TLM-Serial
Status and future work

Jerome Cornet - ST
Ingo Feldner – Robert Bosch GmbH
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TLM-serial: The Past

Problem Statement
• Electronic Control Units (ECUs) rely on serial on/off-chip interfaces to connect to IP and ECU networks. Assembling virtual ECUs can introduce high effort due to proprietary abstract serial interface implementations.

Goal
• Establish modeling standard for serial on/off ECU interfaces to enable quick and easy assembly of VPs.
TLM-serial: The Past

• Why a new serial standard?
  – Defined scenarios and use-cases
    • Based on identified industry needs and real-world problems
  – CAN, SPI, I2C taken as starting points
    • As most experience by parties and concrete need
  – Implemented and proven with prototypes and examples
  – Definition of rules per serial protocol
  – Key elements:
    • Simplicity
    • Connection to RTL
    • Definition of Corner Cases (e.g. reset)
TLM-serial: The Present

• Dedicated implementations per serial protocol
  – Each protocol needs dedicated rules
  – Implementation is re-used where possible

• Ready-to-use TLM-CAN protocol and implementation of TLM-CAN(-FD) available
  – Supports all defined CAN scenarios shared here: https://workspace.accellera.org/apps/org/workgroup/tlmwg/download.php/14231/SerialTLM_requirements_and_scenarios.doc
  – Donated to Accellera and available to members at: https://github.com/OSCI-WG/tlm-serial/tree/master/tlm-can
  Implementation can be shared with interested parties

• Working prototypes for TLM-SPI and TLM-I2C
TLM-serial: The Future

• Bosch will demand TLM-CAN from suppliers
  – Own models already prepared
• Continue work in 2019
  – Finalize SPI and I2C
  – New protocol candidates: LIN, SENT, MSC
  – Workshop for discussing scenarios and collaboration in spring 2019
• Looking for contributors
  – With relevant scenario and business need
  – From different domains

INTERESTED?
PLEASE CONTACT US AND DISCUSS WITH US!