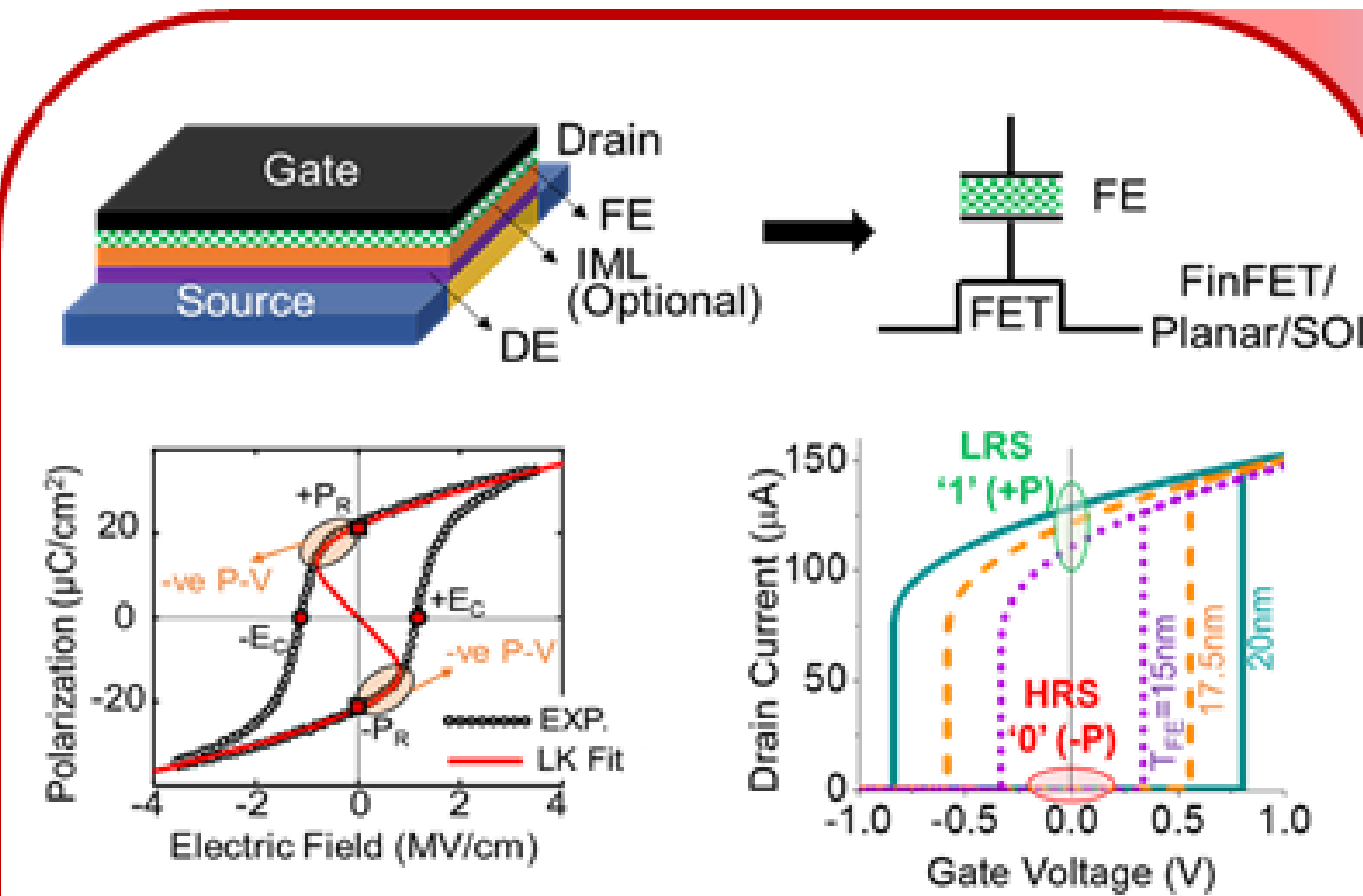
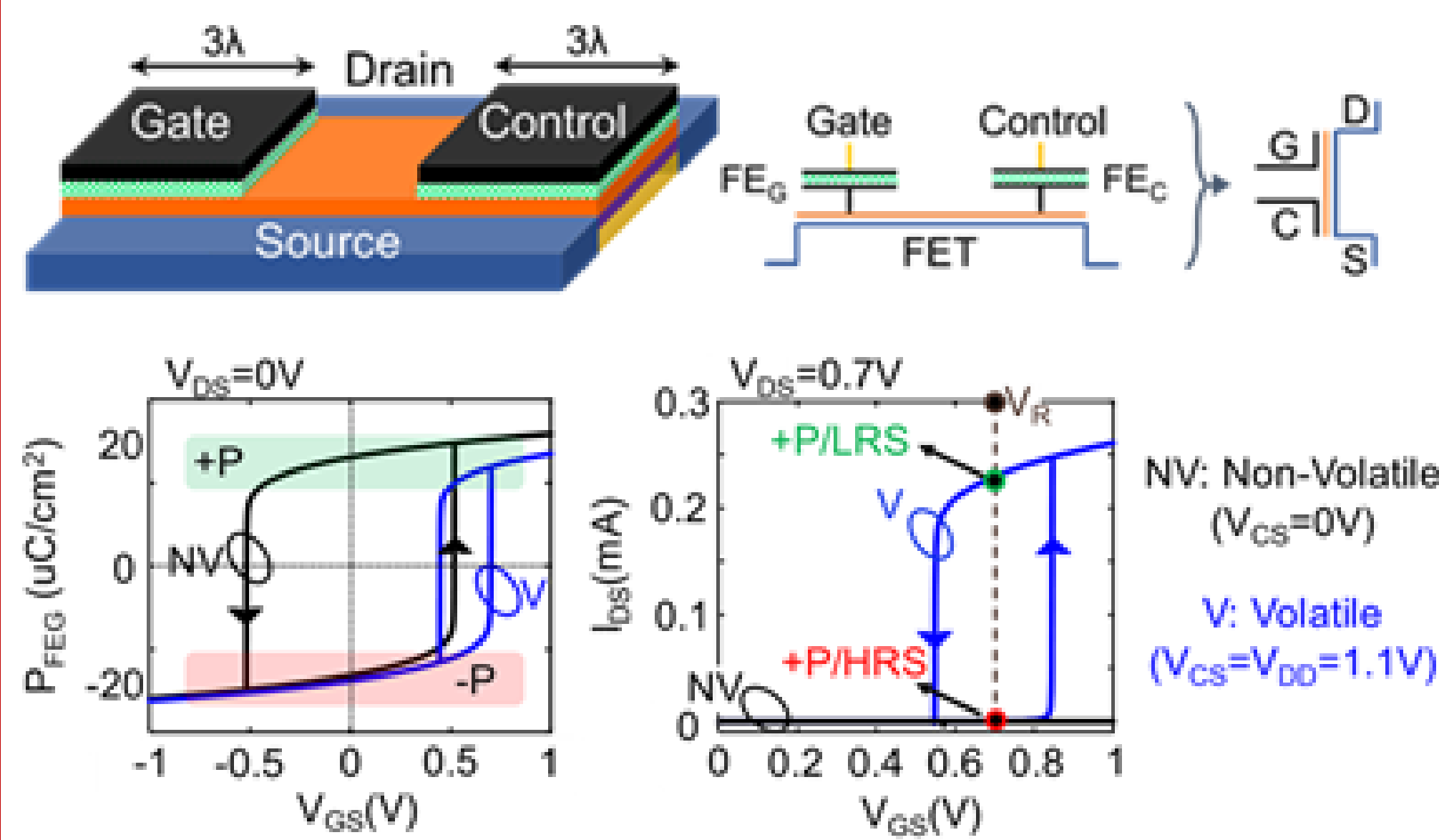


Enabling Logic-Memory Synergy using Integrated Non-Volatile Transistor Technologies for Energy-Efficient Computing

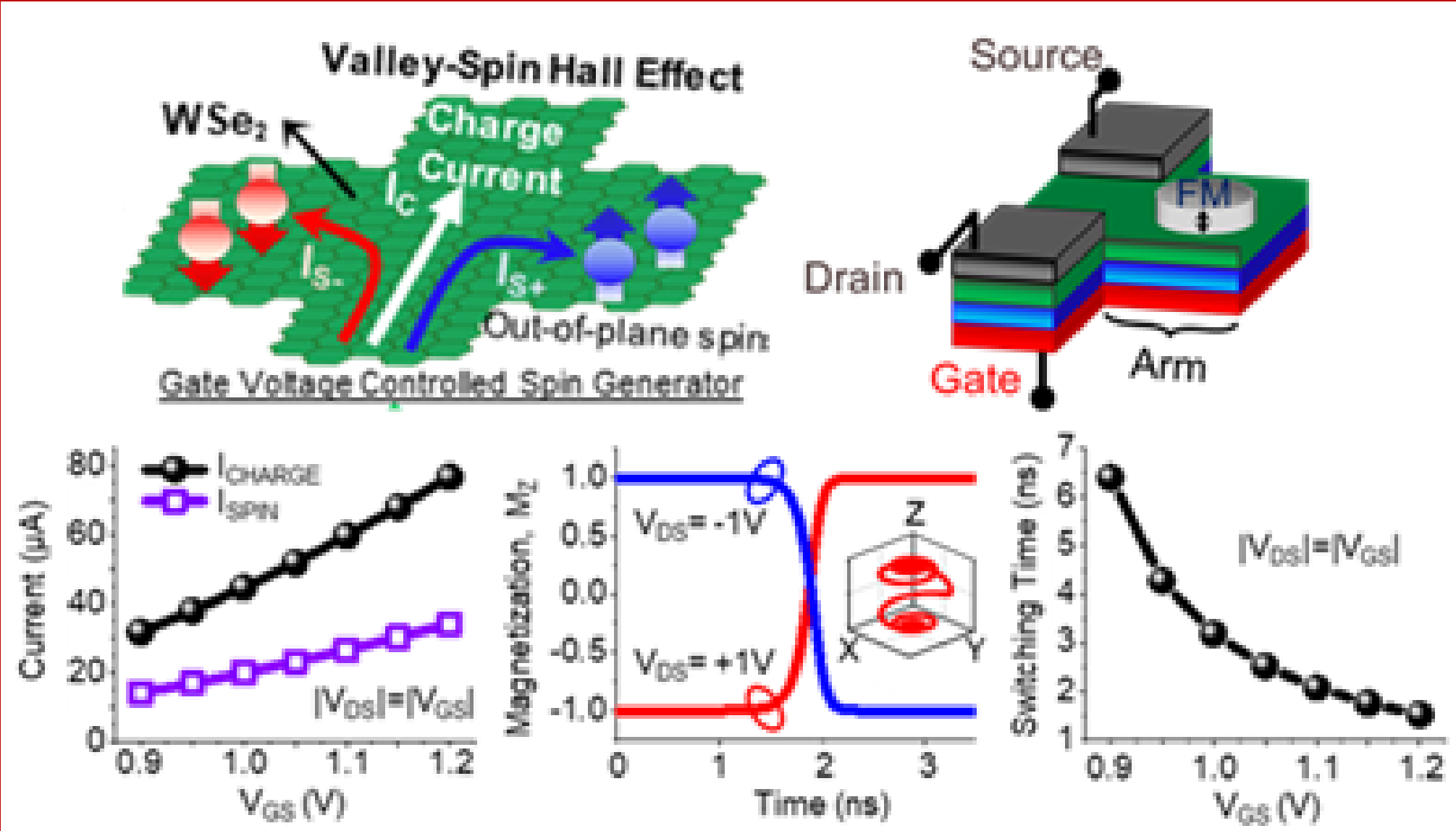
Devices



Ferroelectric Transistor (FEFET)



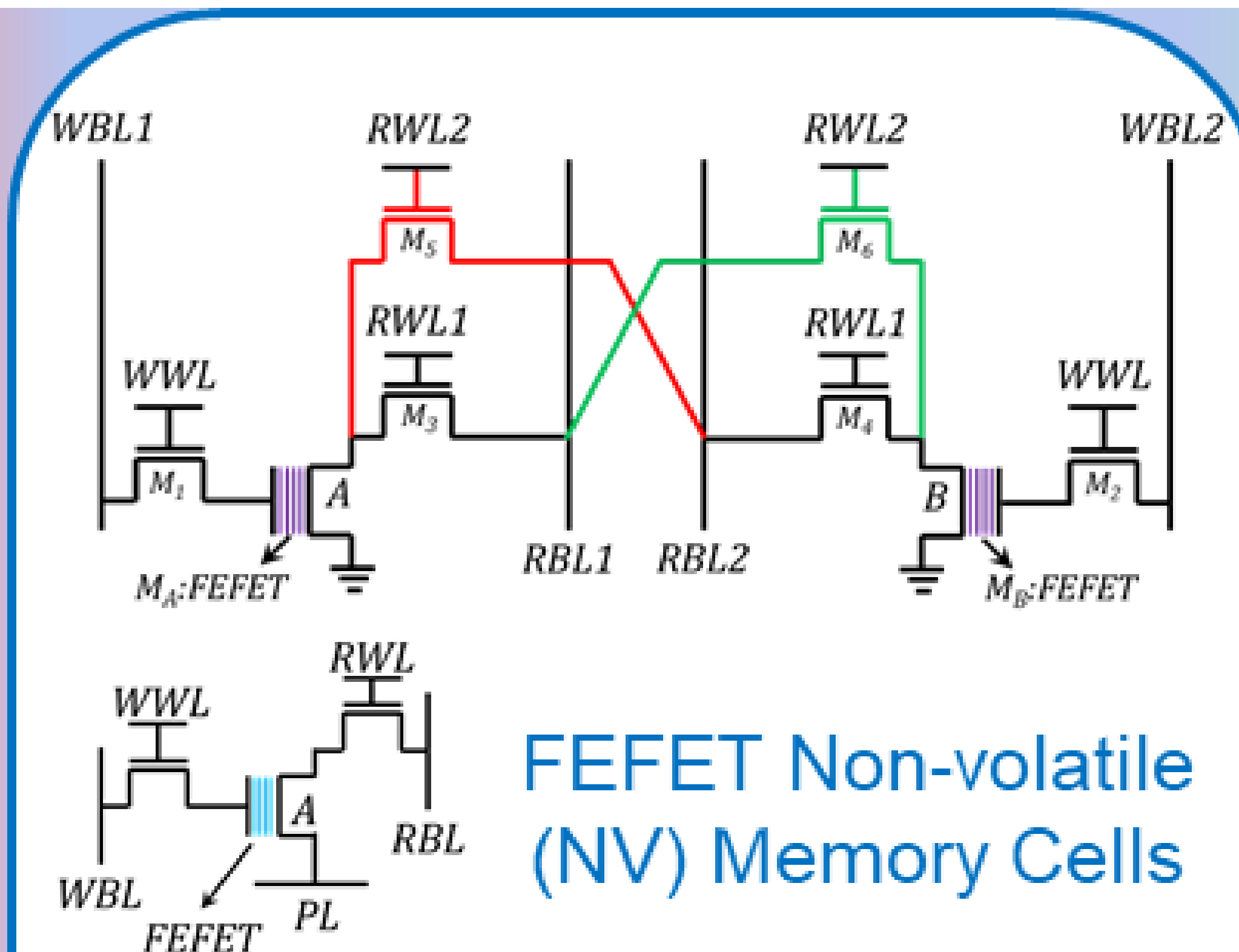
Reconfigurable FEFET



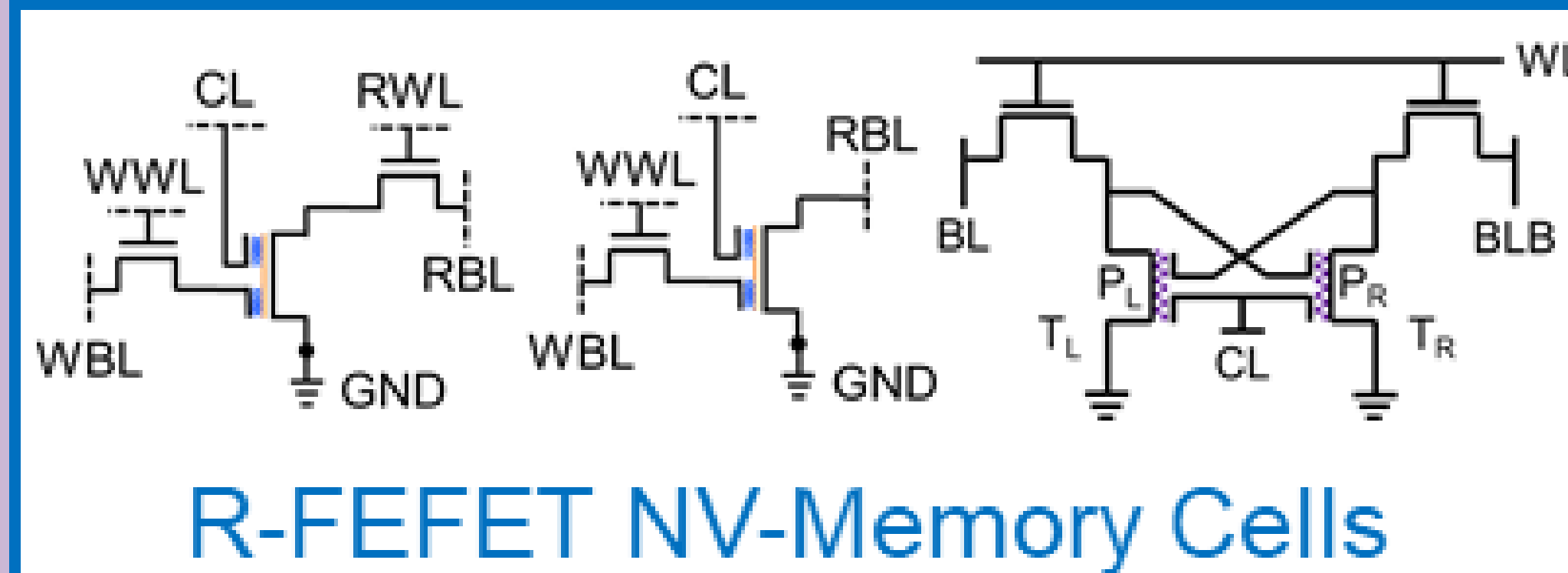
Valley-Spin-Hall (VSH) Effect based Devices

- Proposal of novel integrated non-volatile transistor technologies with built-in logic-memory coupling

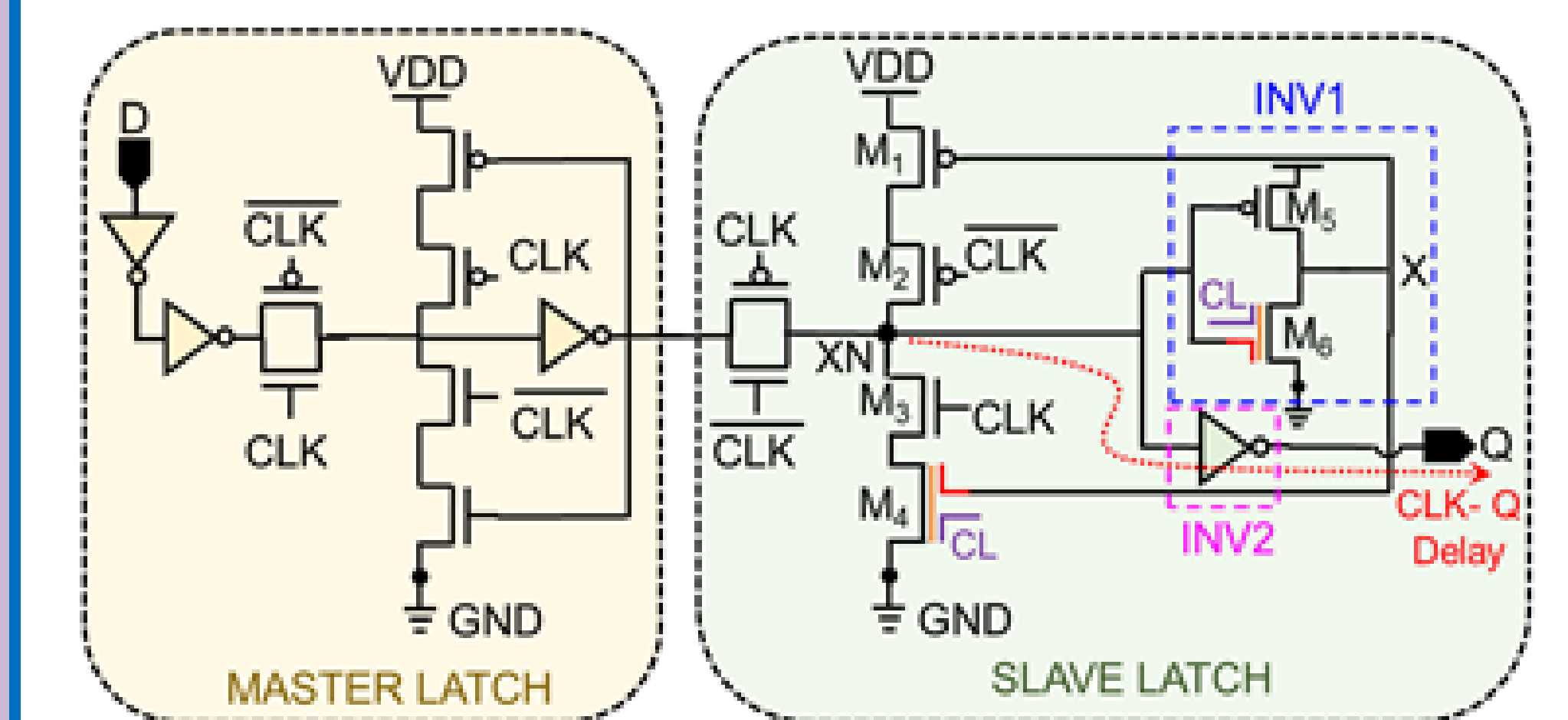
Circuits



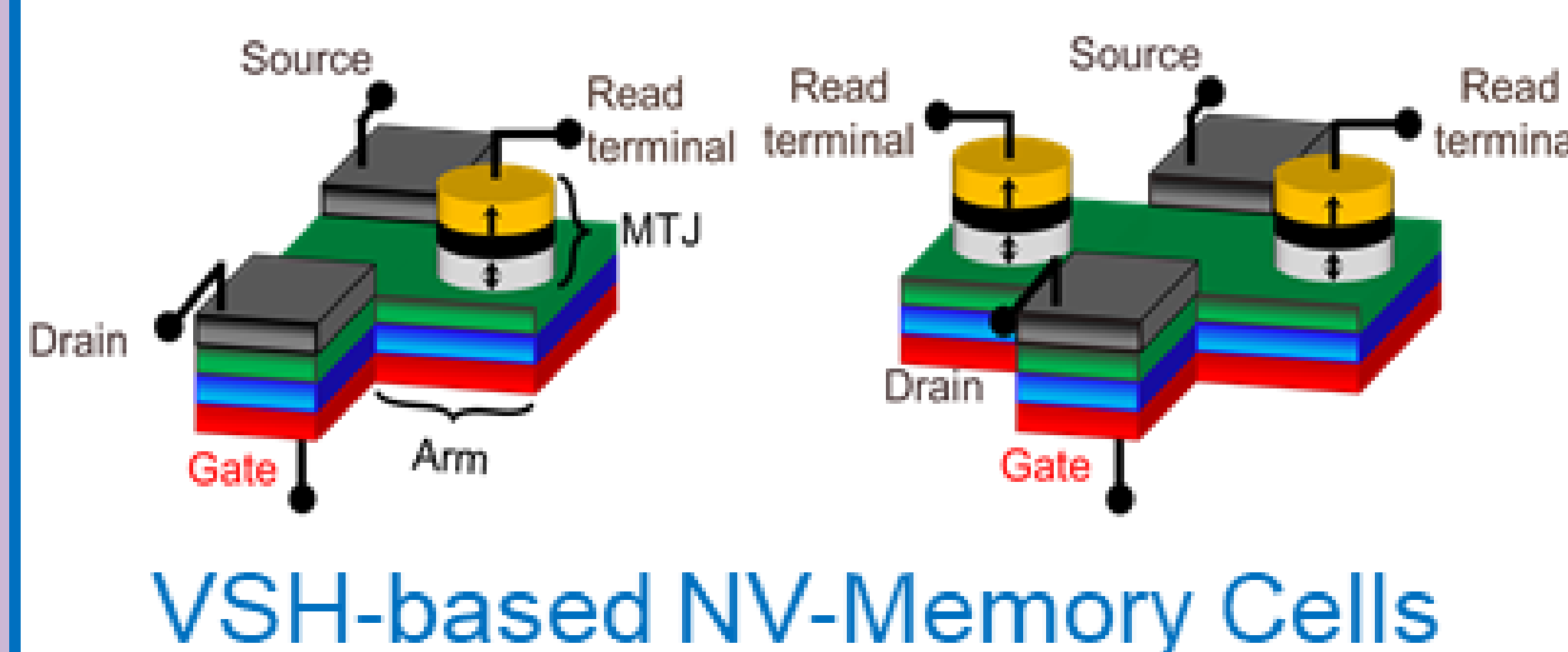
FEFET Non-volatile (NV) Memory Cells



R-FEFET NV-Memory Cells



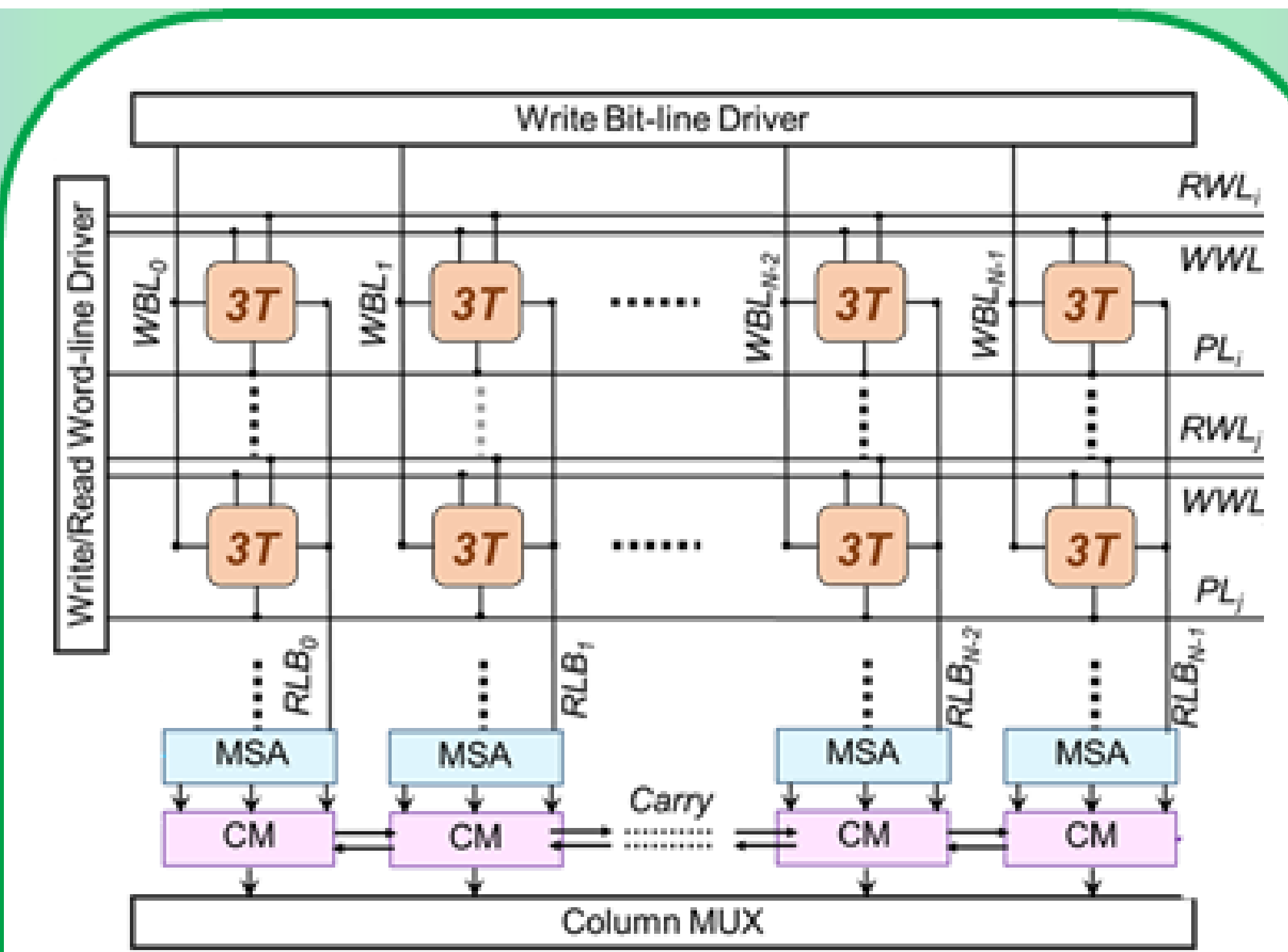
R-FEFET Flip-flops; NV-logic



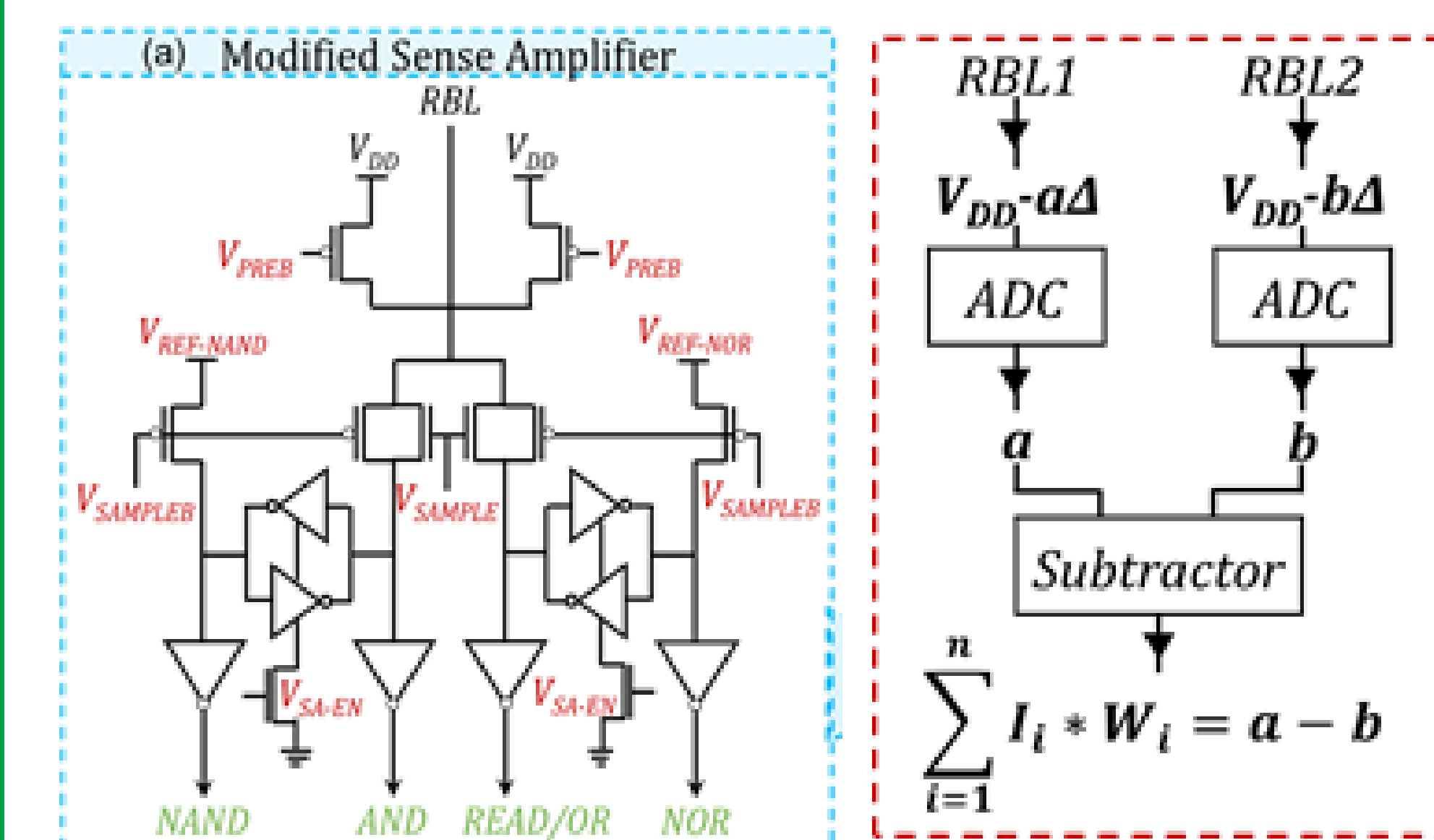
VSH-based NV-Memory Cells

- Custom built non-volatile memory cells and non-volatile logic targeting a wide spectrum of applications

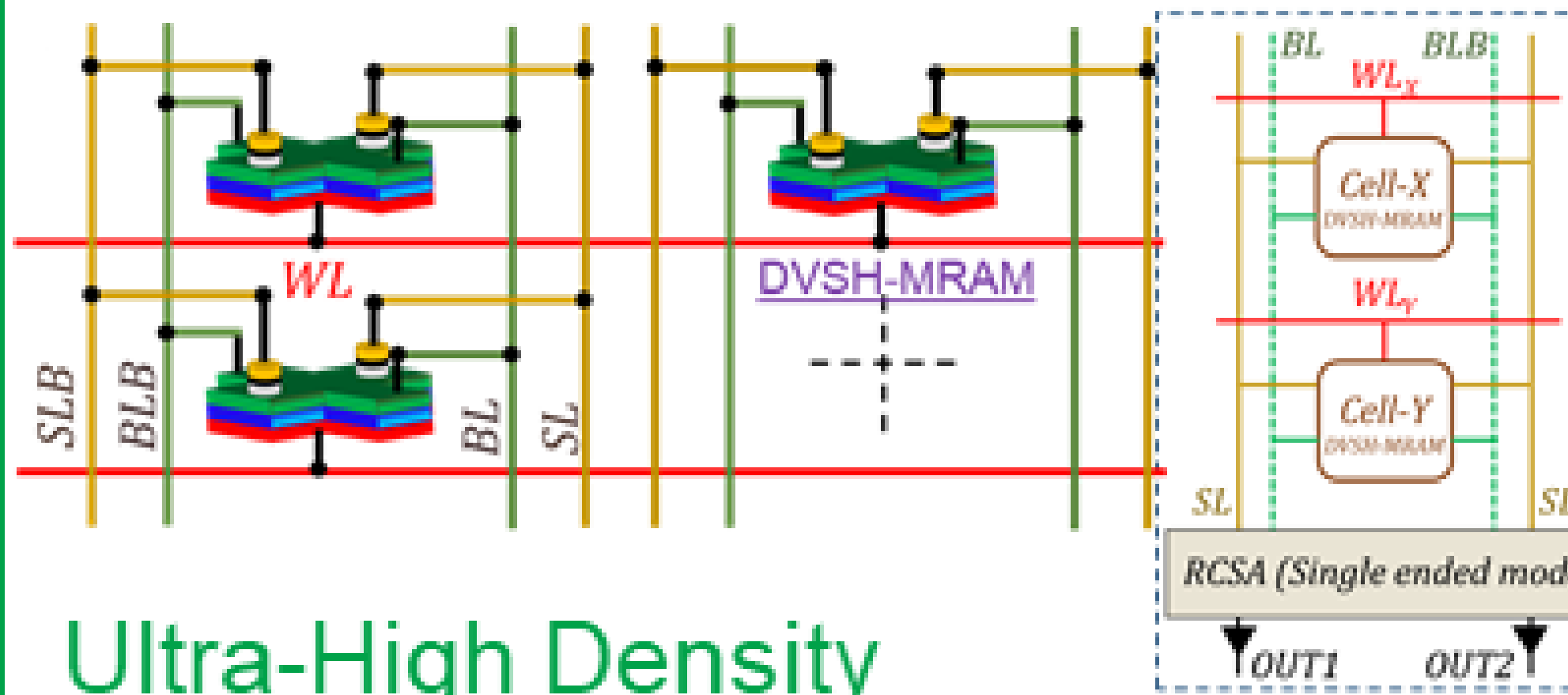
Arrays



Intelligent Memory Arrays



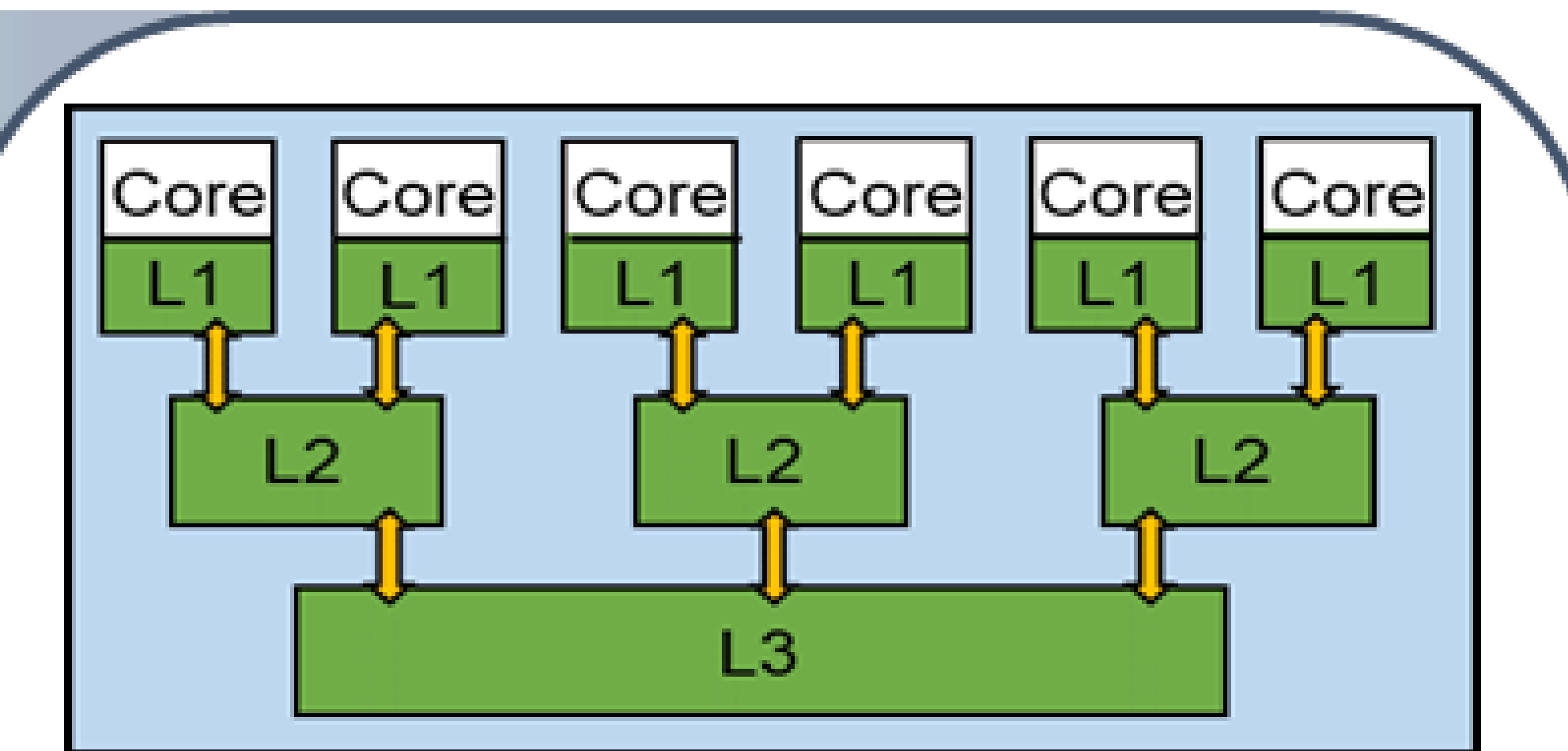
In-Memory Boolean/non-Boolean Computations



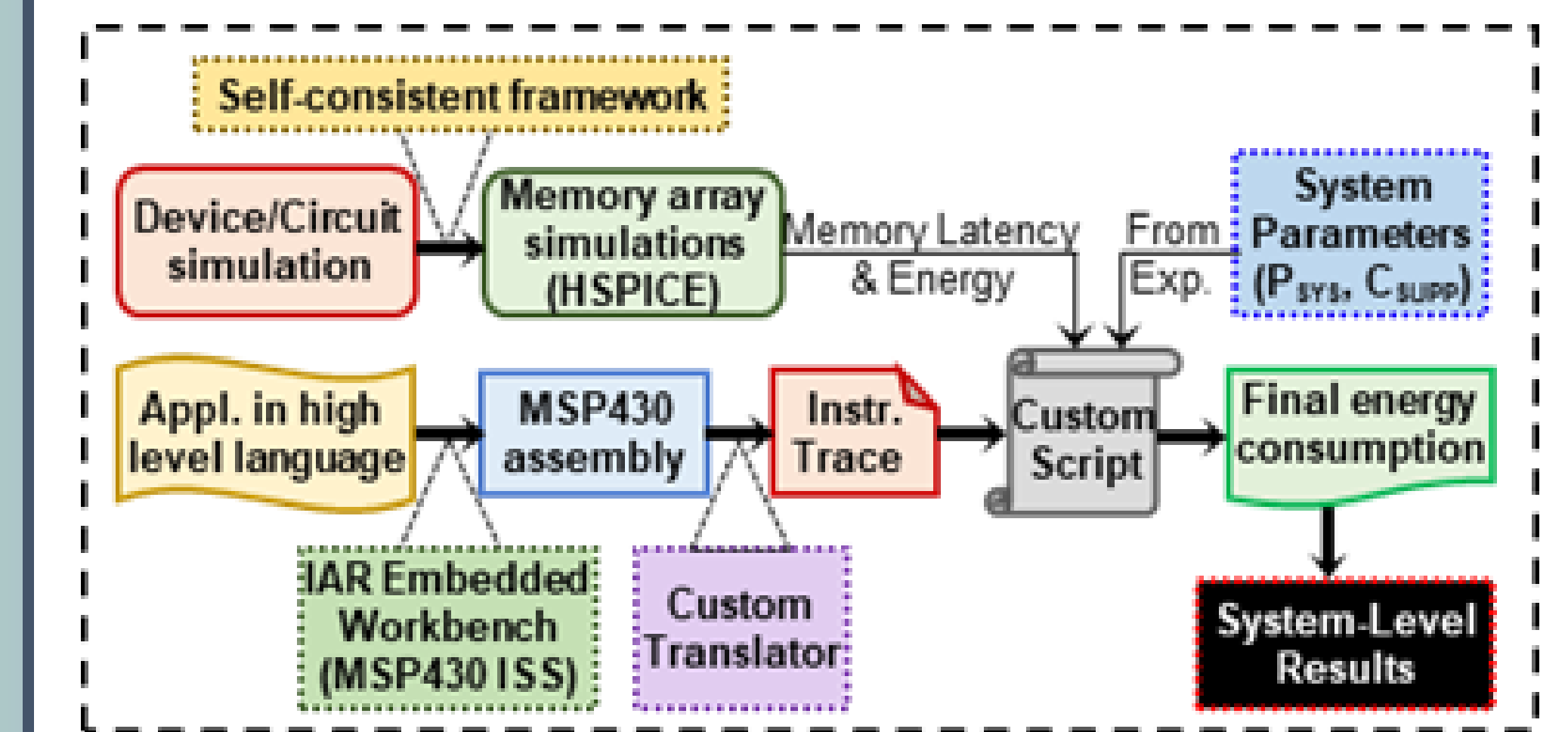
Ultra-High Density NVM Arrays for General Purpose and Targeted Computing

- Ultra-high density and intelligent memory array fabrics for performing in-memory computations

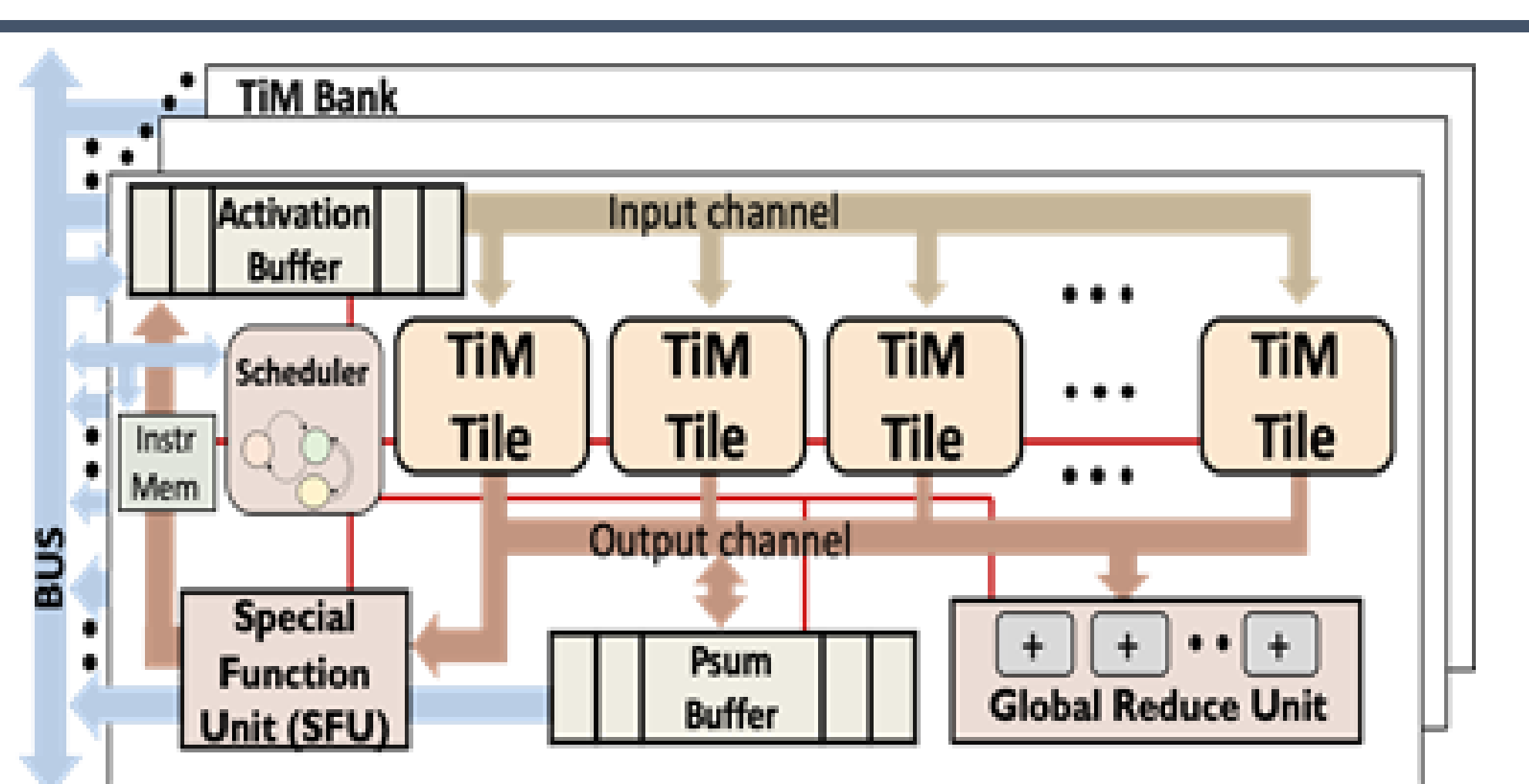
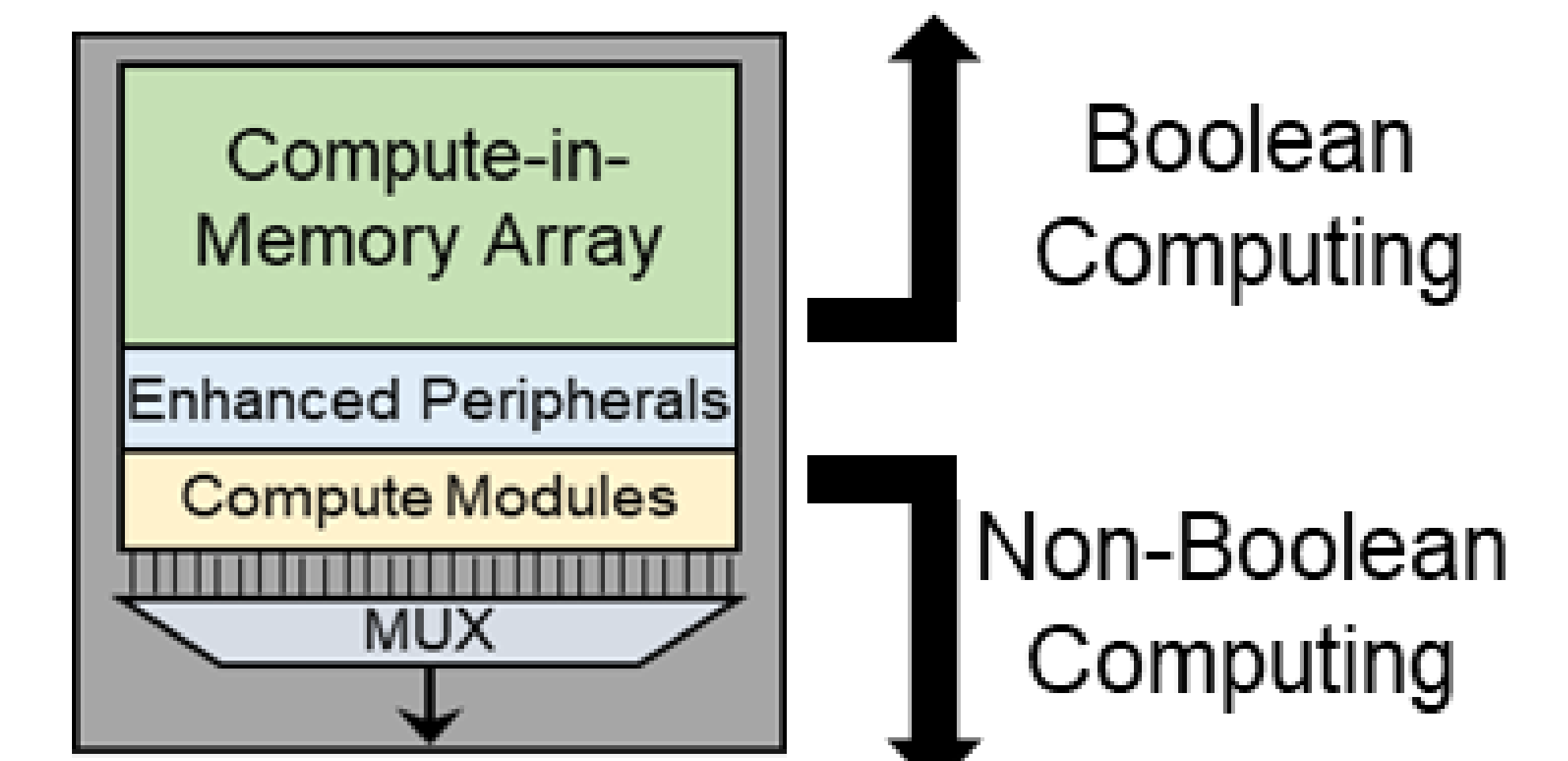
System



General-purpose multi-core processor



Energy Harvesting Systems



- Utilizing the proposed devices, circuits and arrays to build several energy efficient Boolean and non-Boolean systems