

# Microelectronics: Electrical testing & system design

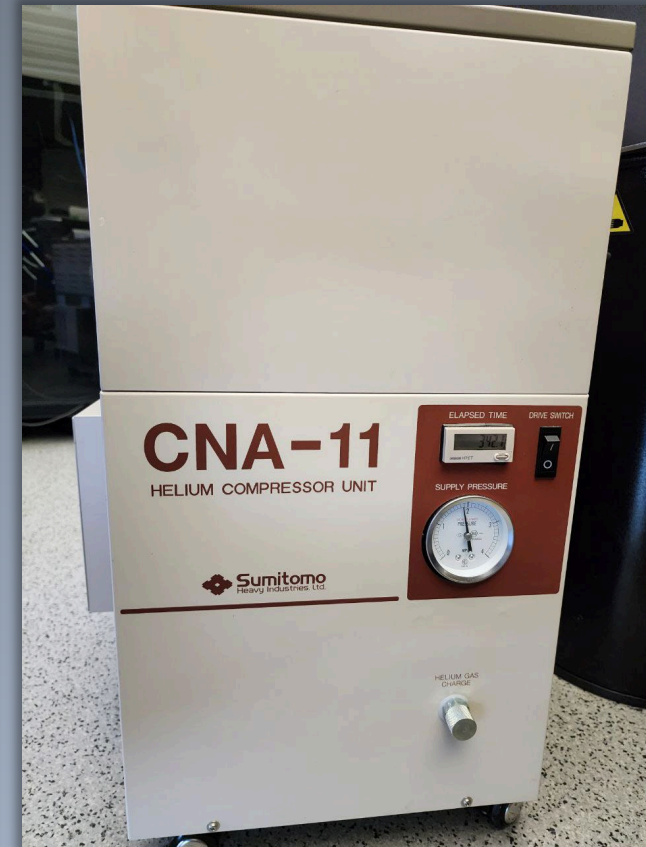
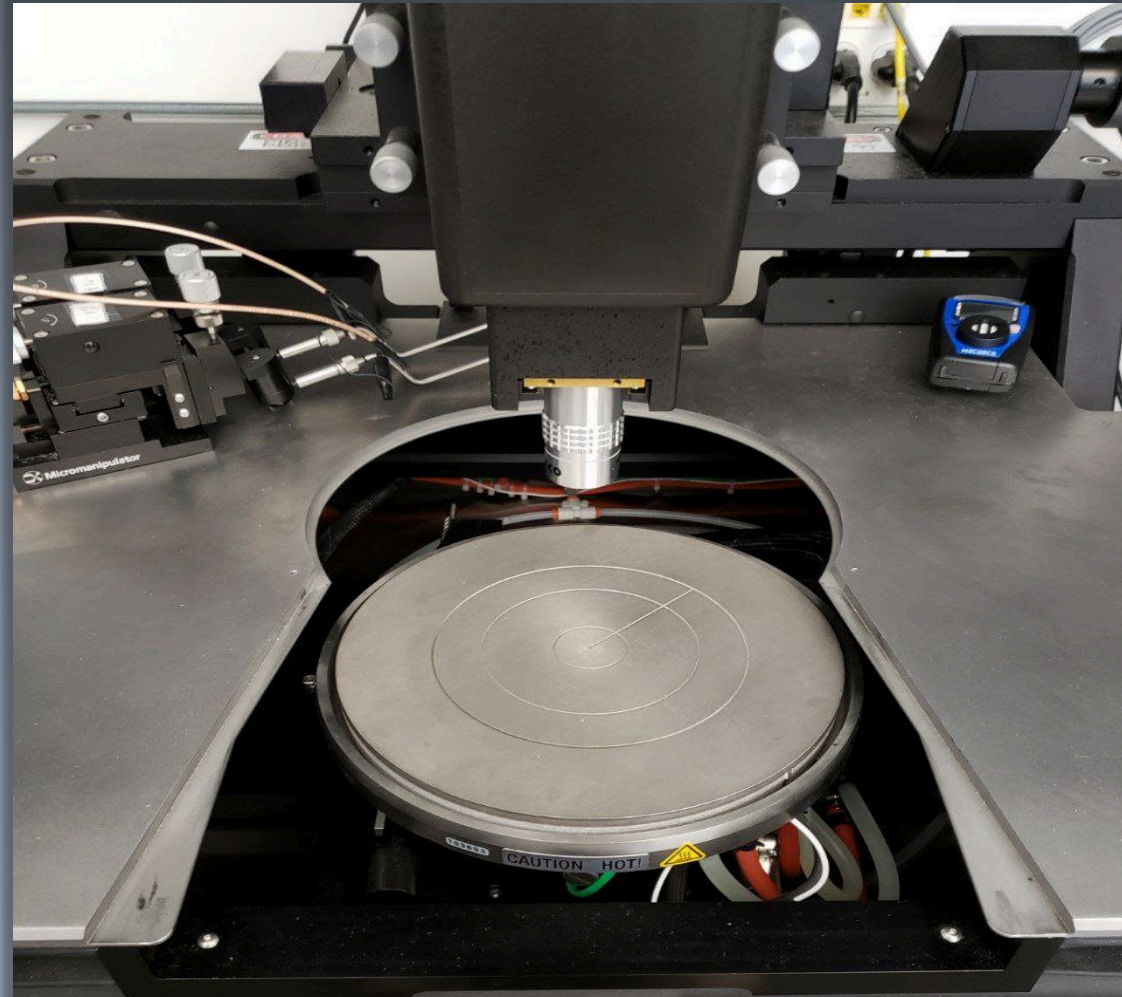
Cybersecurity laboratory  
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# Wafer Level Testing - Micromanipulator



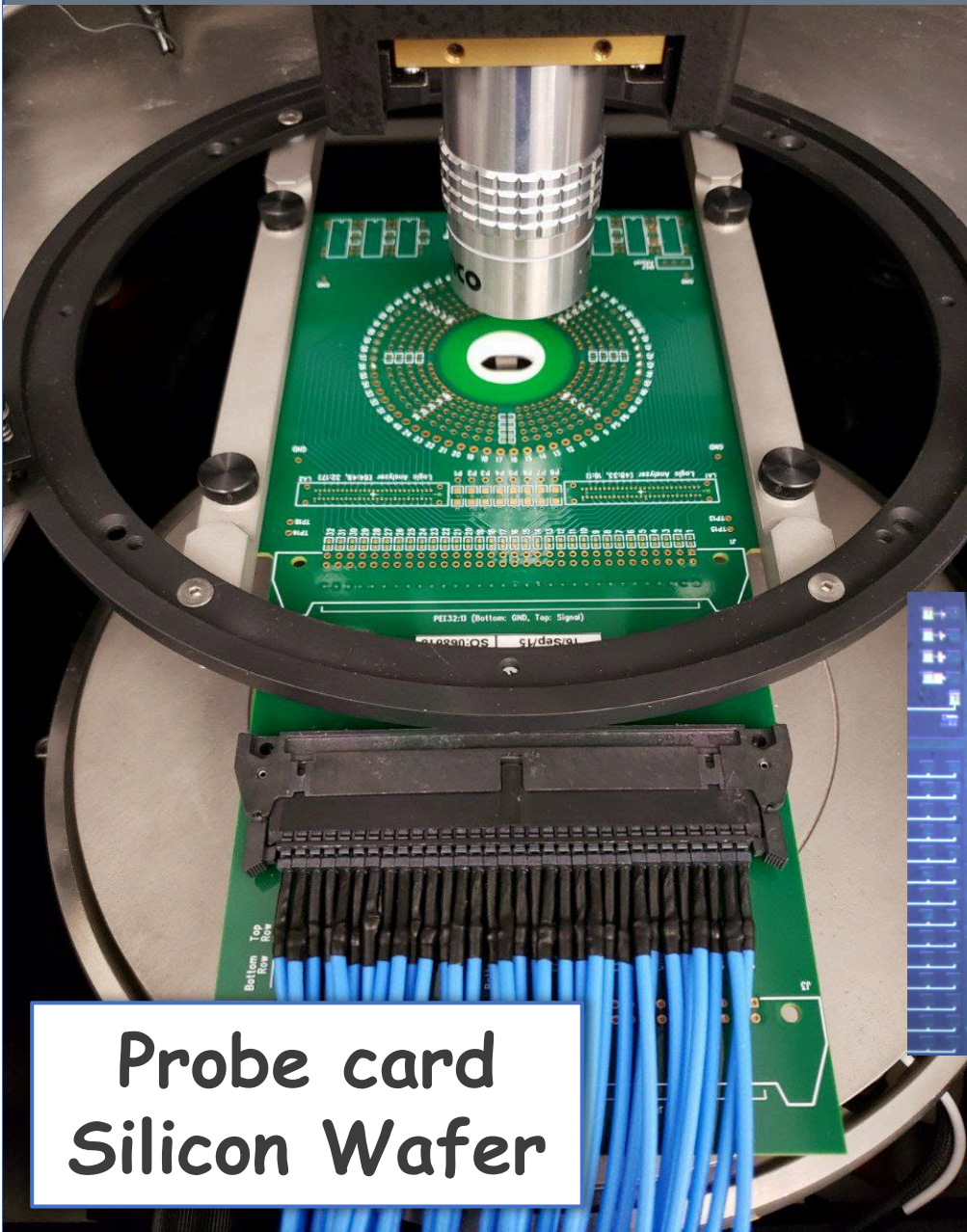
**Control:**  
**-40 oC / +140 oC**

**Micro-probes**  
**Thermal chuck**

**X-Y table**  
**microscope**

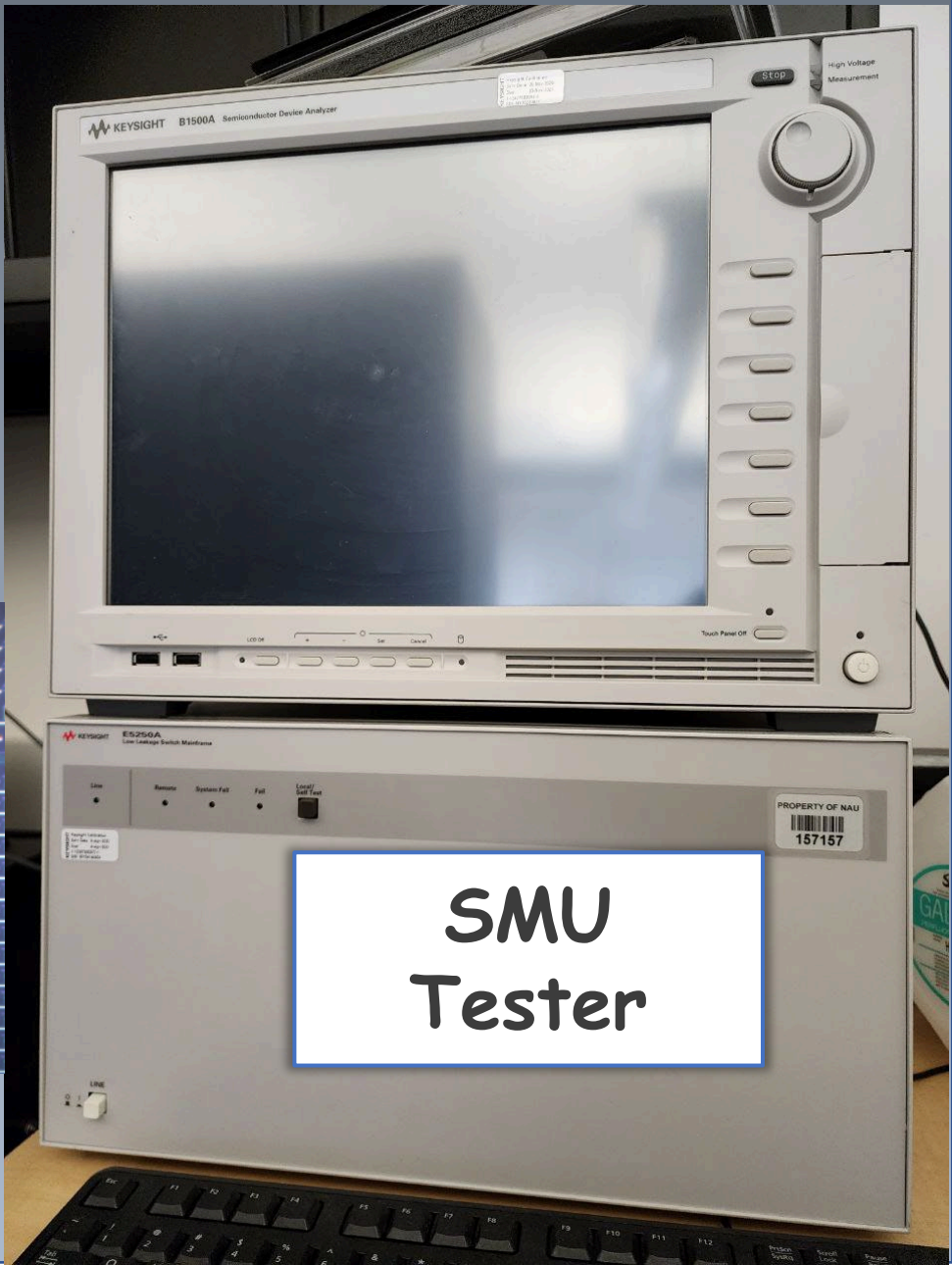
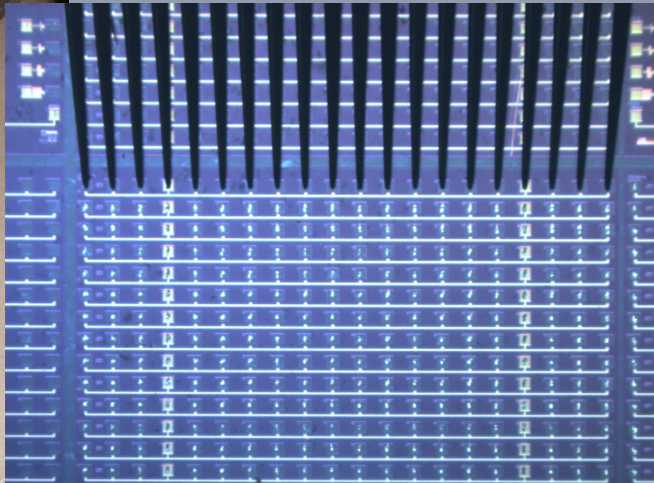
**Dry**  
**environment**

# Probe cards - test automation



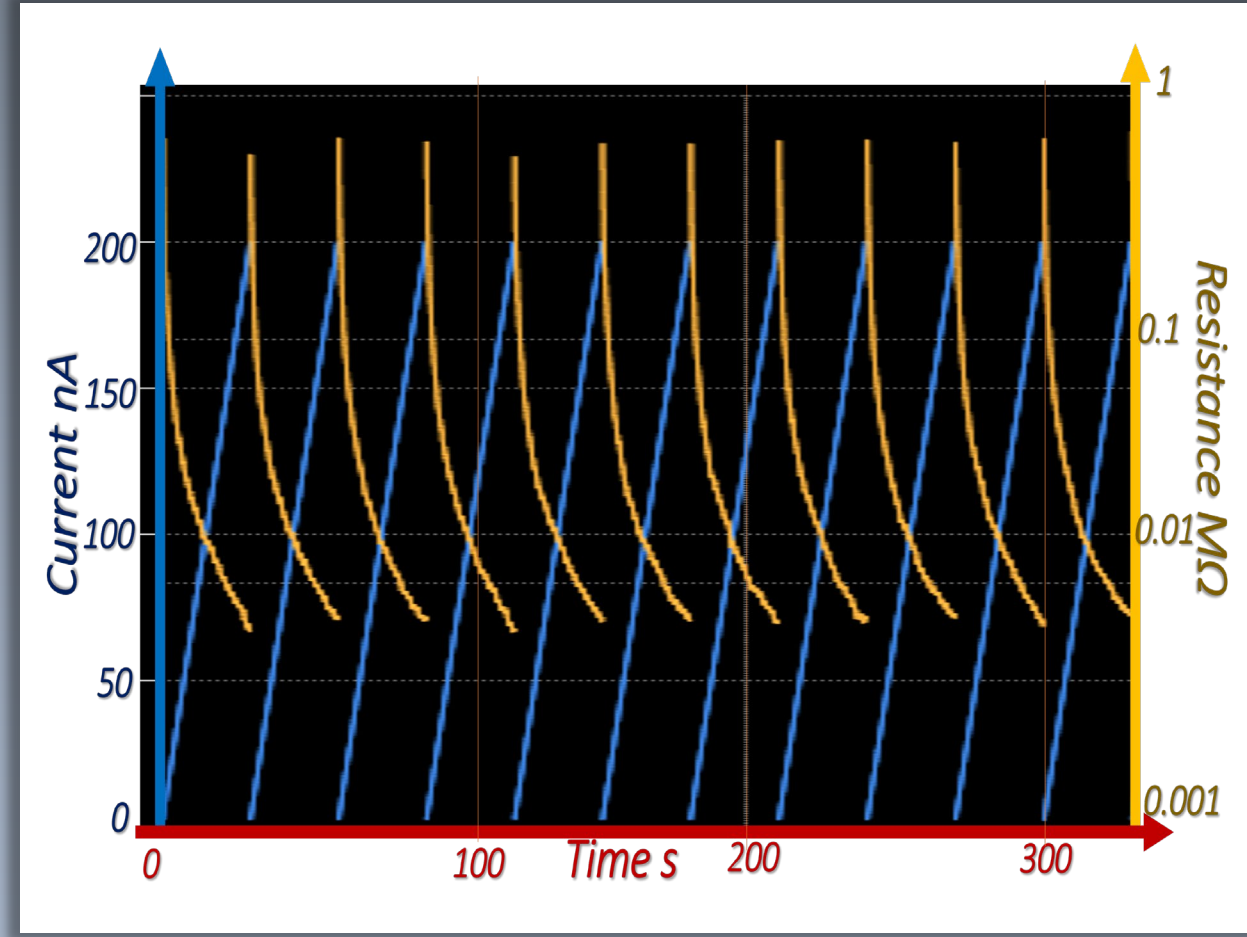
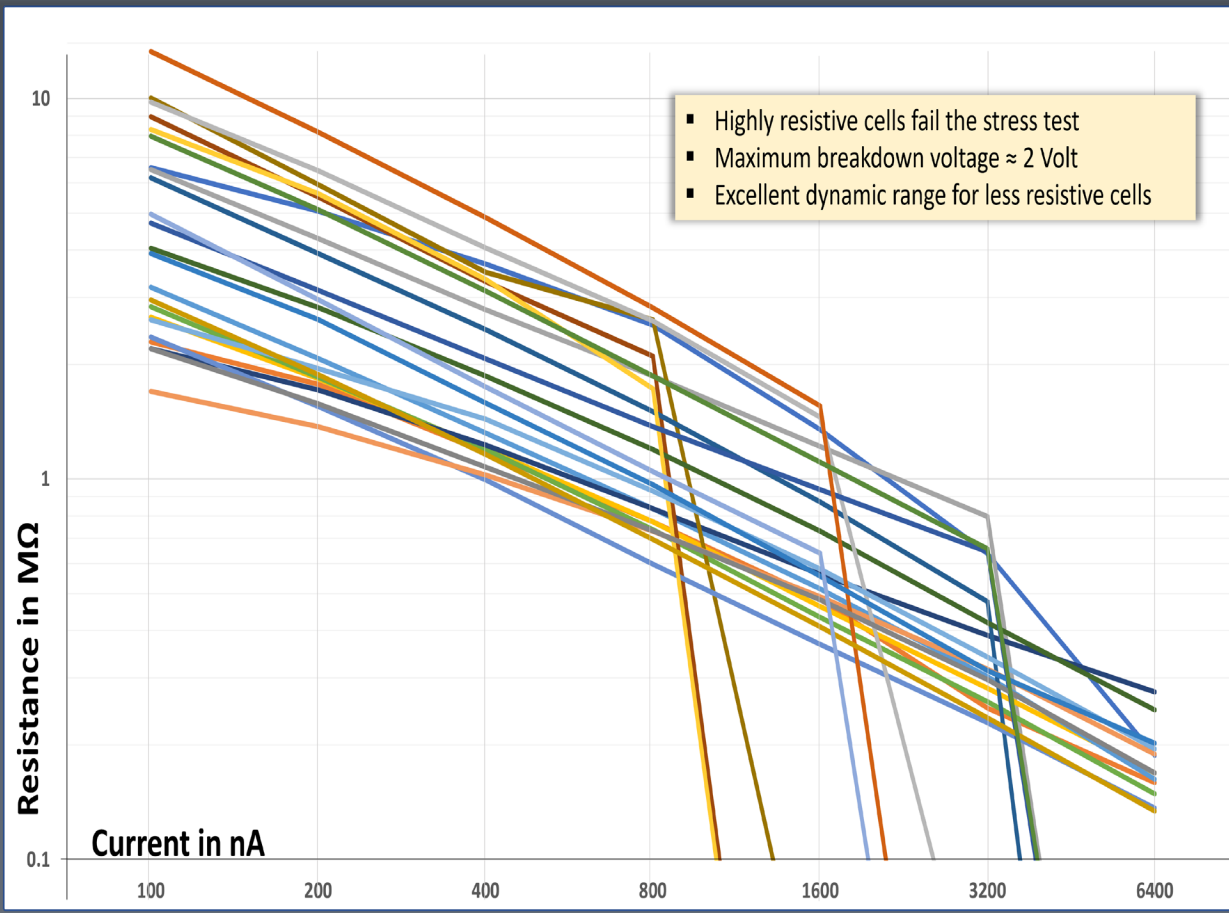
Probe card  
Silicon Wafer

View  
microscope

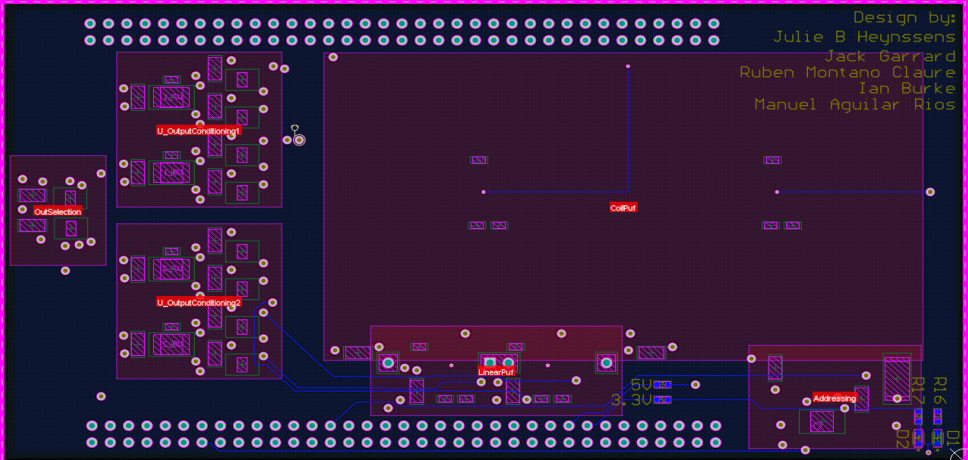
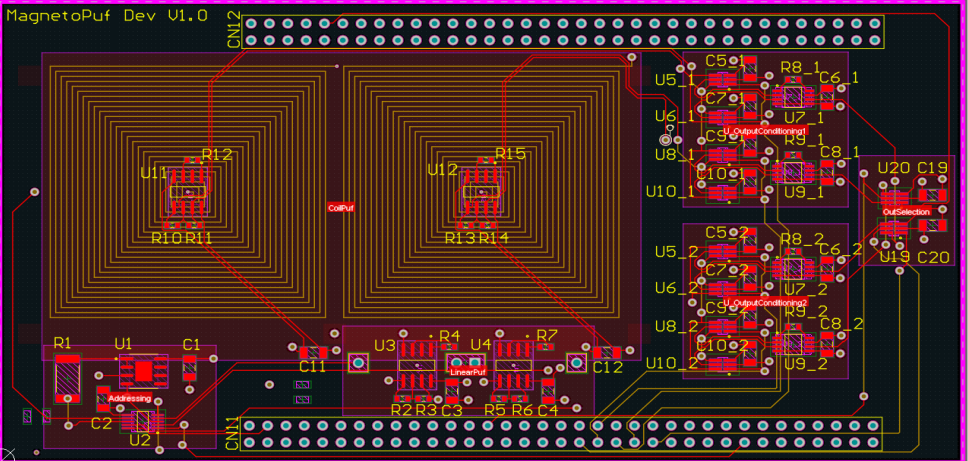


SMU  
Tester

# Examples of electrical measurements



# PCD Board design and assembly

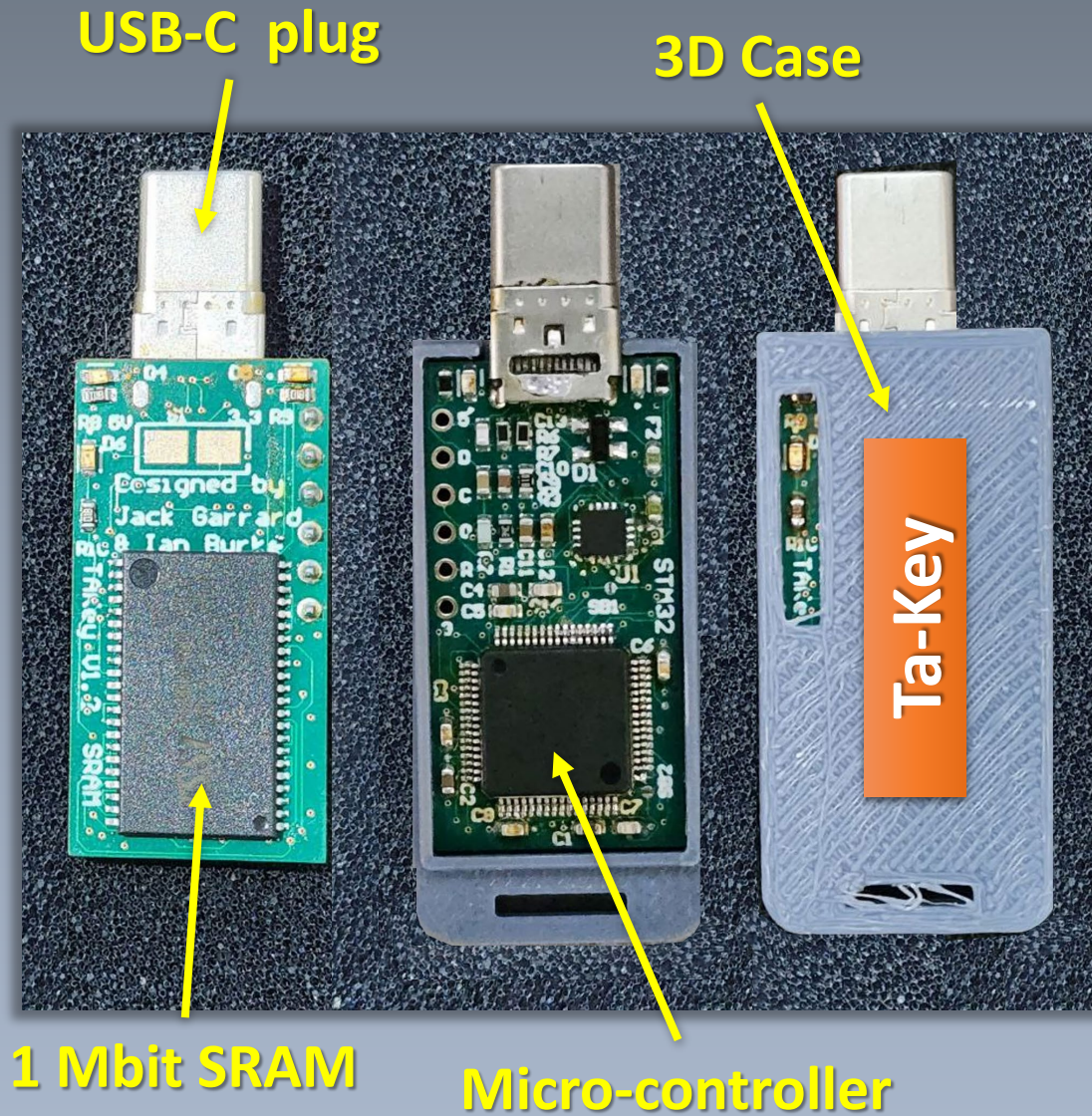


CAD tools

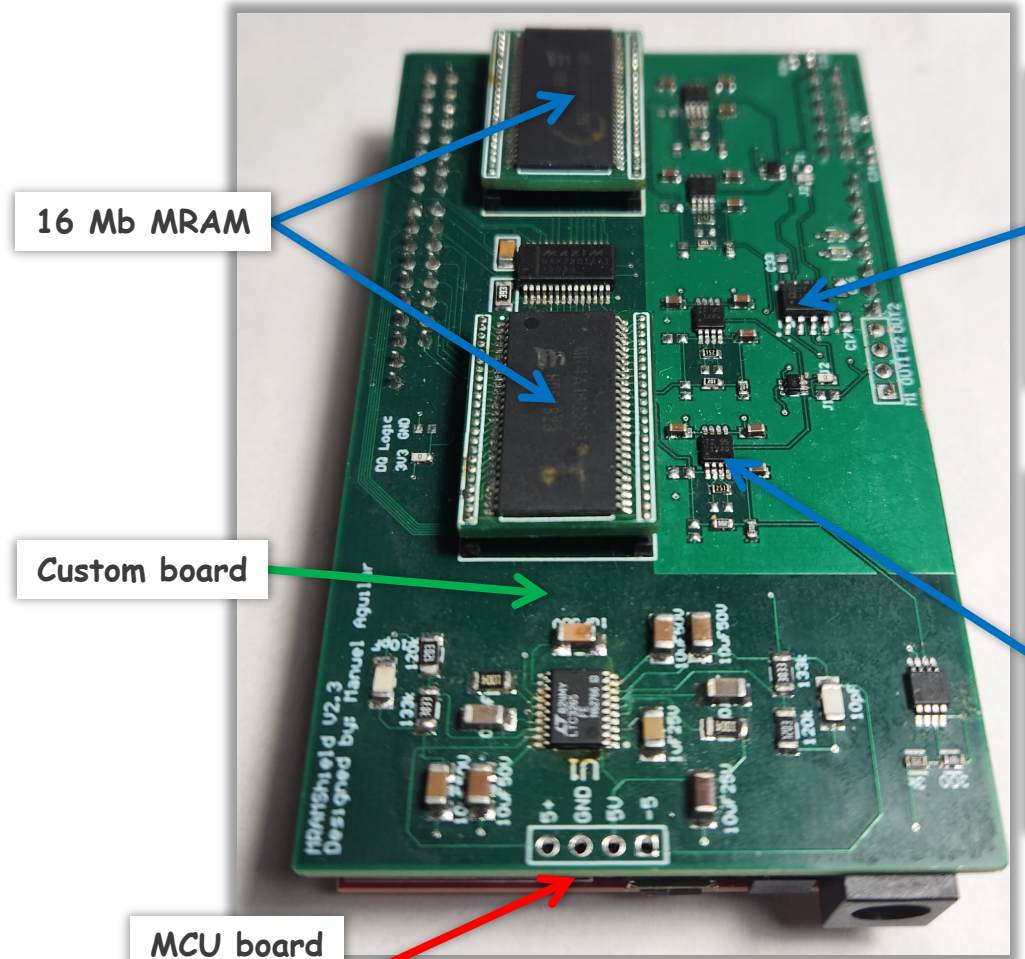


Micro soldering and testing

# System design - 3D Printer



# Custom electrical board design



16 Mb MRAM

Custom board

MCU board  
WiFire  
200 MHz

