Programmable Electrical Test (PET) System: PET system is a custom-built, advanced programmable electrical tester, which is used to analyze time-resolved ultrafast electrical switching/transient measurements/programming of nanoscale memory devices in picosecond timescale. PET is capable of measuring transient characteristics of device within 200 ps. Further, this setup can measure a wide range of device currents (~0.5 µA to ~50 mA) in nanosecond timescale.

The system essentially consists of: (i) Arbitrary Waveform Generator (AWG): minimum pulse-width of 1.5 ns (FWHM), minimum rise/fall time of 1 ns and maximum amplitude of 5 V, (ii) Digital Storage Oscilloscope (DSO): band-width of 3.5 GHz, minimum resolution of 25 ps at a sampling rate of 40 GSa/s, and (iii) Custom-designed probe-station comprising high-frequency contact-boards (PCBs) with probe tips mounted on them, x-y-z manipulators and a 300x zoom microscope.