
Aston Li 李柏穎

CONTENTS

SELF INTRODUCTION

- 8+ years of experience in embedded system firmware development
- 6+ years of experience in verifying FPGA/SoC features via firmware.
- From the low-level
  - bootROM, boot loader, low-level driver
- From the mid-to-high-level
  - data transmission (between different devices or protocols)
  - IoT module functions, fingerprint sensor, library porting, automation
- FT/MP firmware for mass production
- System firmware development in bare-metal and FreeRTOS environments.
- Integrating automated system compilation and test processes in the Ubuntu/Linux environment.
- Using bash scripts for automation, analyzing results, and optimizing development environments.
- I have also analyzed and optimized the efficiency and power consumption multiple times.
- Additionally, I am adept at organizing complex systems, paying attention to details, and rapidly making improvements when I identify better solutions.

SELF INTRODUCTION

Skills

- Languages
  - ✓ C
  - ✓ Assembly
  - ✓ Bash
  - ✓ Python
  - ✓ Markdown
- Applications & Drivers
  - ✓ UART (flow control)
  - ✓ GPIO, SPI, ISR, Timer, ADC
  - ✓ Command Line Parser
  - ✓ Power Saving mode
  - ✓ FreeRTOS
  - ✓ Boot ROM, Bootloader

Tools

- Debug Tools
  - ✓ ICE
  - ✓ Scope
  - ✓ Logic Analyzer
- Code Editors
  - ✓ Vim
  - ✓ Source Insight
  - ✓ Meld
- Version Control
  - ✓ Git
  - ✓ SVN
  - ✓ Sourcetree
- Ubuntu, Linux Bash Command
- Synopsys HAPS & Verdi
- Cadence Palladium

WORK EXPERIENCE

2014/07 – 2015/02
Delta Electronics 台達電子
HVP R&D Dept. - Firmware Engineer

Industrial Power Supply

- Semiconductor Fab Equipment Power Supply
- High Voltage DC Power Supply

2015/03 – 2017/08
Montage Technology 瀾起科技
Software Dept. - Software Engineer

Wifi SoC module for IoT

- Employee of the Year 2016 (the only winner in Taiwan)
- FPGA/SoC Features Verification and Low-level Driver Development
  - GPIO, PWM, UART, Timer, PMU, Interrupt, OTP
- Implement IoT Applications (SDK) using FreeRTOS
  - Transparent mode (Wifi-to-serial bidirectional transmission)
  - AWS IoT Server Connection Applications
  - OTA update, Power Saving Mode
- Test Firmware - FT and Module Mass Production

WORK EXPERIENCE

2017/09 – 2019/04

Phison Electronics 群聯電子

Chip R&D Dept. - Firmware Engineer

NAND Flash Controller IC

- Low-level Driver Development
- FPGA/SoC Verification (Digital)
  - NAND Flash IP, Error Handling(Raid)
  - Coprocessor Communication between ARM R5 and Andes N8

2019/05 – 2021/04

Igis Technology 神亞科技

System Design Dept. - Senior Engineer

In-display fingerprint sensor IC

- Optical Fingerprint Sensor Driver, ROI, and Binning
- FPGA/SoC Verification and Low-level Driver Development
  - UART, GPIO, Interrupt, Timer, TCON, SPI slave
  - DSP, DMA, System Bus, PMU, ADC, WFI, Power Saving mode
- Porting FreeRTOS, BootROM, Security Update
- Implement Command Line Interface (UART) for testing and debugging

WORK EXPERIENCE

2021/04 – 2023/02 company closure

Blue Ocean(Deep Ocean) Smart System

AI Framework Dept. - Senior Engineer

AI SoC, GPGPU/HPC

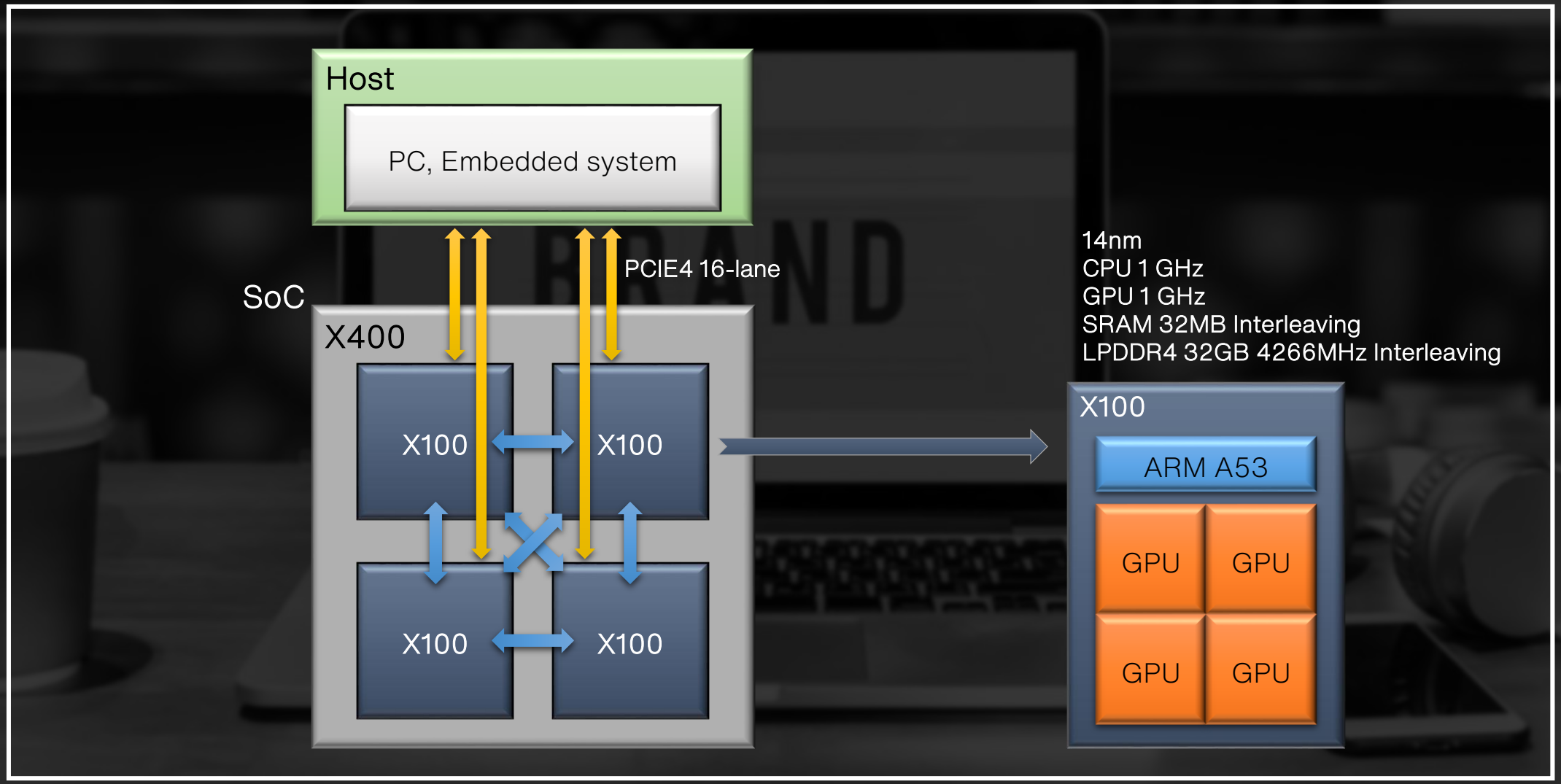
- Implement a middle layer in a multi-chiplet system
  - data transmission, device operations, and RPC interface
- Perform inference performance analysis (profiling)
- Build and configure CMake, dependencies, and environments for multiple repositories, various architectures
- Develop and maintain build processes for daily builds, auto-testing, and releasing SDK

SYSTEM ARCHITECTURAL DIAGRAM

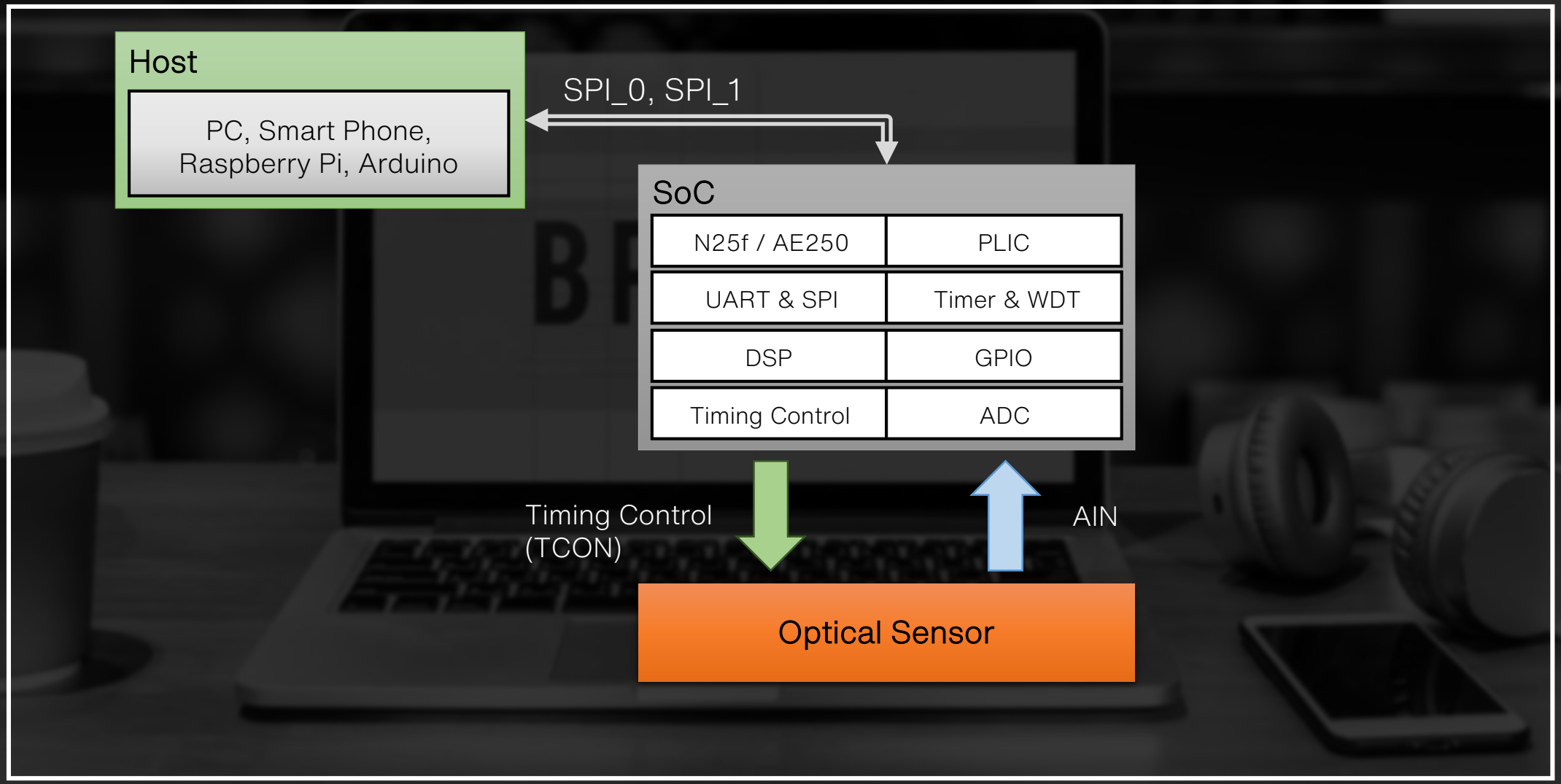
System Architectural Diagram

1. Chiplet-Based AI SoC data transmission
2. Fingerprint Capture
3. Wi-Fi Module Boot Flow
4. Mass Production Test
5. Coprocessor Architecture

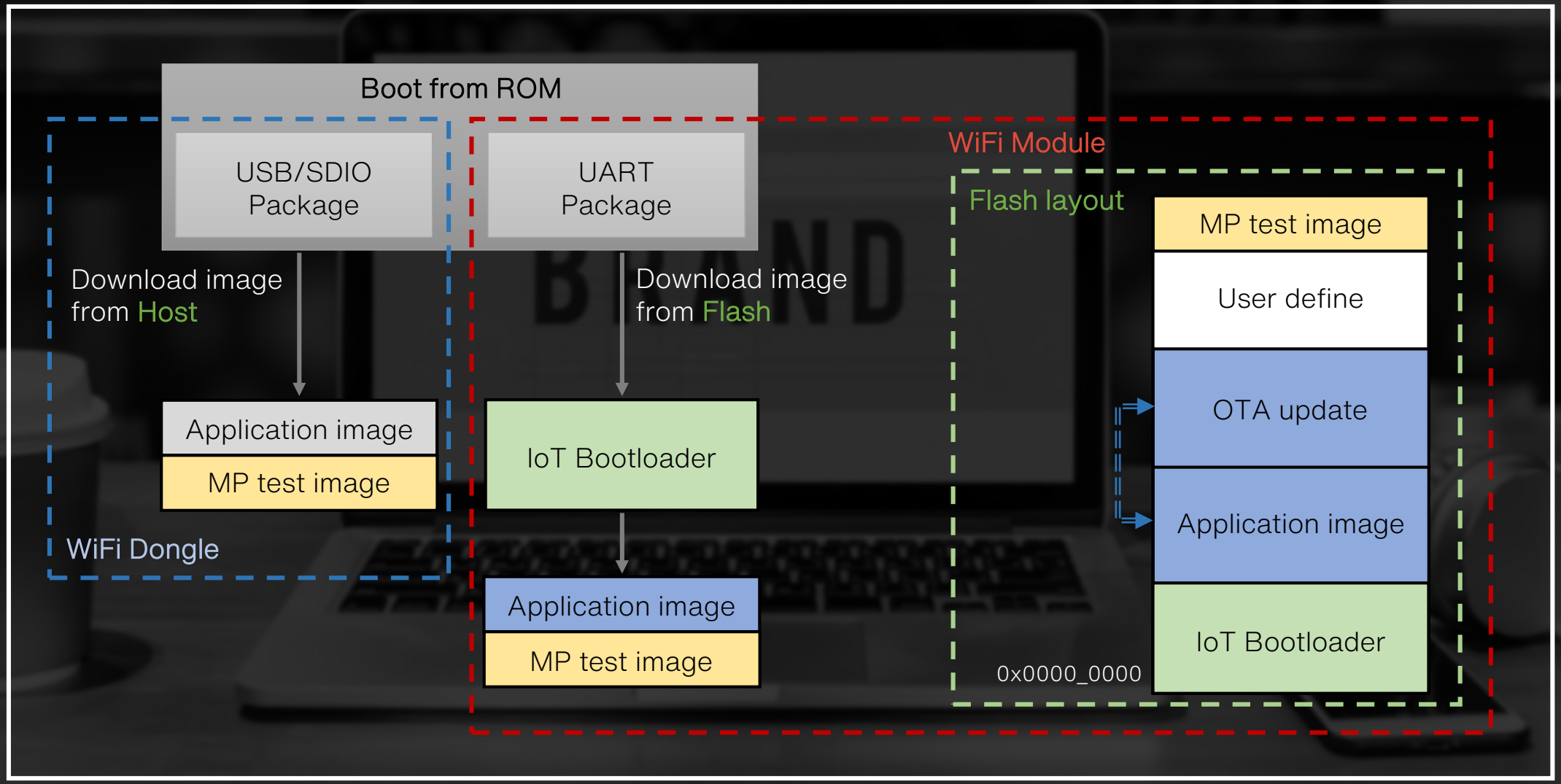
Chiplet-Based AI SoC data transmission



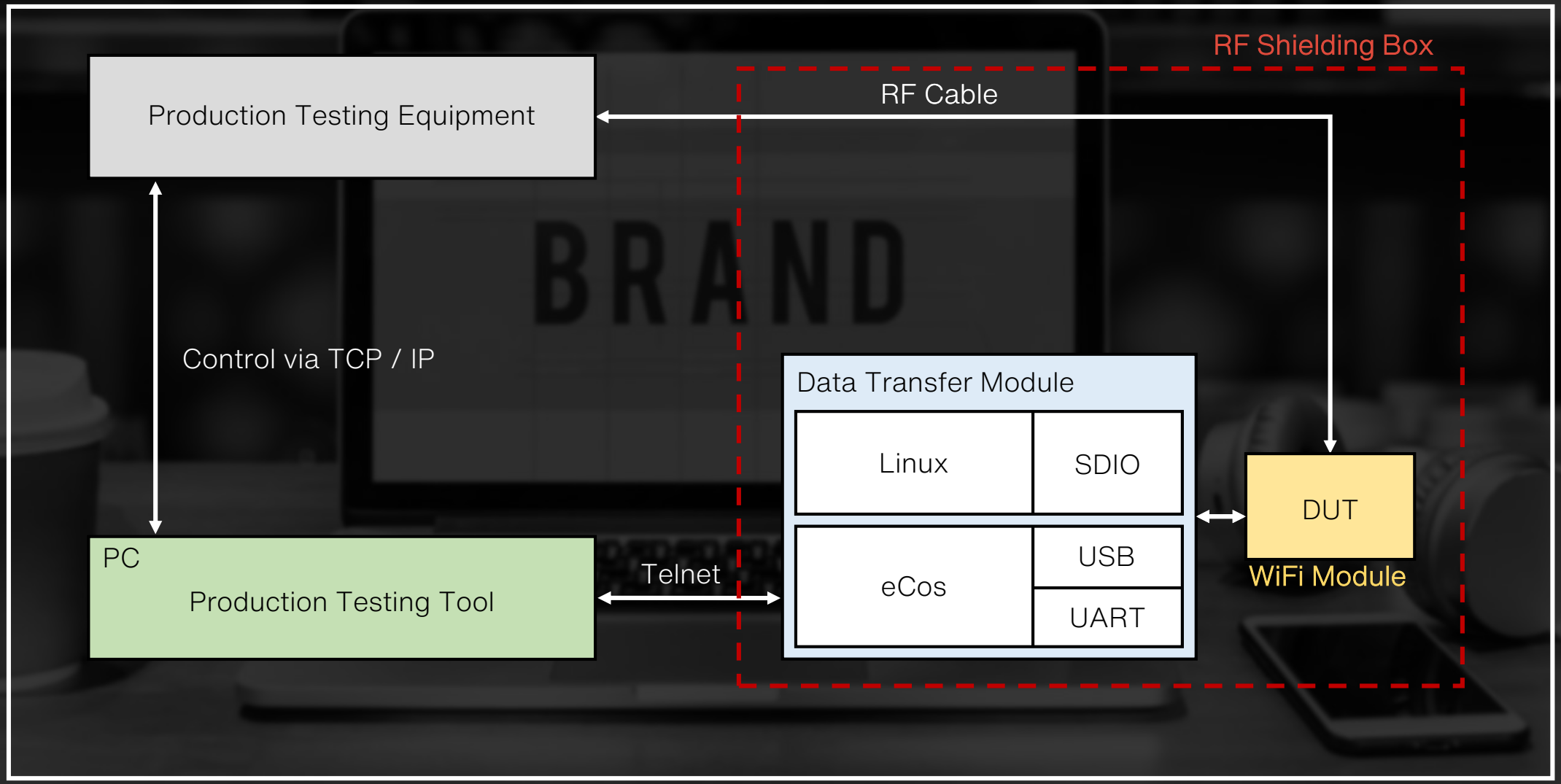
Fingerprint Capture



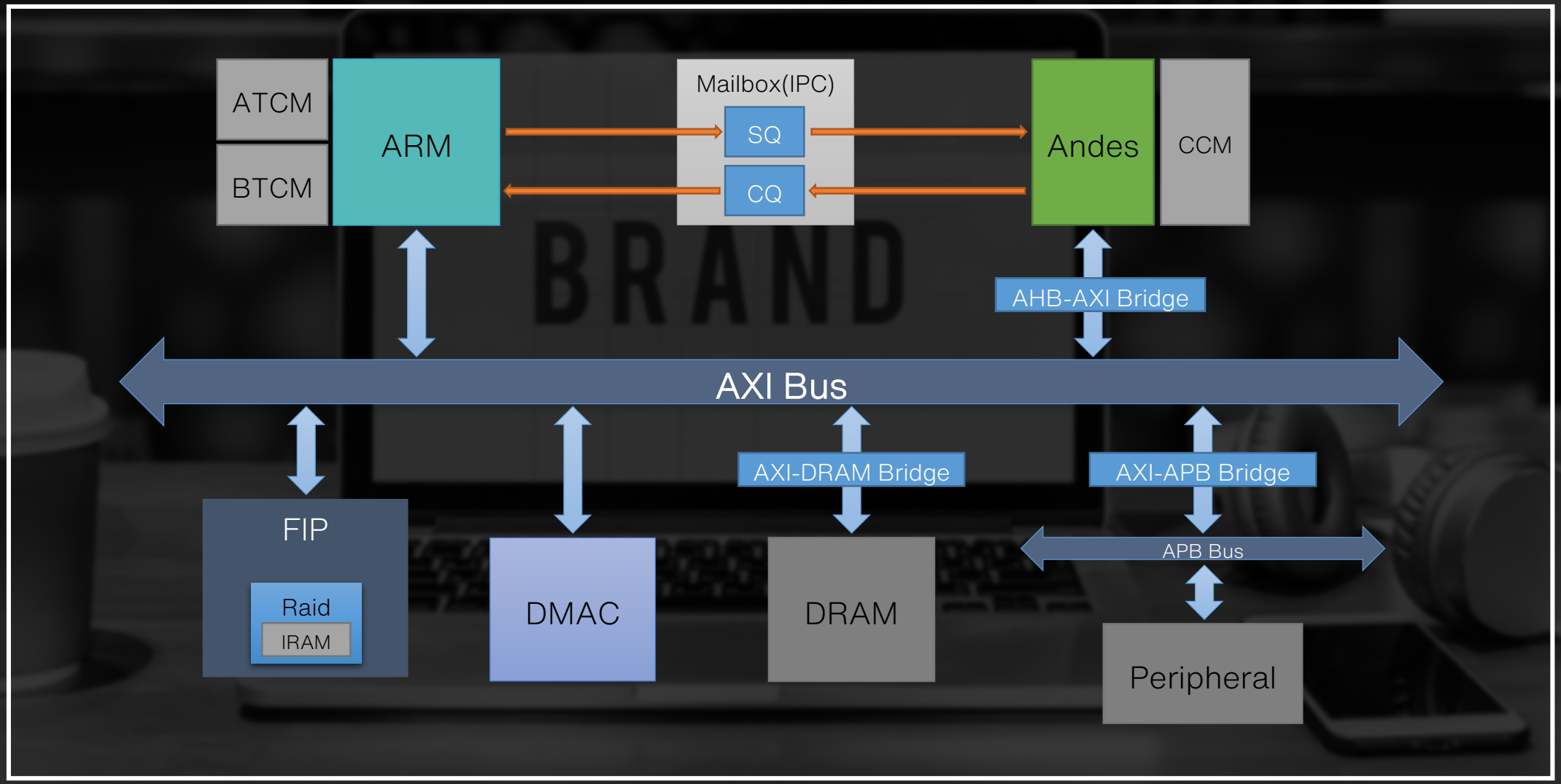
Wi-Fi Module Boot Flow



Mass Production Test



Coprocessor Architecture




Thank You