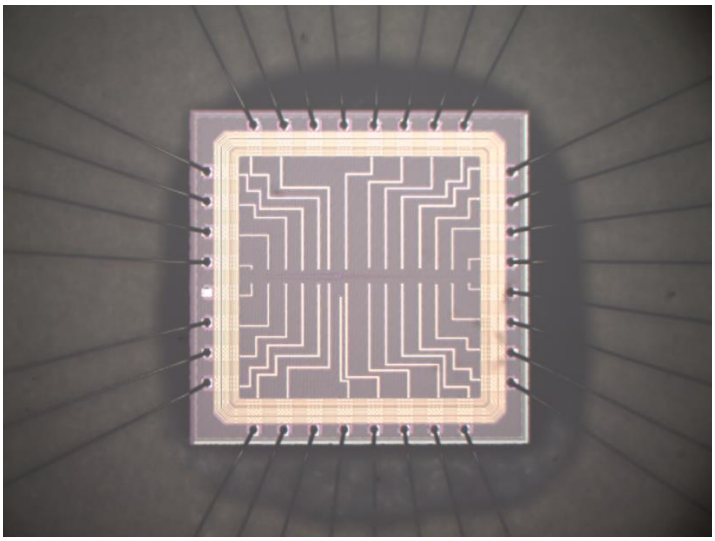
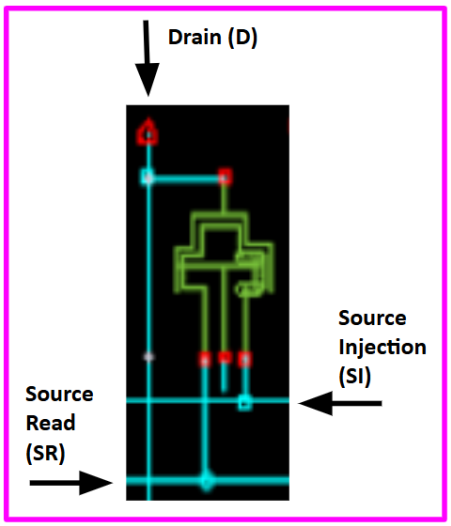
ASIC² ARCHITECTURES SYSTEMS INTELLIGENT COMPUTING INTEGRATED CIRCUITS

FPGA ANN Emulator

Recently, several different NVM memory technologies (NAND Flash, PCM, ReRAM, STT-MRAM) have emerged as promising candidates for digital and analog in-memory computation.
Tower Jazz's Y-Flash Non-Volatile Memory can be used as a building block which can be used in many ANN applications.
In this project you learn the FPGA environment and use it to build an emulator which functions as an ideal Y-Flash cell and presents a multilevel output current.





Project Goals:

In this project, you will use an FPGA hardware in order to build an emulator of Y-flash memory device.

The students will:

- Learn about emerging memory technologies and processing in memory of ANNs
- Gain practical experience with FPGA platform combined with research purposes.

Prerequisites:

- **Courses:** Electronic Circuits
- **Programming:** Python, Verilog / VHDL

Recommended:

- **Courses:** Machine Learning
- **Programming:** Pytorch

For more information: ilan.l@technion.ac.il (Ilan Lipschutz)