



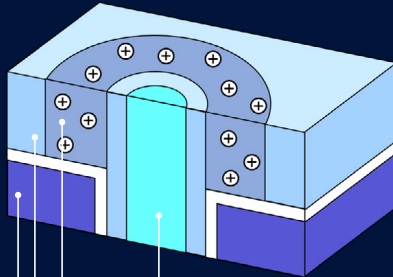
**neo**  
semiconductor

Next Gen Memory  
Technologies

# 3D X-DRAM™

Ultra High Capacity, Ultra High Density  
World's First 3D NAND-Like DRAM Array

## Floating Body Cell



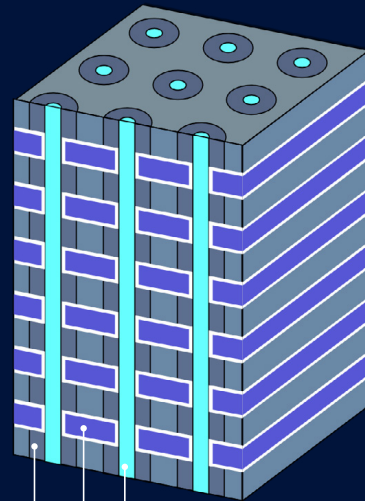
**Bit Line:** connects to read/write circuit.

→ **Floating Body:** stores electric charges to represent data.

→ **Source Line:** connects to ground.

→ **Word Line:** selects the cell for read/write operation.

## 3D NAND-like Array



→ **Vertical Bit Line**

→ **Word Line Layer**

→ **Source Line Layer**

3D X-DRAM is an industry game-changer. It is based on floating body cell (FBC) technology, so data is stored as electric charges without capacitors. An innovative structure similar to 3D NAND flash makes 3D X-DRAM easier to manufacture and less expensive to scale than emerging 3D DRAM alternatives. 3D X-DRAM using multiple-level 3D arrays, so 8x higher capacities can be achieved using the same number of layers (230) used for 3D NAND.

Adopting 3D X-DRAM architecture allows memory manufacturers to leverage their current technologies, nodes and processes to increase the density and capacity of main memory used in information technology (IT) systems and consumer products. This results in:



Higher performance  
for cloud and business  
systems (e.g., servers)



Smaller form factors  
for consumer devices  
(e.g., smartphones)



More capabilities for  
edge computing devices  
(e.g., routers)