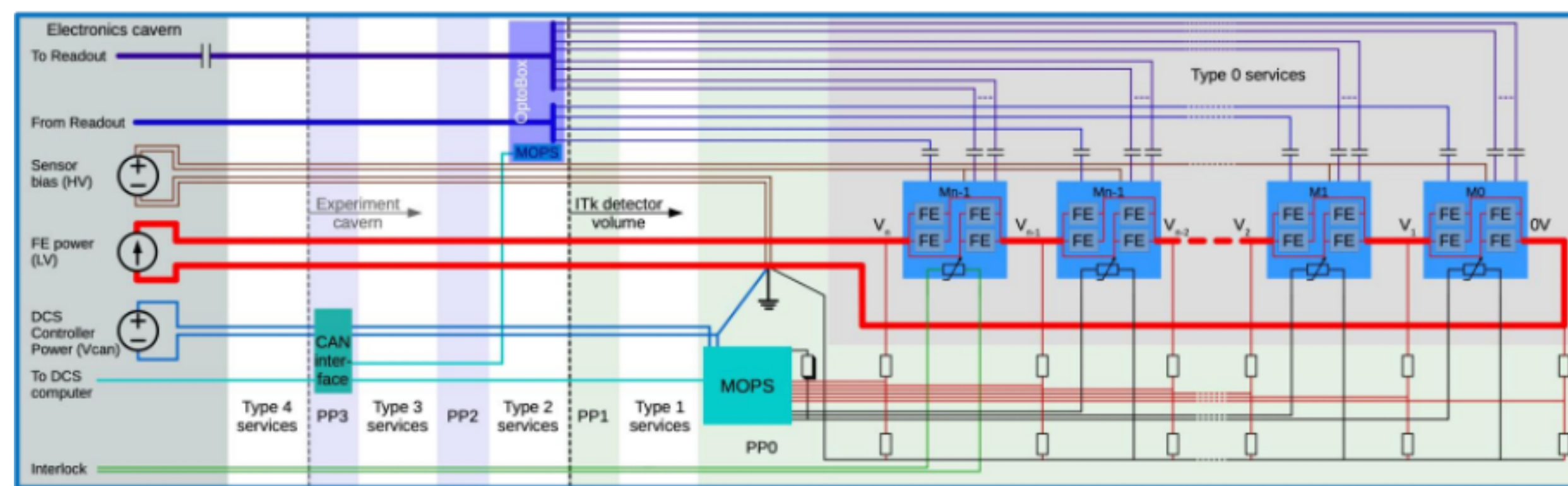




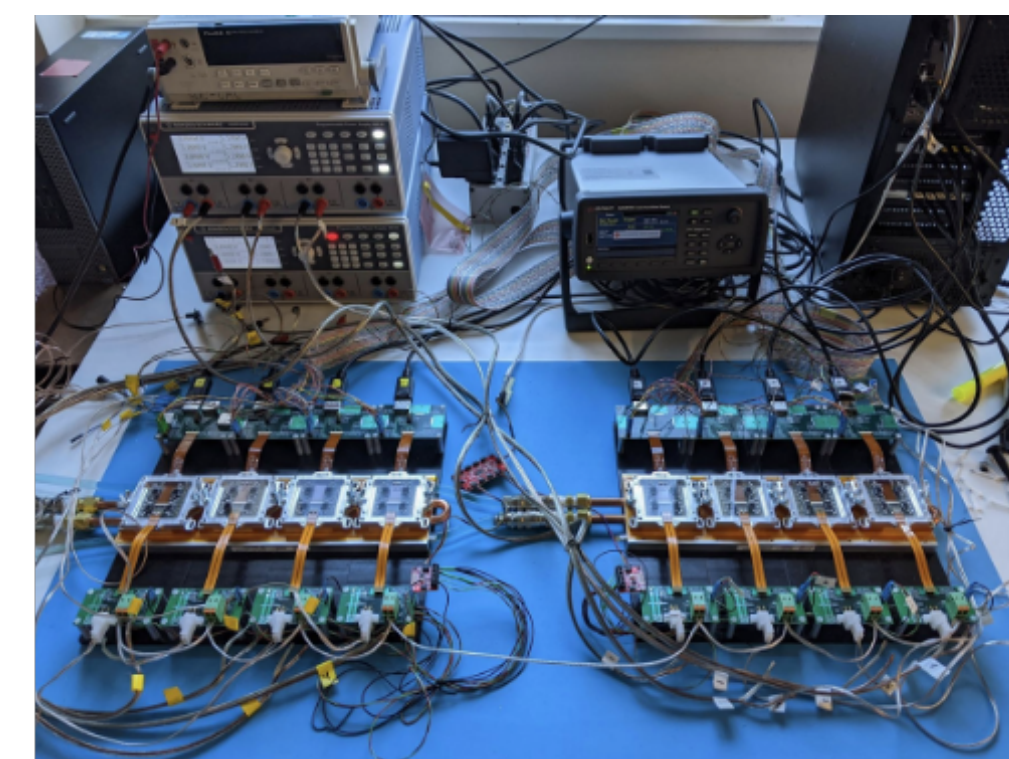
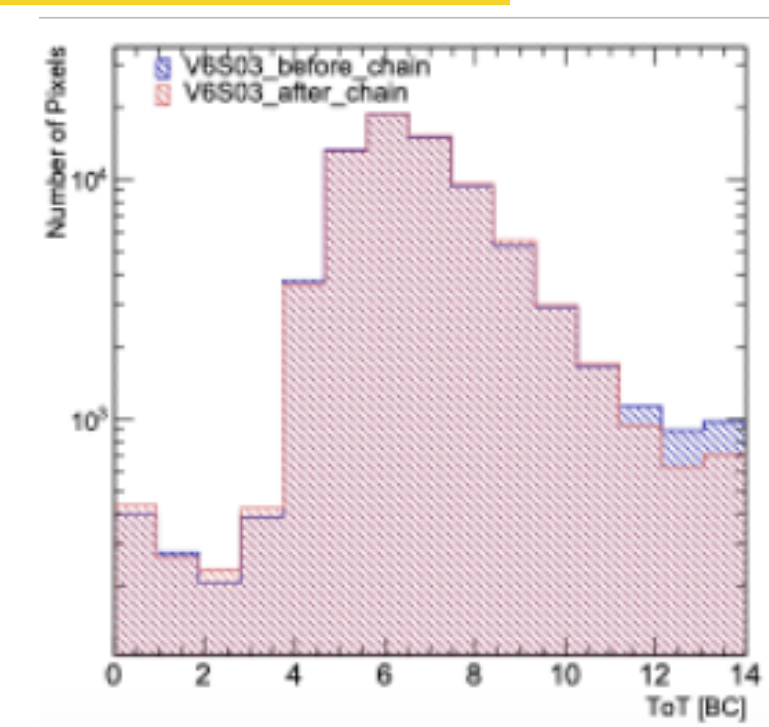
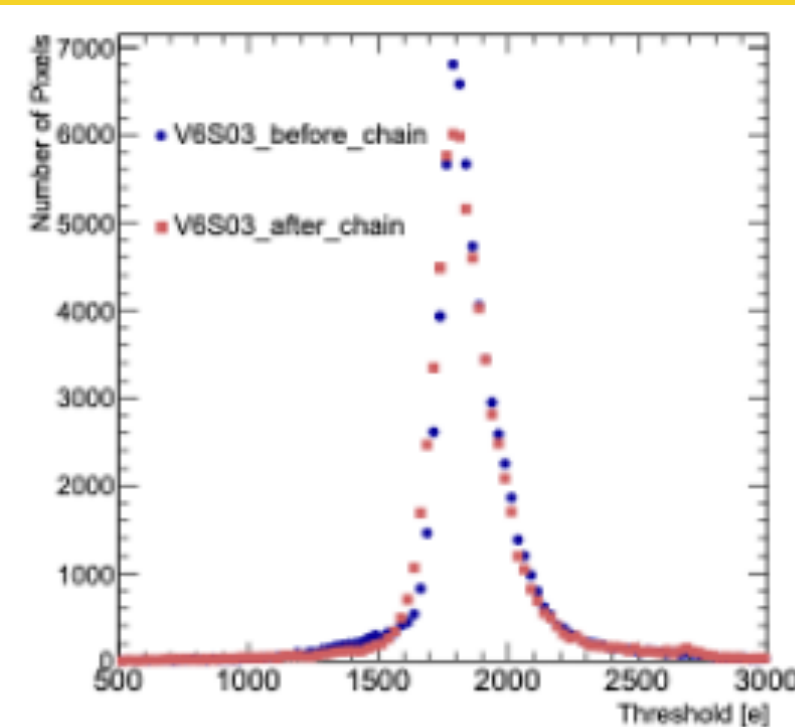
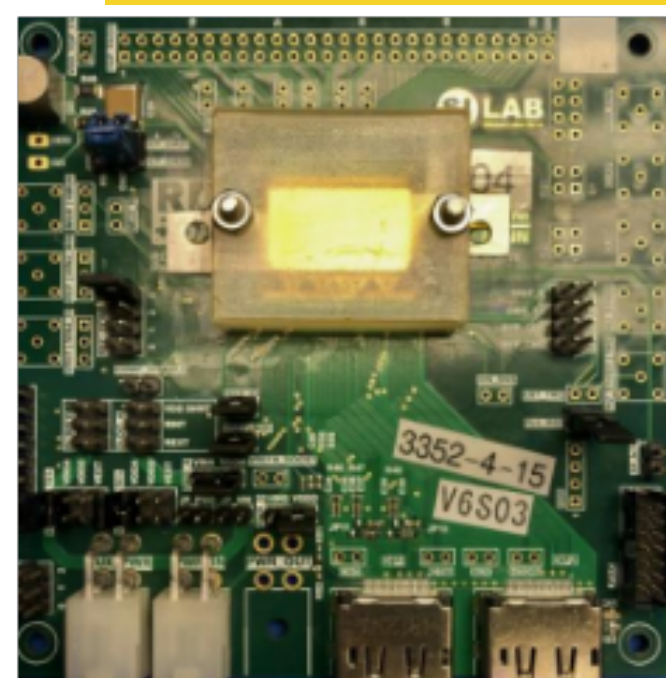
# ATLAS ITk Pixel Demonstrators

The ATLAS tracking system will be replaced by an all-silicon detector for the HL-LHC upgrade around 2025. The innermost five layers of the detector system will be pixel detector layers which will be most challenging in terms of radiation hardness, data rate and readout speed. A serial powering scheme will be used for the pixel layers to reduce the radiation length of the detector and the power consumption in the cables. The elements required to operate and monitor a serially powered detector are being prototyped for all ITk subsystems to verify and test the concepts involved.

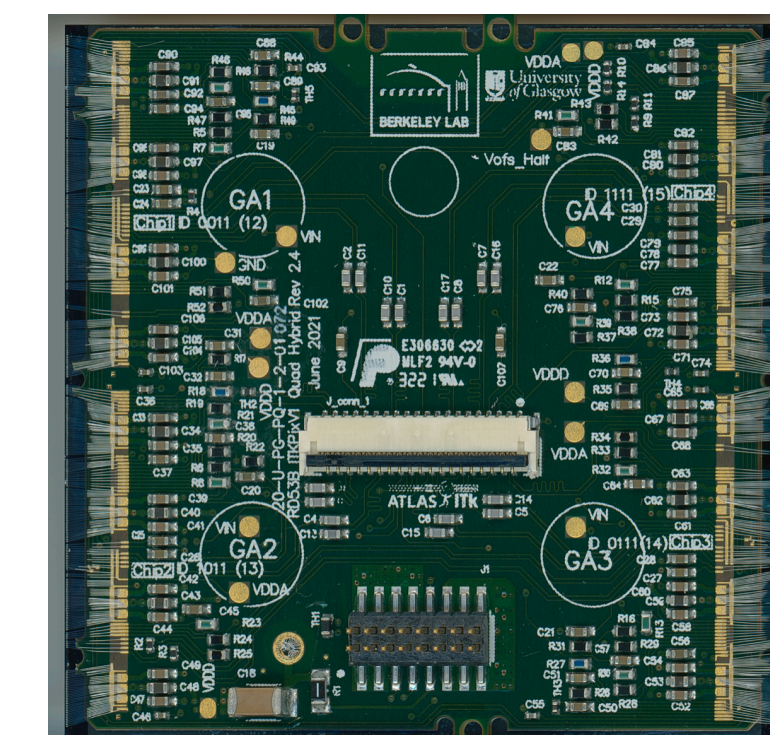
Serial powering and services scheme for ITk Pixel quad modules. serial powering chains of quad modules are constructed with up to 13 modules



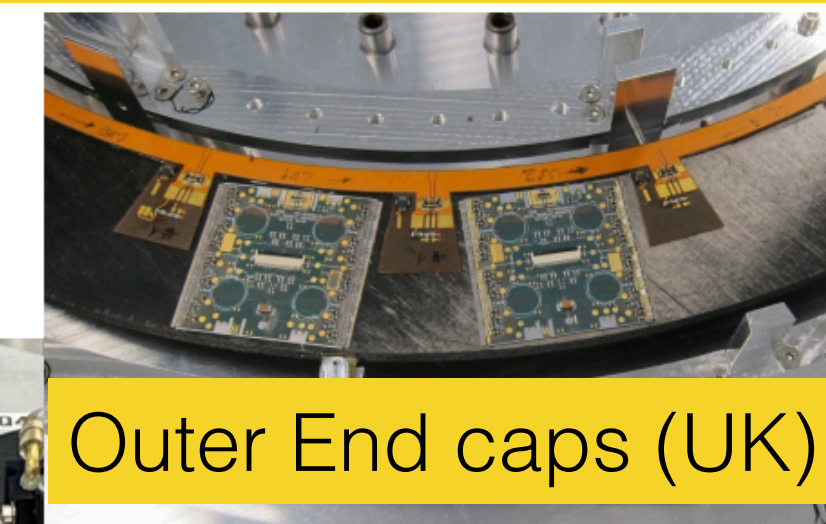
## Serial powering chain with irradiated RD53A modules



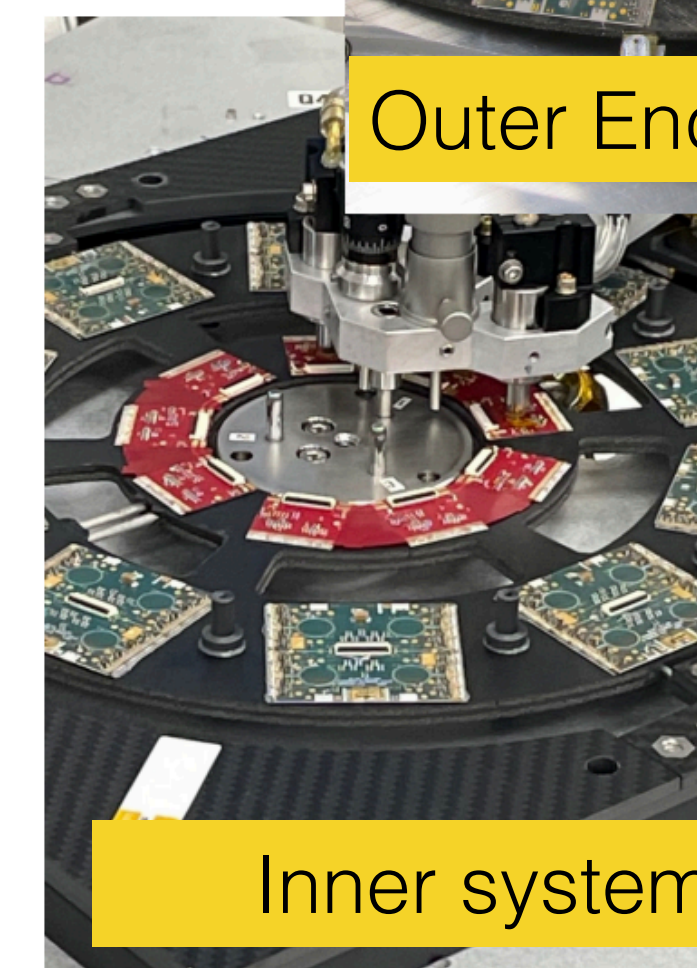
## ITkPixv1.1 (RD53B) serial powering quads



## RD53A serial powering with quad modules



## Outer End caps (UK)



## Inner system (US)