Patch panel fully assembled!
- Testing has to include inner shield (drain wires), outer shield and PP cover as well
 - \rightarrow some design change on cable tester necessary (?)

Summary

1) Isolate two spacer screws from PCB vias

2) Handle drain wires in more controlled way

3) Testing in final configuration- include also PP cover connection (+ shields)

EXTRA – grounding discussion

- Reason for disconnecting the drain wires on PP not clear (ask Fernando/Stefan)
- For highspeed integrity drain wires should be on DHP GND reference
- For clock reference on DHI a low ohmic connection to DHP ground reference is necessary. The sense wire connection seems not to be sufficient.
 - Kapton and wirebonds of sense wire are biggest problem (measured 30 – 60 Ohms resistance between Kapton ground point and DHP GND sense on DB.)
- → maybe connect to DGND directly instead of VSS sense as CLK reference is still the best solution? (connect CLC+INF inner shields on DB PCB!)

