

# View Innovative Memory Testing Technology From the Perspective of SoC


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精彩回顧：<https://youtu.be/0ecNf1a0IWk>



# Outline

- ◆ **Use START Tool to Improve MBIST Design Efficiency of Large-scale SoCs**
- ◆ **Low Power Design of START Tool**
- ◆ **The Help of START Tool in Automotive IC Development**
- ◆ **Advantages of START Tool**



# **Use START Tool to Improve MBIST Design Efficiency of Large-scale SoCs**

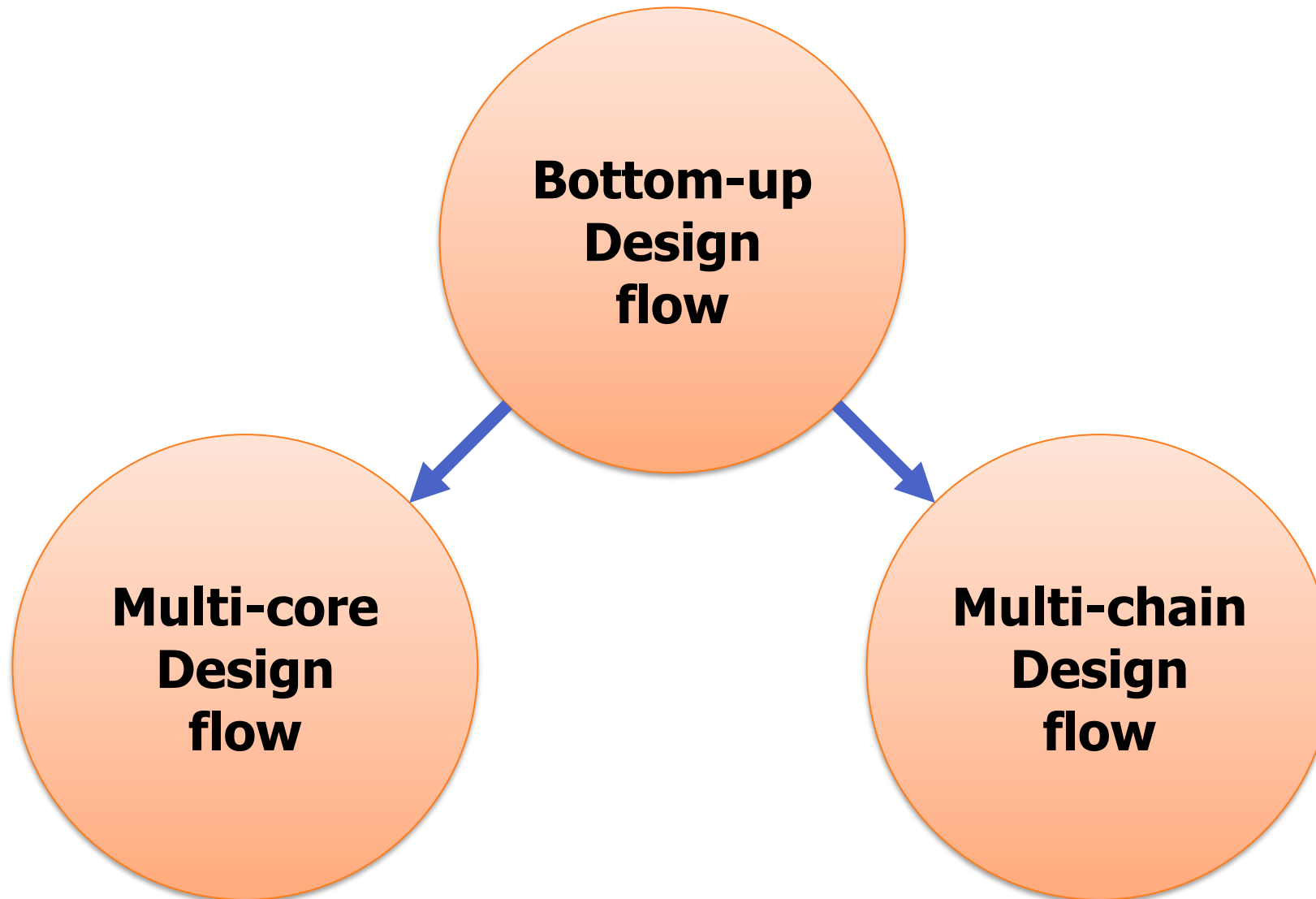
# The Scale of SoCs Is Getting Bigger and Bigger

- ◆ **The edge AI chip industry is poised for growth.**
- ◆ **AI and HPC applications require large amounts of memories.**

# The Scale of SoCs Is Getting Bigger and Bigger

◆ **IoT, AI and AIoT have become more noticeable in recent years**

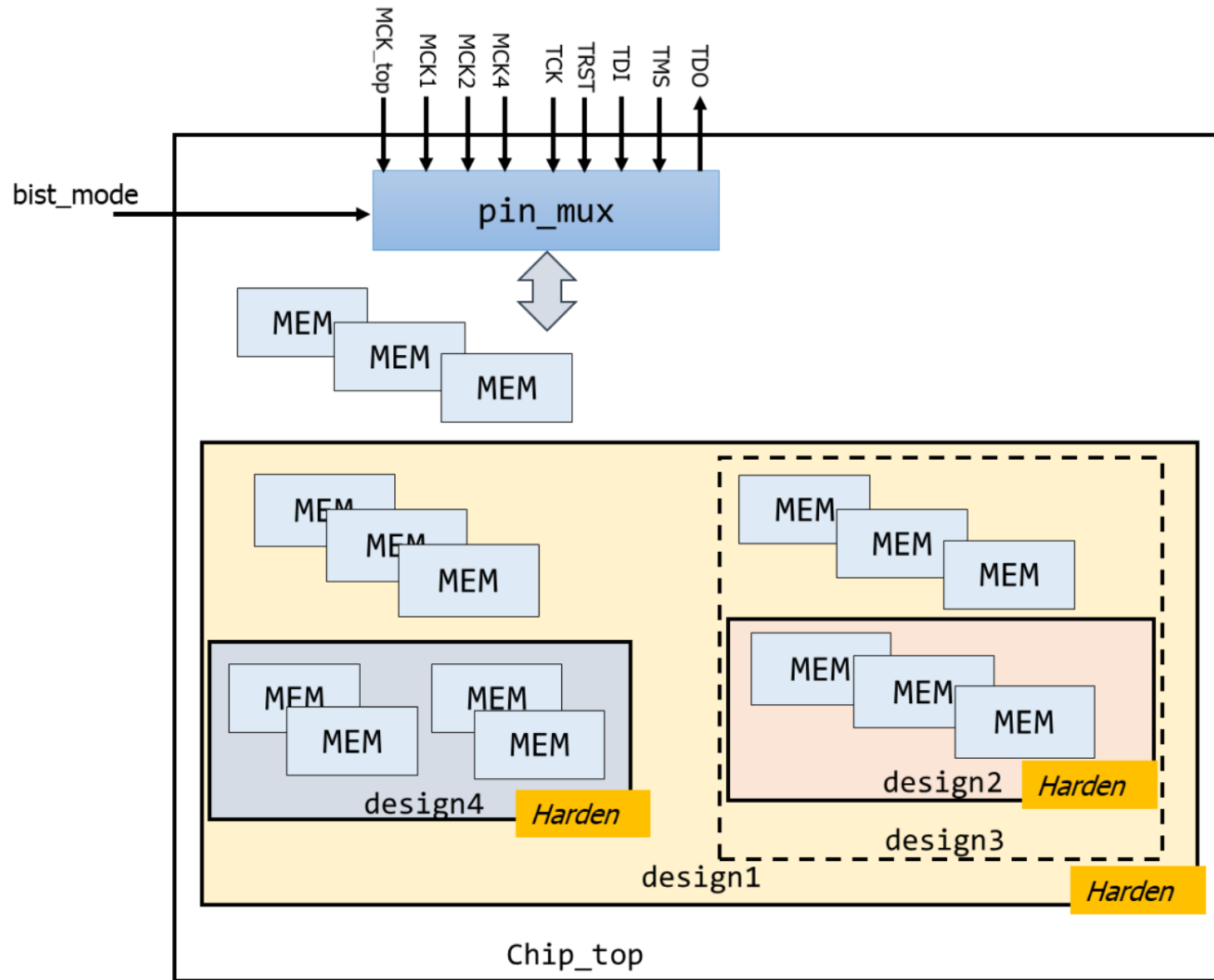
# START Tool's Bottom-up Solutions



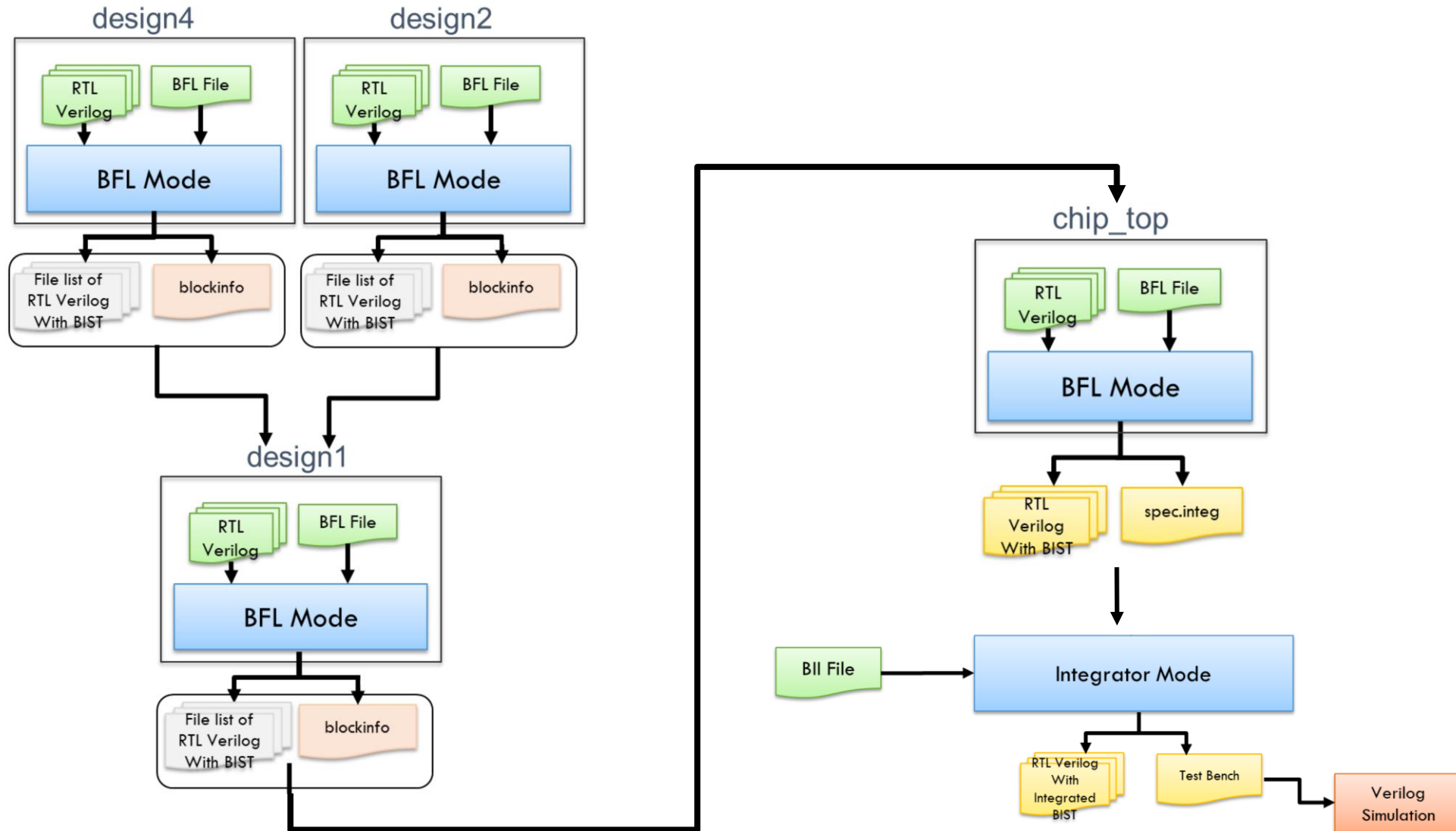


# Bottom-up Design Flow

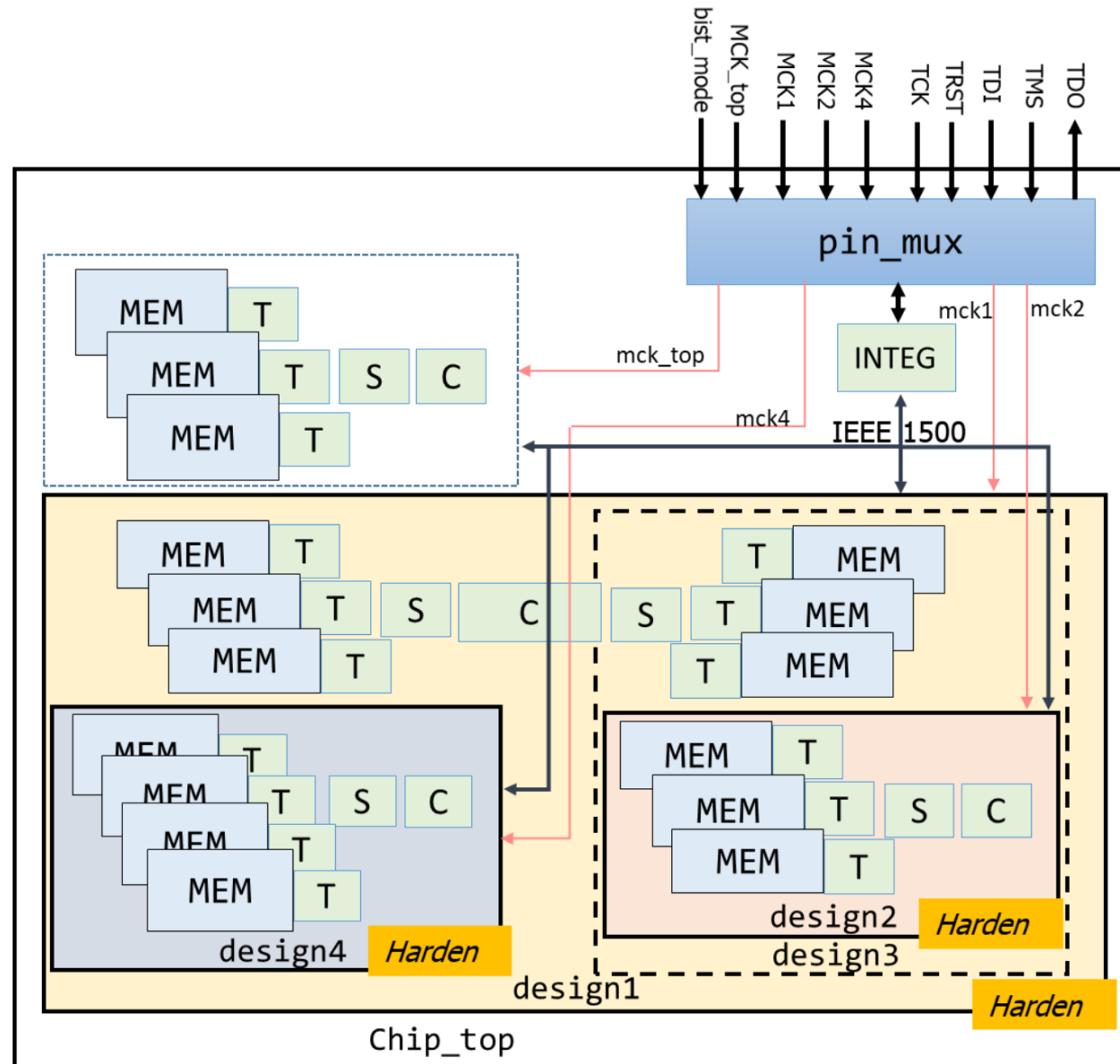
# Bottom-up Design Flow



# Bottom-up Design Flow



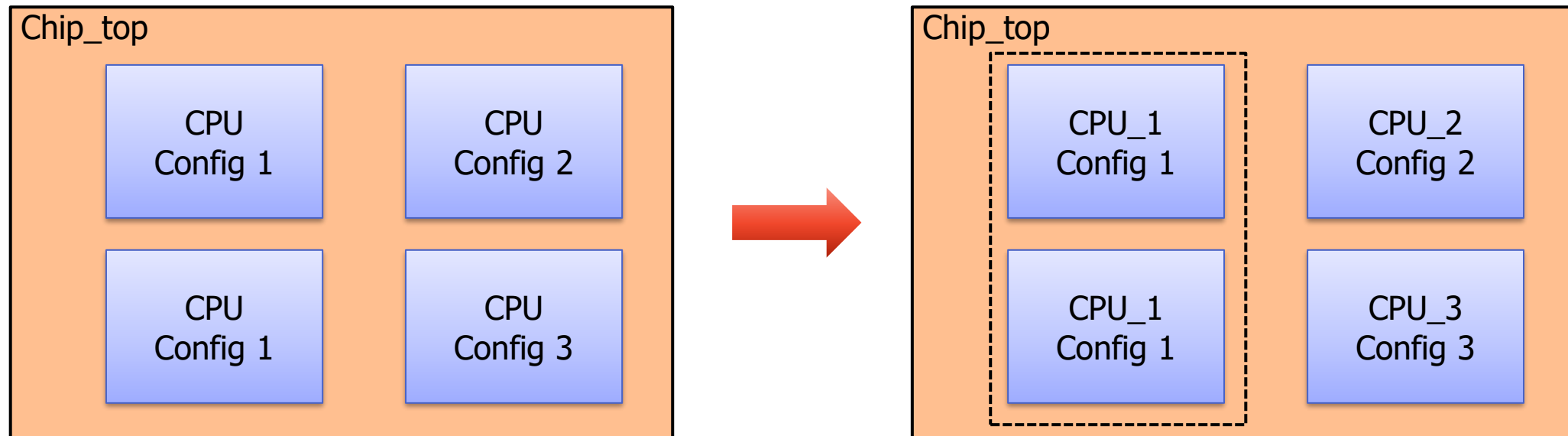
# Bottom-up Design Flow



# Multi-core Design Flow



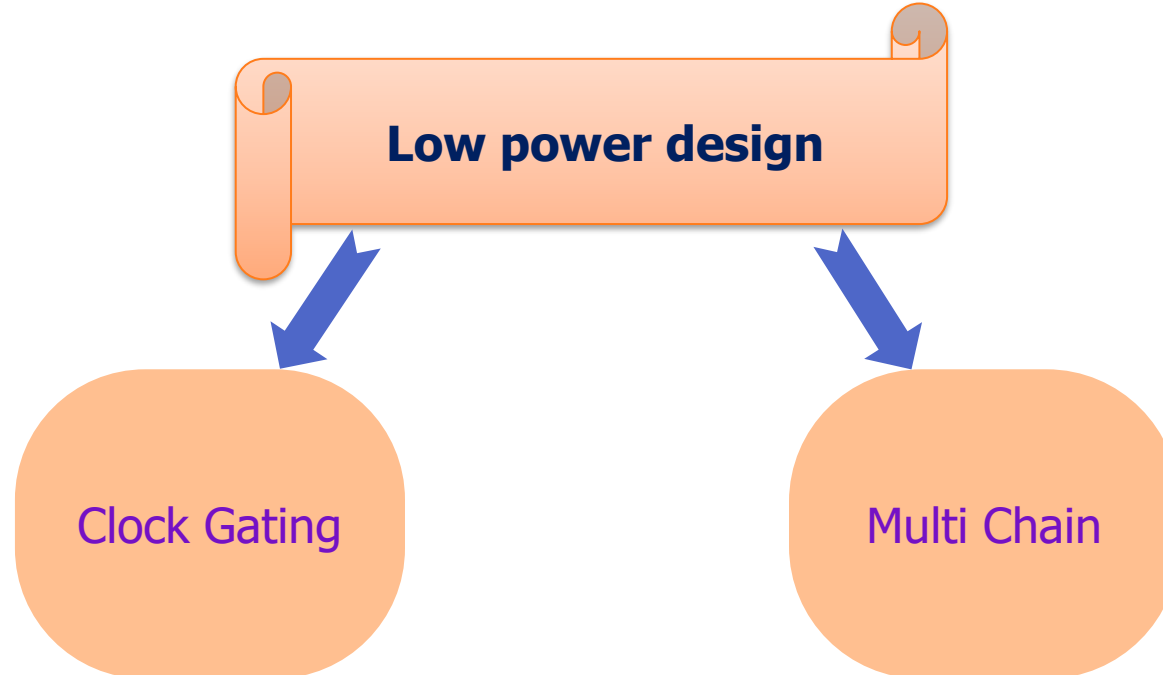
# Multi-core Design Flow



# Low Power Design of START Tool

# Low Power Design of START Tool

- ◆ As the process progresses, the issue of power consumption becomes more important.
- ◆ START tool provides multiple function for low power design.

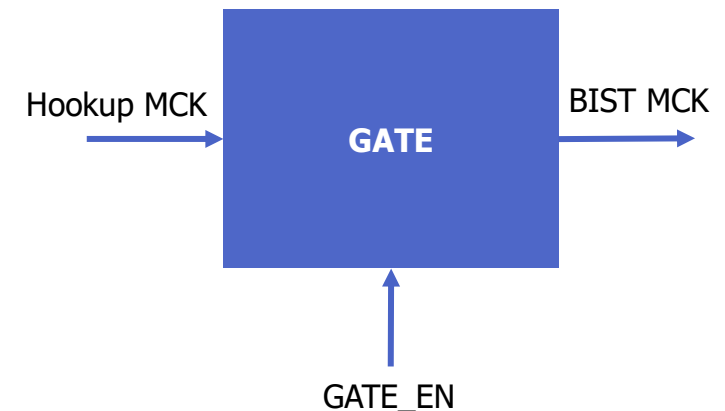


# Gate Cell Insertion

## ◆START supports gate cell insertion

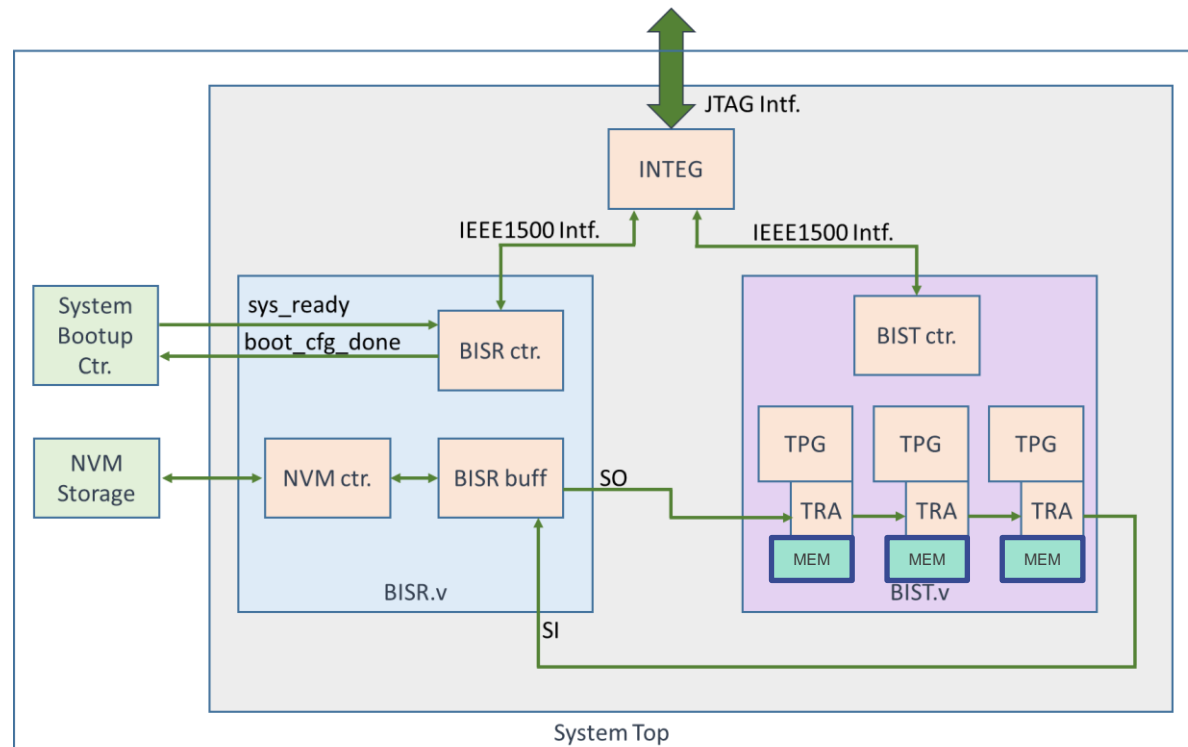
```
set bist_integ_path = ./work/RP_default_sp  
set parsing_mode    = RTL_only  
set gate_cell_lib   = ./gate_cell.info
```

```
define{hookup}[GATE_EN]  
    set dedicate_port      = gate_en  
    set mapping_port       = top gate_en  
end_define{hookup}
```



# Multi-chain Design Flow

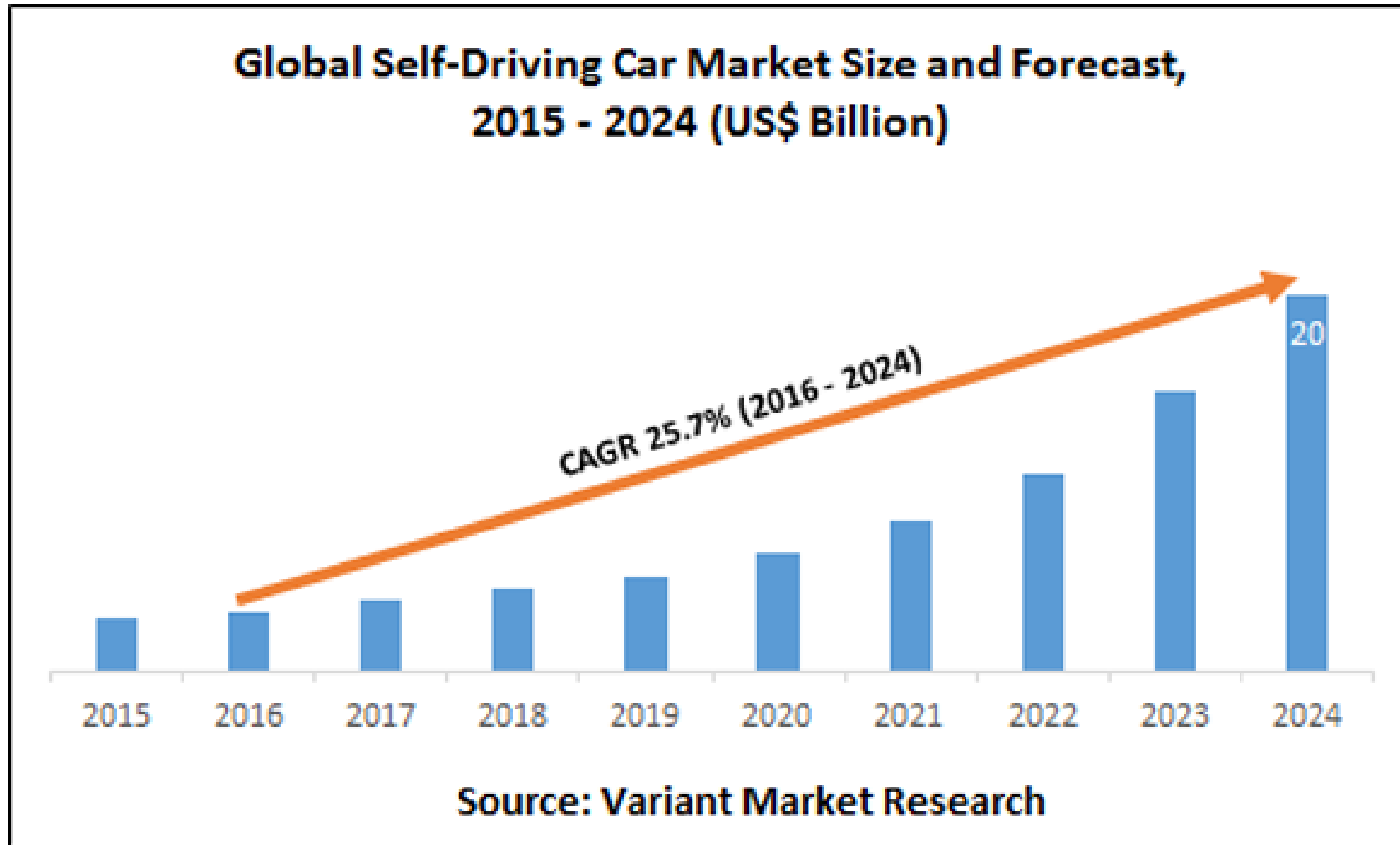
- ◆ In order to pursue lower power consumption, clock gating has become an important strategy for low-power design.
- ◆ Due to product line planning, some memory in IC may be disable.





# **The Help of START Tool in Automotive IC Development**

# The Help of START Tool in Automotive IC Development

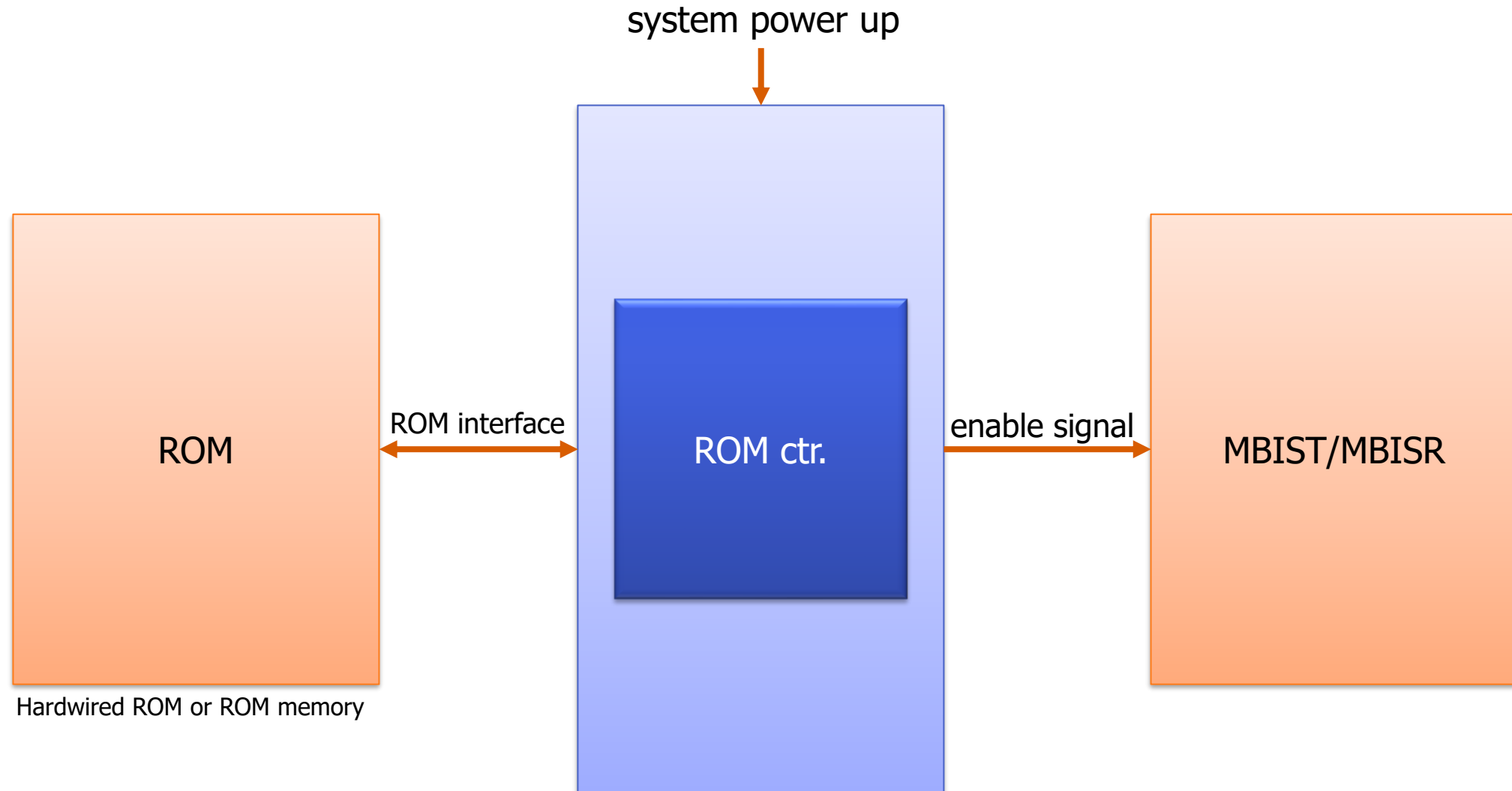


# The Help of START Tool in Automotive IC Development

- ◆ **Support IEEE1687 Internal JTAG.**
- ◆ **Support multiple algorithms for automotive ICs.**
- ◆ **The automotive industry IC must meet the requirements of ISO26262.**

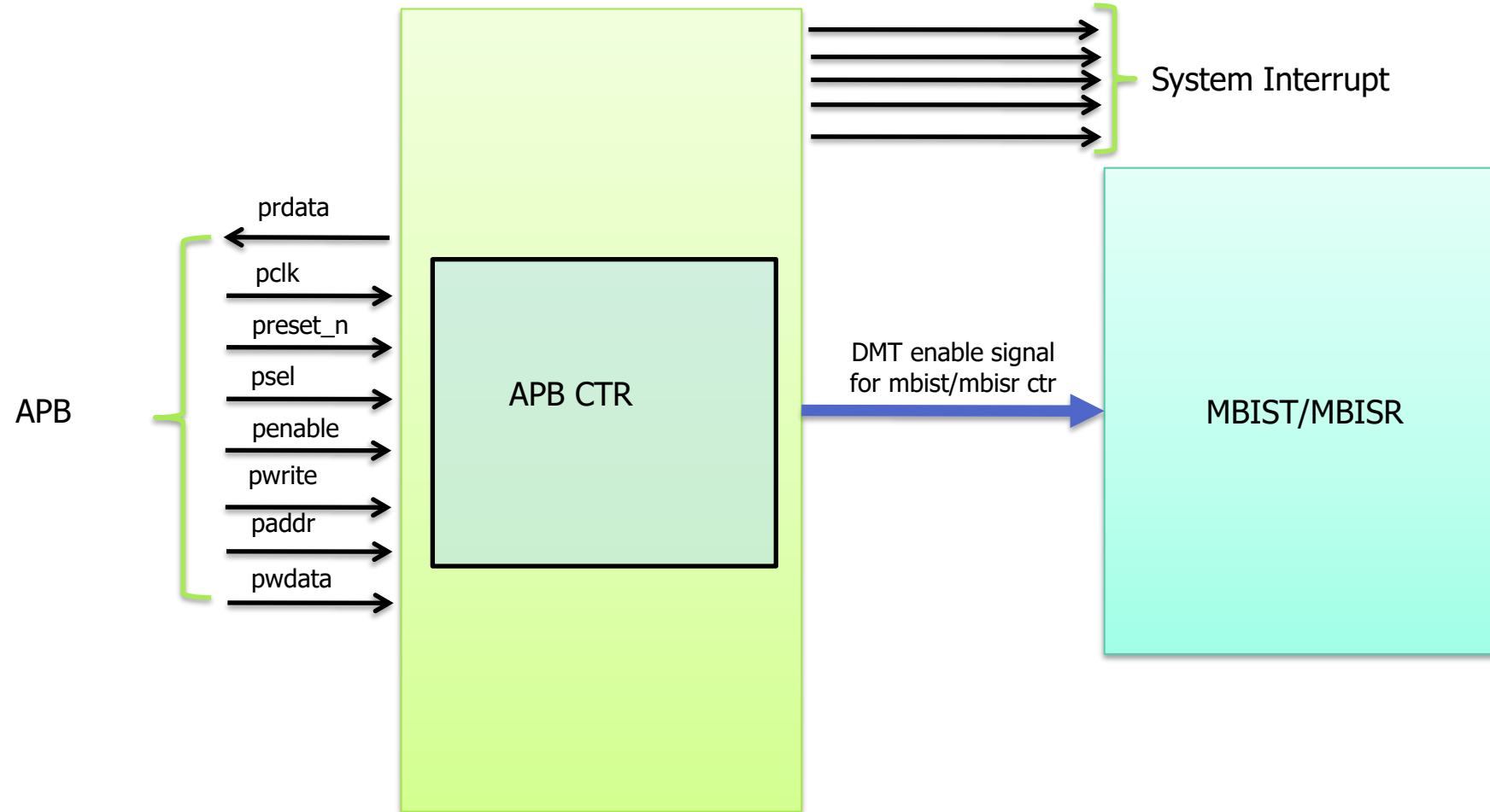
# Power On Test (POT) Design flow

# Power On Test Architecture



# Dynamic Memory Test

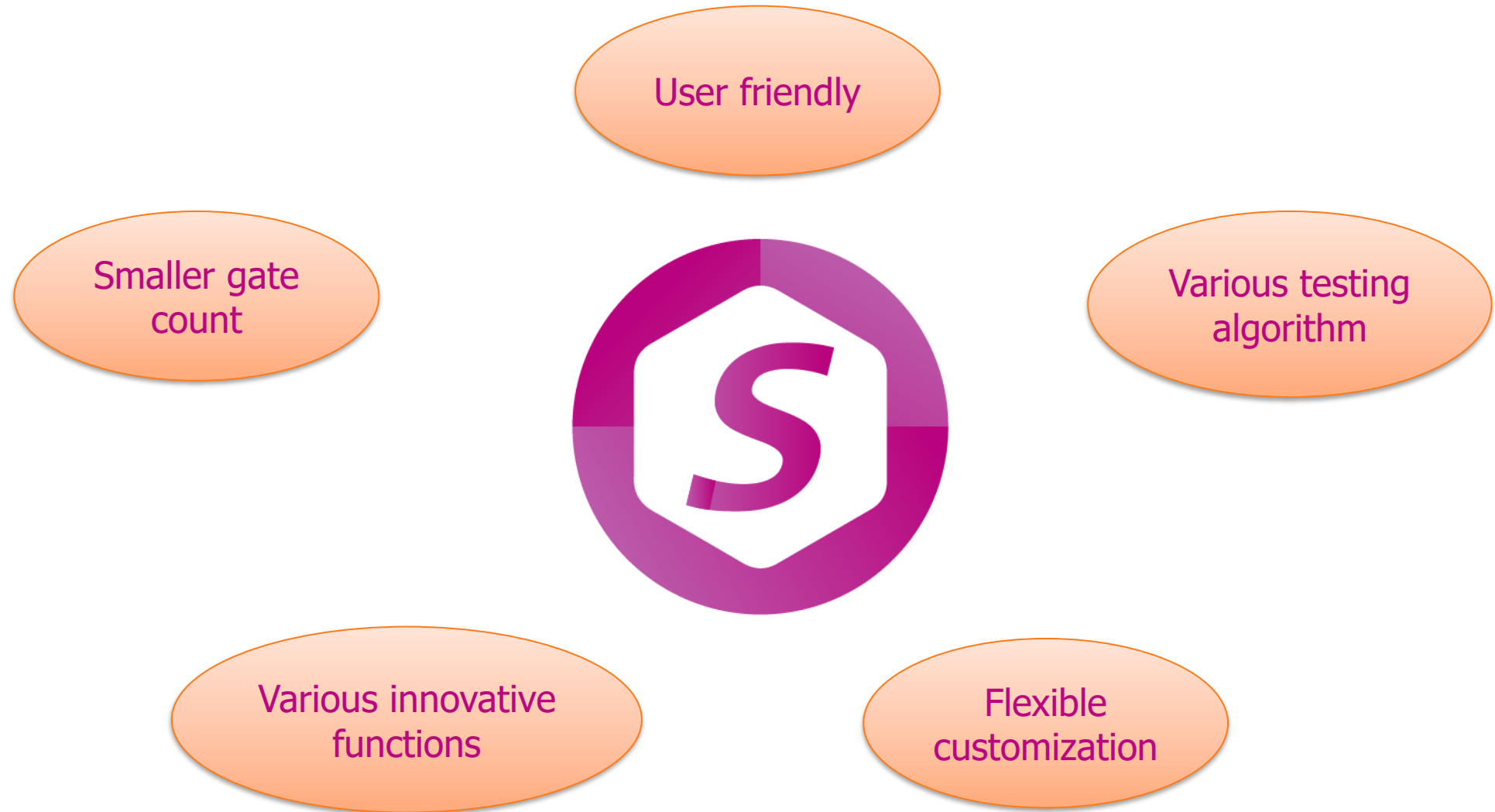
# Dynamic Memory Test Architecture





# Advantages of START Tool

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