Status of the carrier board

17.3.2016

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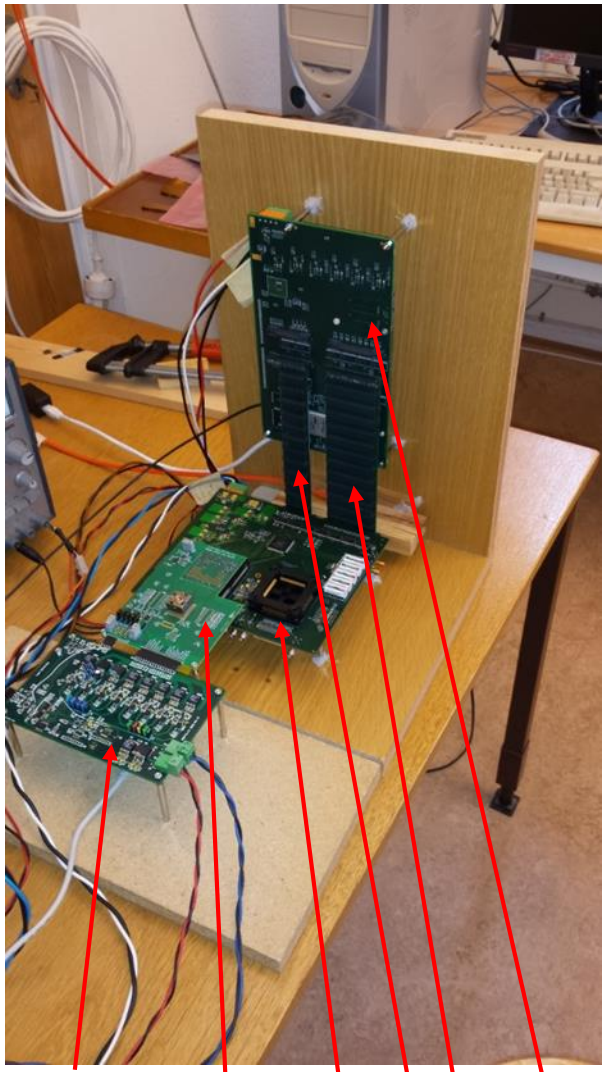
The previous test set-up for testing SALTRO16-chips on Carrier Boards



LV-board

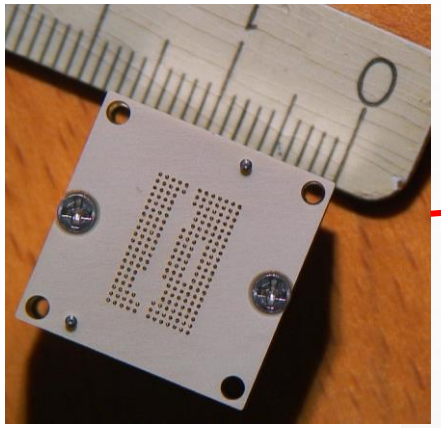
Lund test socket board

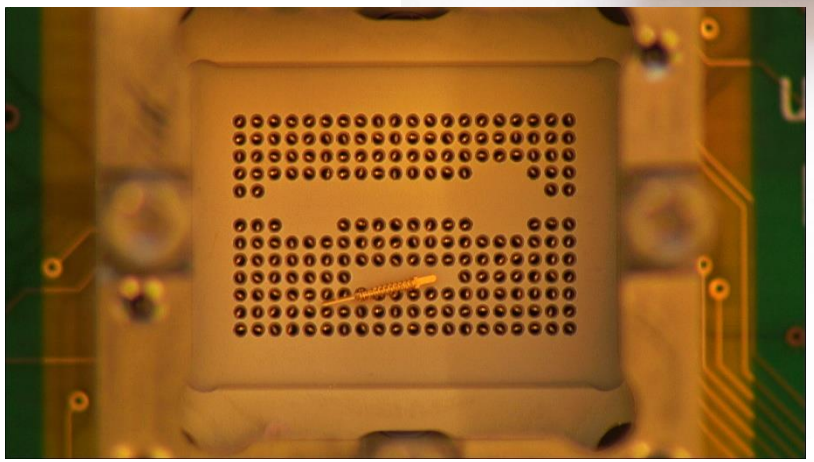
CERN test board

Back planes

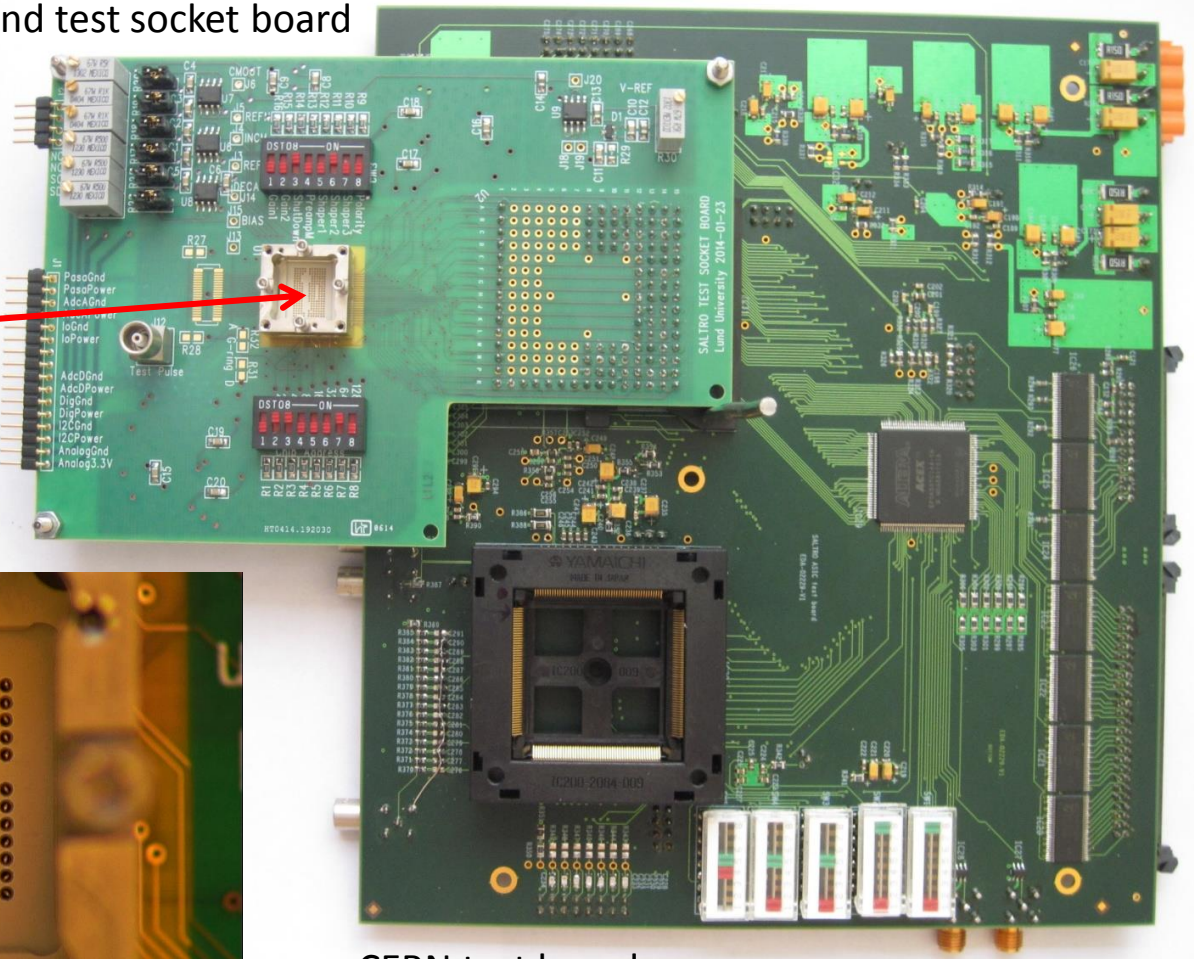
RCU

Test socket





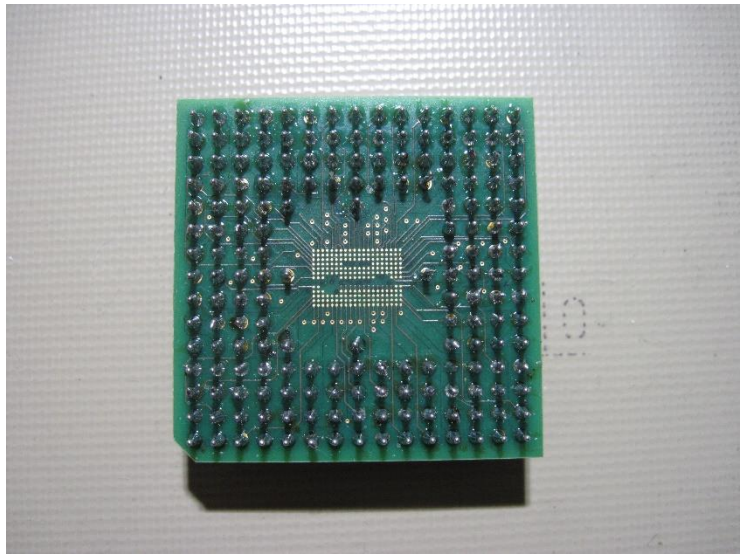
Lund test socket board



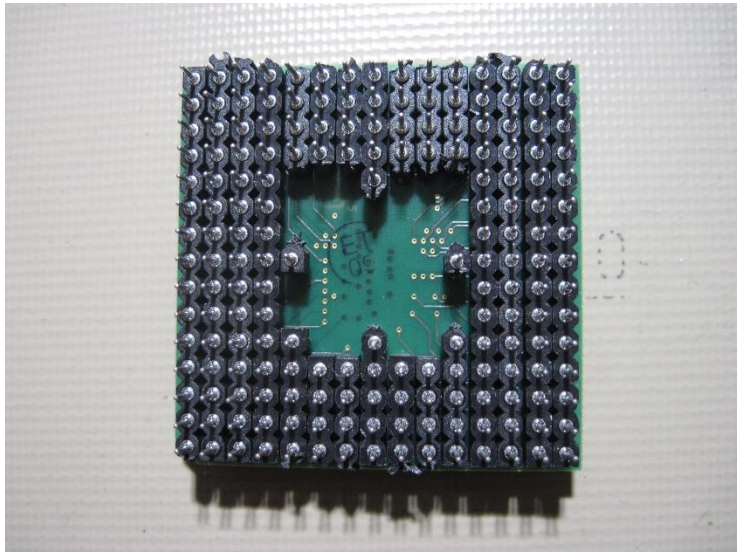
CERN test board

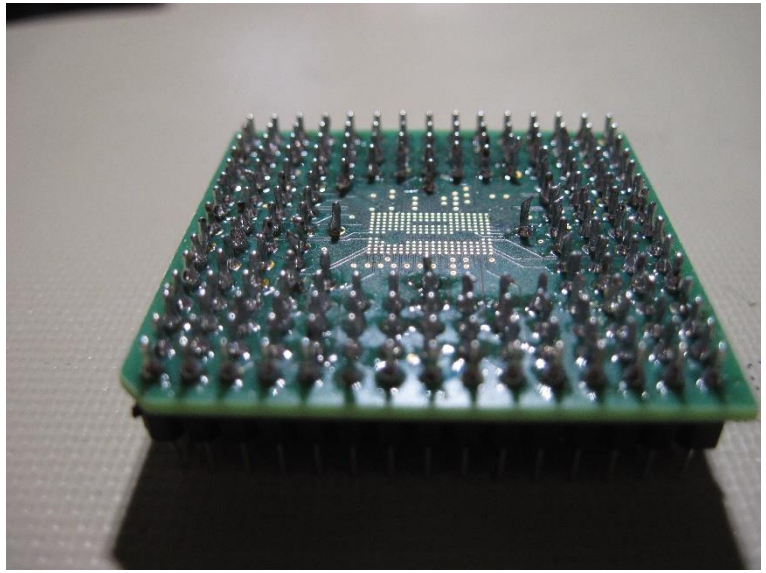
Adaptor board

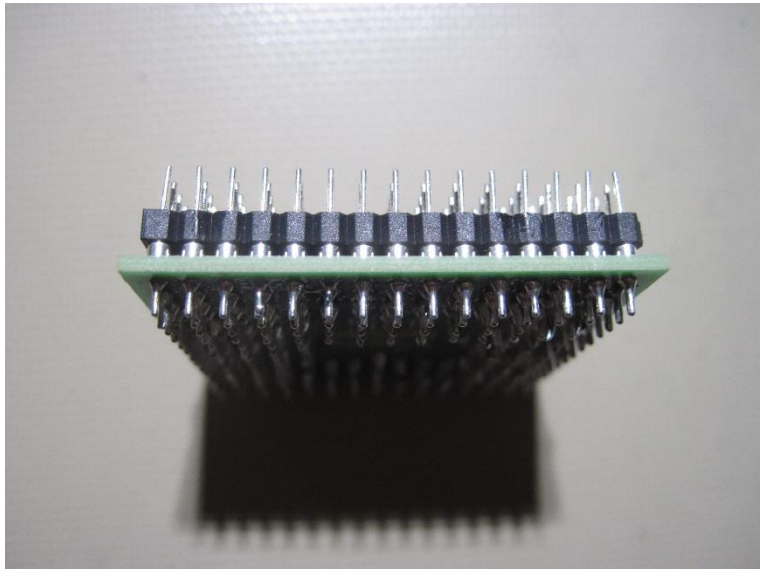
Top side



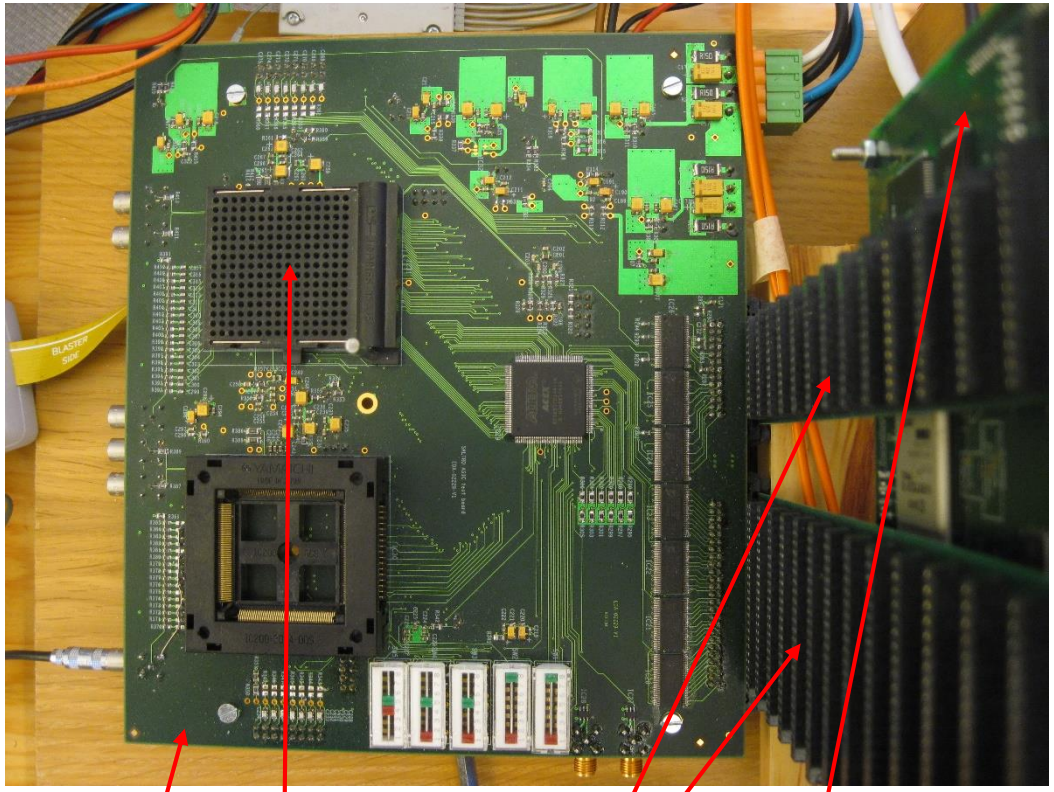
Bottom side







The present test set –up for the carrier board with mounted SALTRO-chip

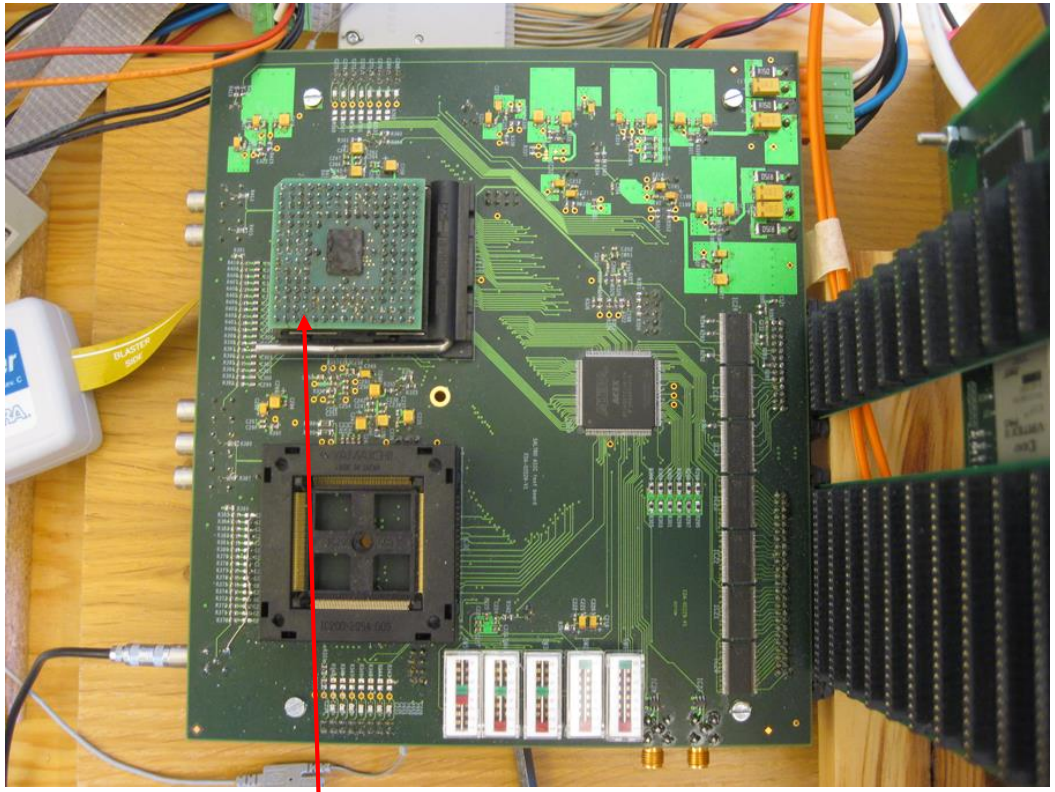


CERN test-board

PGA-socket

Backplanes

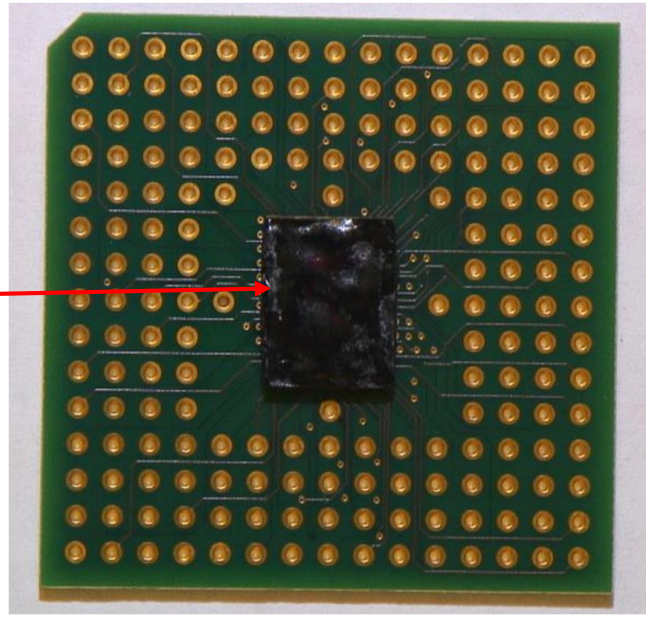
RCU (Readout Control Unit



Adapter board with
mounted SALTRO-chip

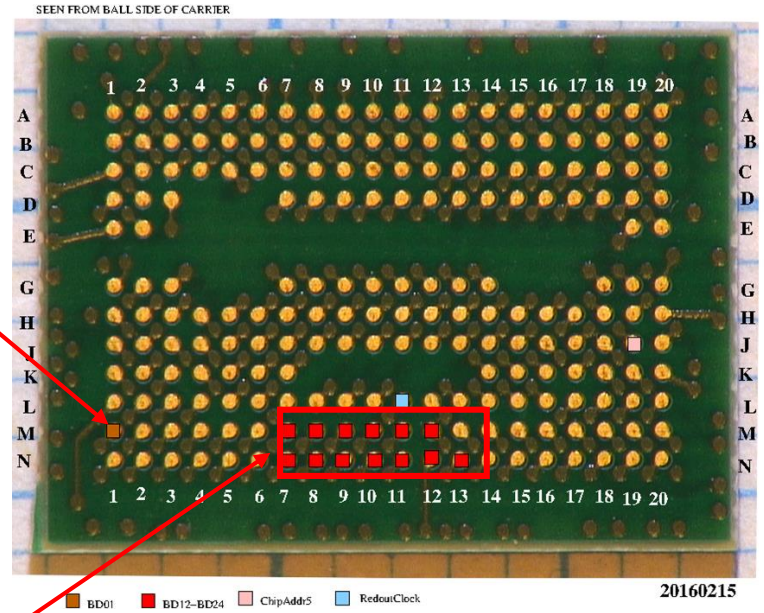
Adaptor board with mounted Carrier board

Upper surface of adaptor board with mounted SALTRO-chip ($12 \times 8.9\ mm^2$)



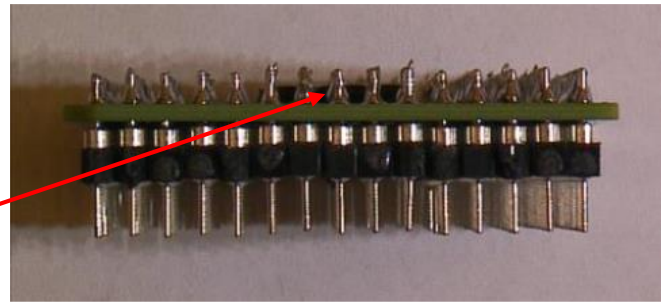
Carrier board; bottom view with tin balls in BGA pattern

The first test of the carrier board mounted on the adapter board showed that one data line didn't have a connection.
This was the only error found.
The first test with readout was otherwise promising.



Side view of adaptor board

SALTRO-chip



After further tests the situation got worse and we ended up with an area with no connections. We suspect a problem with the soldering

The board has been sent back to the company for re-soldering

Summary

- Except for a design error at the input of the sampling clock, which has been circumvented, no other design error of the carrier board has been found so far.

- The first test of the carrier board was promising. Only one data line didn't have connection.

- After various attempts to cure this problem the situation got worse and we ended up with an area with no connections. We suspect that the soldering was not properly done.

- The board was sent back to the company for re-soldering.

- It was delivered yesterday afternoon. The first look this morning revealed that some data lines have no connection. The results of the tests give strong indications that the soldering procedure is not sufficiently good. We need to discuss this with the company.

Possible hint: the soldering balls on the bottom side of the carrier board are from tin. In the AIDA meeting yesterday Imad Laktineh pointed out that they previously had a similar problem at Lyon, and after consulting experts they were advised to use soldering balls of a lead alloy instead.

- Conclusion: There are clear indications that are probems are correlated to the soldering procedure and that we are increasingly confident that they are not due to design errors.