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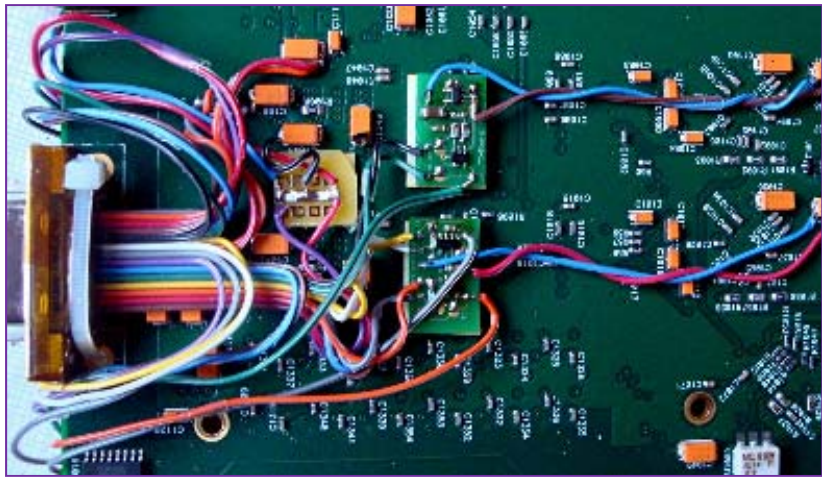
AGATA Digitiser Dual Core modification.

Why? How? Process

Patrick Coleman-Smith

Why

- Dual Core trials.
  - Wires and small pcbs.
  - Not likely to provide stable results over 29 modules.
  - Wires running around the board.
  - IDC connector problems.



- PCB based modification
  - All 29 modules will be the same.
  - Differential signals using matched impedance tracking.
- New Core ADC cards.
  - Best engineering solution …. But far too expensive.

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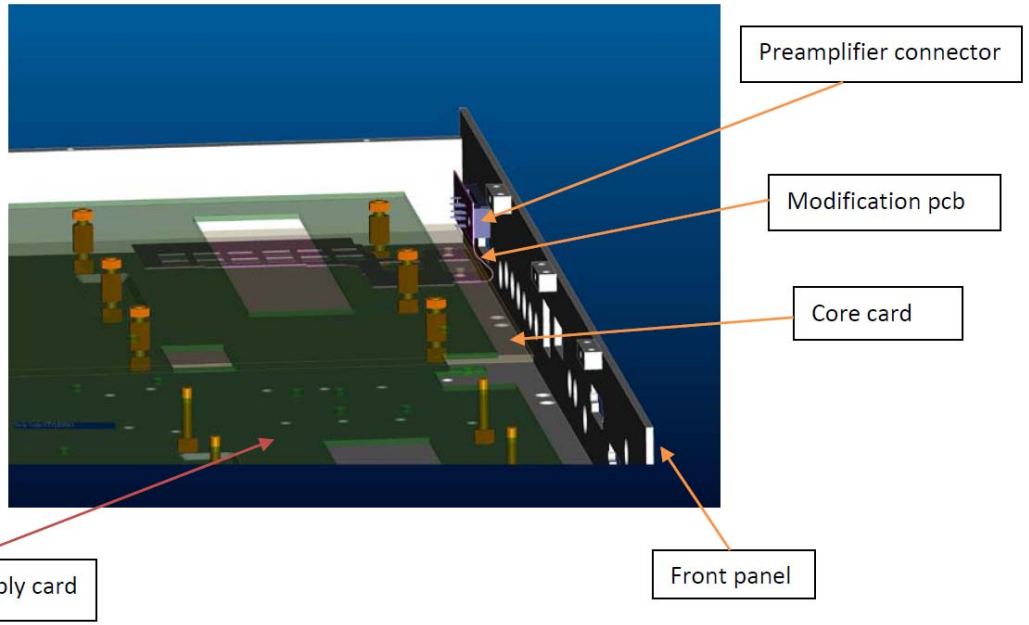
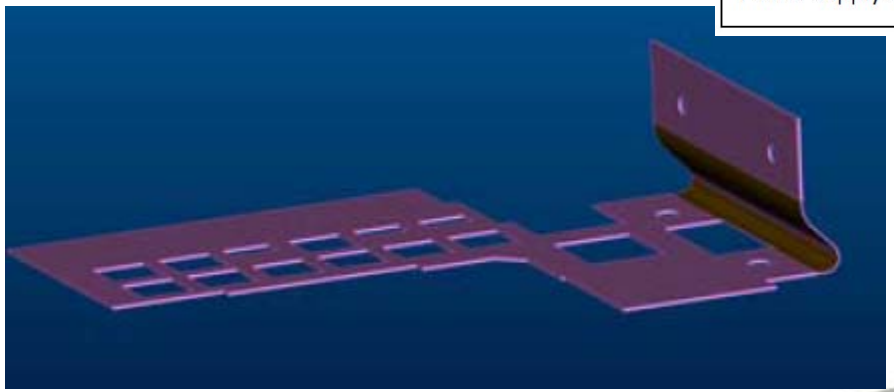
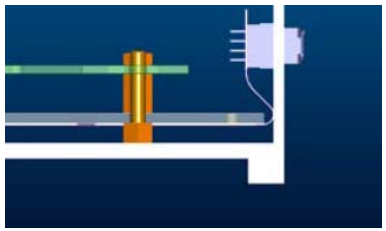
How

- Modification pcb containing all the changes with a new connector. (0.4mm thick)
- Some components removed from the Core pcb.
- Modification pcb soldered in place.
- New module front panel.







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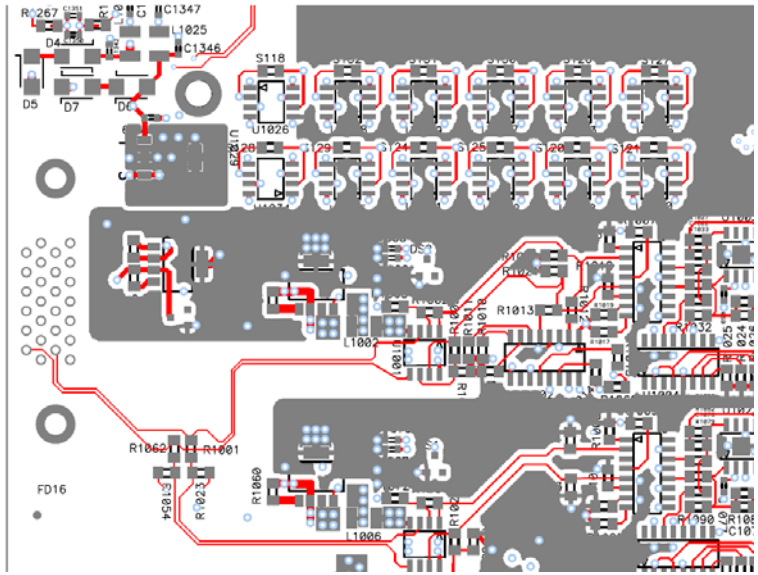
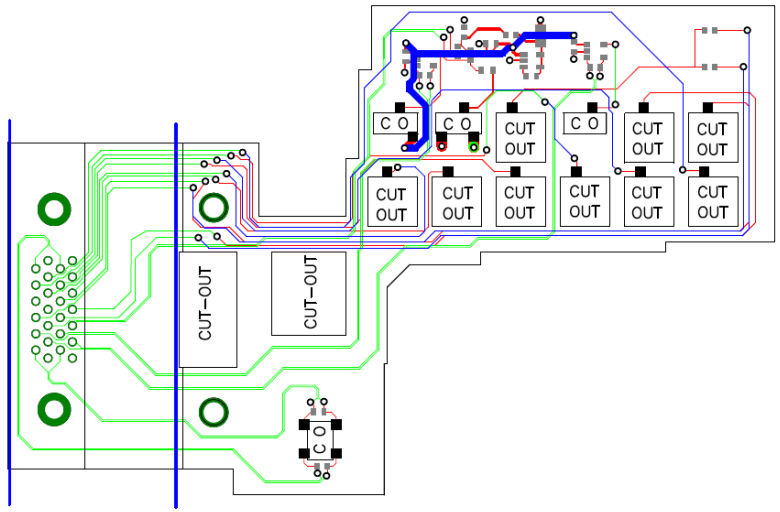
Modification PCB

Existing Core pcb
component side





Modification pcb

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Process

The implementation of the modification on a Digitiser will require the following stages:

1. Dismantle the Core module and remove the Core card and discard the front panel.
2. Remove the unwanted components from the Core card and replace some resistors to change the Gain range of one channel.
3. Fit and solder in place, at 19 connection points, the modification pcb onto the Core pcb.
4. Reassemble the Core module and fit a new front panel.
5. Test the Digitiser using the commissioning and characterisation software.

- Manufacture all modification pcbs and front panels
- Modify one Digitiser at Daresbury and test.
- Cost :- £8700 (inc VAT) To be funded by the collaboration.

Remaining 28 Digitisers require about 5 technician weeks work at GSI. To be funded by the collaboration.