Automation Methodology for Bus Performance Verification using IP-XACT

Author: Taeyoung Jeon, Gunseo Koo, Youngsik Kim, Seonil Brian Choi

Affiliations: Samsung Electronics Co., Ltd., Hwasung-si, Korea

INTRODUCTION

Bus Performance Verification

- Measure the performance of each masters
- **Latency, bandwidth and MO** are the performance metrics
- Synthetic Traffic Generators(TG) are used instead of real masters

Problems of the Bus Performance Verification

- About hundreds of verification targets
- **TG replacement takes a lot of time**
- Requires manual work which might causes human errors

OBJECTIVES

**TG Replacement Automation using IP-XACT**

- **Reduce the verification TAT**
- **Automate all manual works**
- Automatically generates database file for the emulation image build
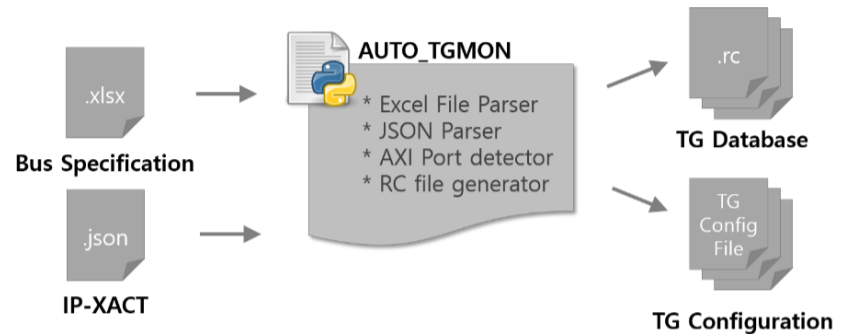
PROPOSED APPROACH & IMPLEMENTAION

Automation Flow

1. Extraction: Reads the Input Files
   - Extract **interfaces from the IP-XACT**
   - Extract **IP Hierarchy from the bus specification**

2. Find Intersection
   - Specify which verification targets can be passed to the next stage
   - Two data groups are compared with each other

3. Output Generation
   - Generate signal list database file
   - Generate TG configuration file
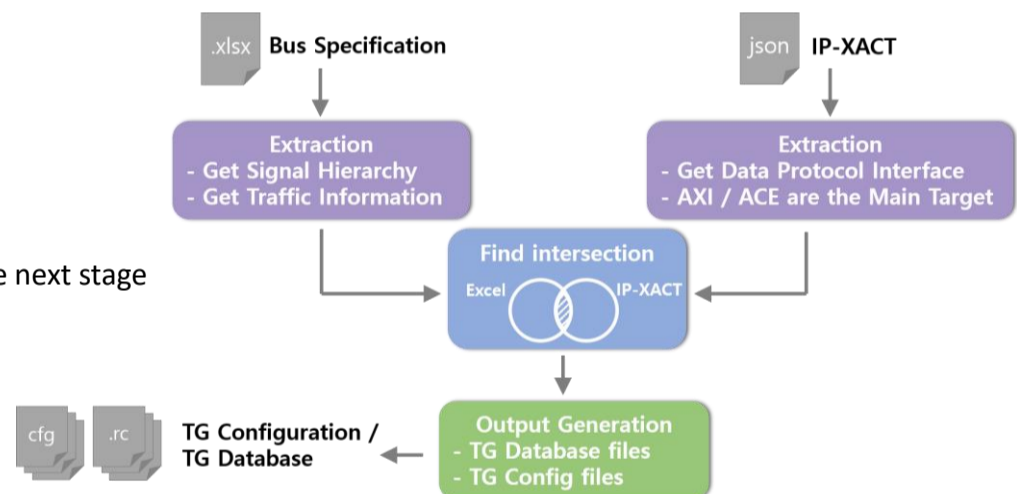
RESULT

Test Result

- The performance verification was done to the 190ea masters

- **176 of the masters were automatically processed**
 (Some of master IPs do not support IP-XACT but will support soon)

- **Verification TAT is dramatically reduced**
 (2 weeks of manual work was reduced to less than a minute)

CONCLUSION

- **Human errors never happen by using the automation methodology**

- Large amount of verification targets are easily processed

- This methodology will be deployed in various verification areas for adding many verification IPs (AVIP/Xtor).

- The methodology provides GUI environment for the convenience of the users

Contact Information

email: ty.jeon@samsung.com

Samsung Electronics Co., Ltd., Hwasung-si, Korea

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