

Status Tofpet FE and Tx boards

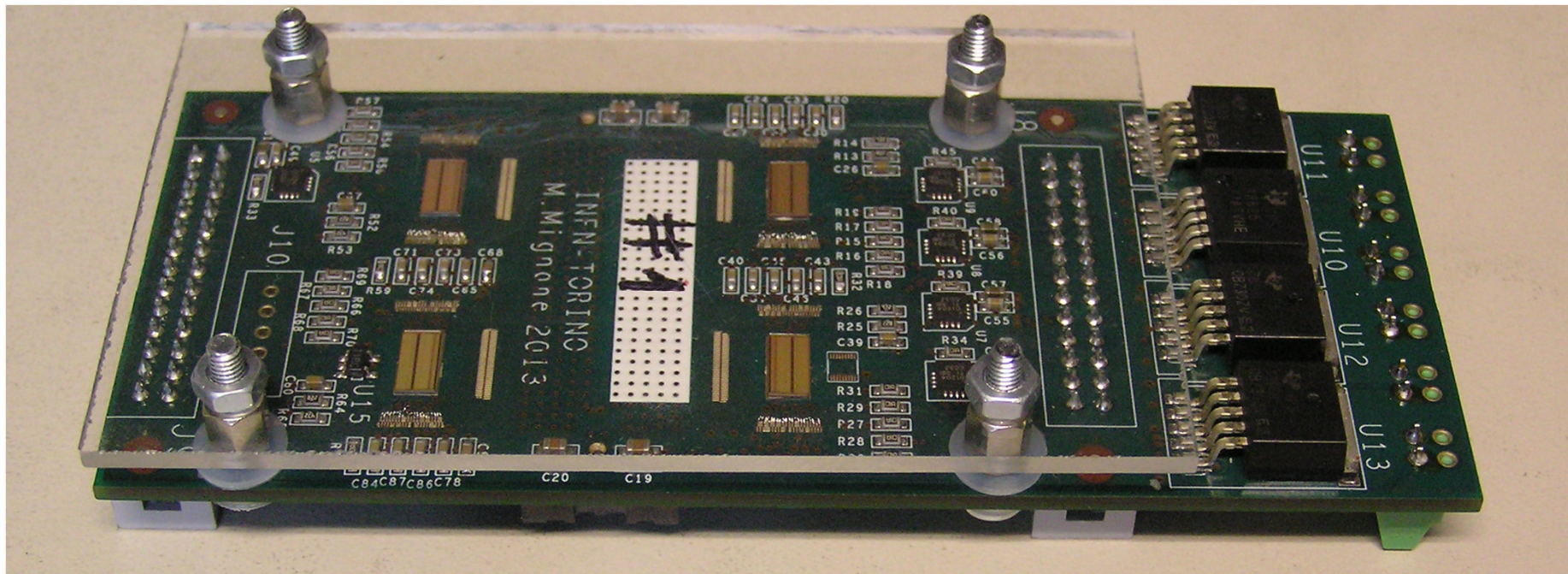
- Development of FE Tofpet firmware for Tx boards
- Characterisation of first FE Tofpet boards
- Long cable tests

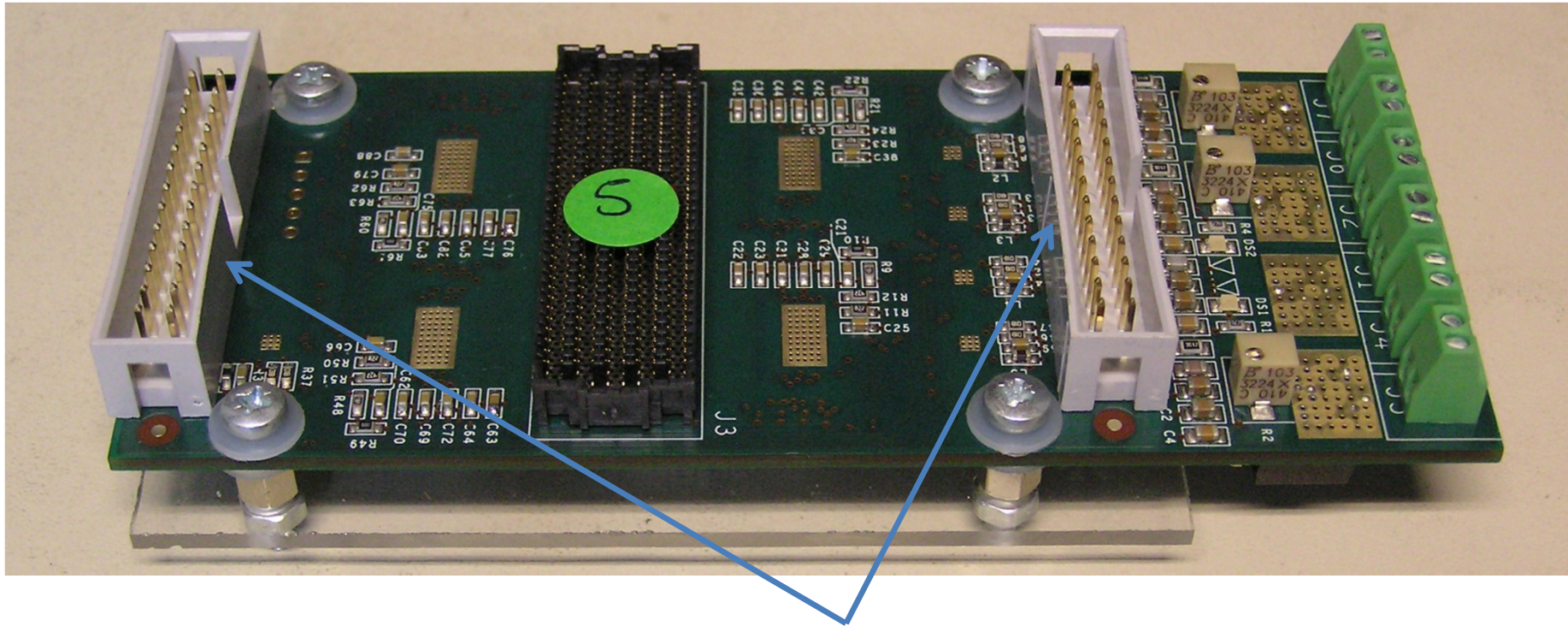
FE Tofpet Tx board firmware

- Firmware is an evolution of the original Torino Tofpet firmware now using a custom UDP interface (no soft CPU)
- Development on ML605 board (Virtex 6) for now in order to get the bugs out using known hardware and firmware development tools
 - Software interface is identical
 - Added fine time calculation in hardware
 - Added FE board temperature sensor reading
- Only one FE Tofpet board per ML605 board, but firmware and software designed to allow running up to four ML605 boards together on Gigabit Ethernet switch with clock and reset sync via SMA and LVDS distribution boards
- Everything ready for a stand-alone test at CNAO
- Next step port to SP605 board (Spartan 6)
- Interaction with Rx boards TBD

FE Tofpet board

- Submitted for production in May (design was ready to go in January but Hamamatsu caused substantial delay over flex circuit definition)
- Delivered first week of July, total of 6 boards
- Two boards bonded and tested





- One main issue – the position of the IDC connectors
 - Interference with bonding, would need to mount them as the last step of construction
 - Having only untested chips we could not take that risk
 - Preferable to maintain this configuration for easy maintenance but with chips tested on the probe station it would be possible to live with the original configuration
- Two chips have unusually low TOT gain but are otherwise apparently Ok
 - To substitute or not to substitute, that is the question...

Long cables

- Tx boards do not fit in the detector boxes
- Tests Ok at 160MHz with 2 metres of twisted-flat cables including interruptions with connectors to simulate patch-panels (but timing needs careful study)
 - Timing jitter with test pulse increases to 140ps sigma, assuming equal contributions from clock transmission and TP transmission implies clock jitter \sim 100ps sigma
- Is 2 metres enough?