Homework Assignment 3

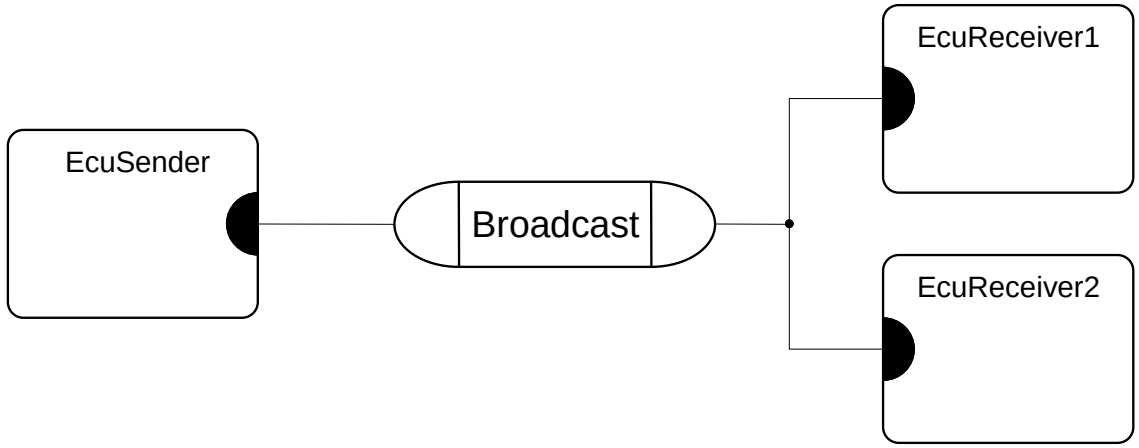
- Task
  - Communication refinement of chosen ECU
    - Transaction Level Model (TLM)
    - Bus Functional Model (BFM)
- Components
  - Controller Area Network (CAN) Bus
    - provided SpecC models
      - TLM (file **`canEcu_tlm.sc`**)
      - BFM (file **`canEcu_bfm.sc`**)
    - see file **`/home/eecs298w06/canEcu.tar.gz`** on server **`epsilon.eecs.uci.edu`**

Homework Assignment 3

- Controller Area Network (CAN) Bus
  - Properties
    - Standard bus used in automotive industry (Bosch GmbH)
    - Serial, multi-master, broadcast communication protocol
    - Collision-avoidance arbitration (fixed priorities)
    - Built-in synchronization and error detection
    - Single wire protocol (pull-down mechanism)
  - Modeling in SpecC
    - G. Schirner, R. Dömer:
      "Abstract Communication Modeling:
      A Case Study Using the CAN Automotive Bus",
      IESS, August 2005.

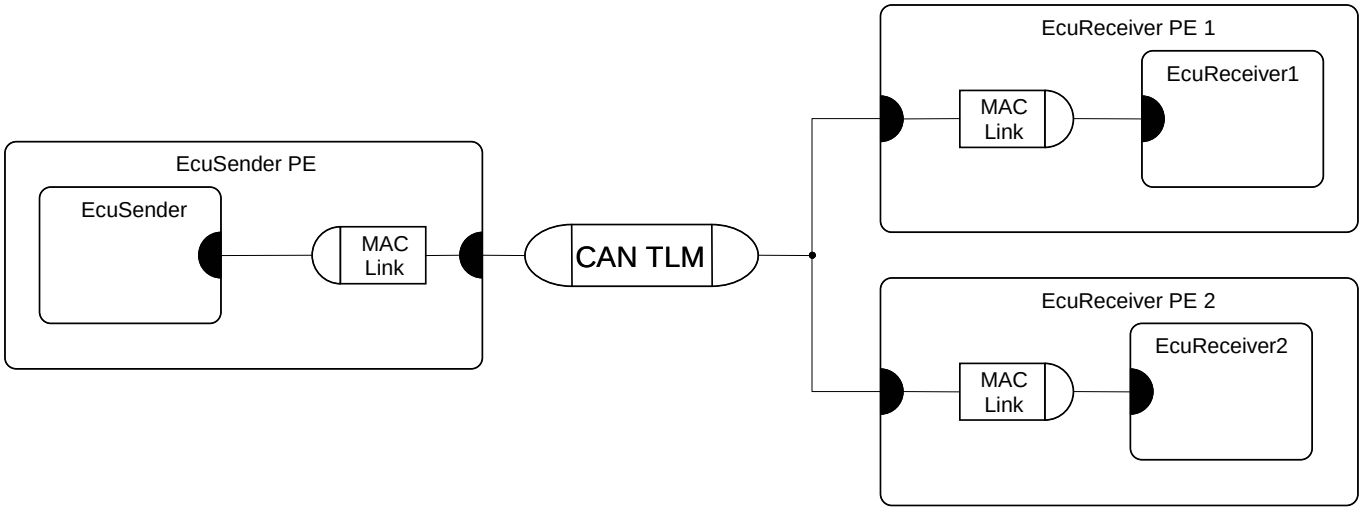
Homework Assignment 3

- Controller Area Network (CAN) Bus
  - Example
    - Abstract communication model (specification model)



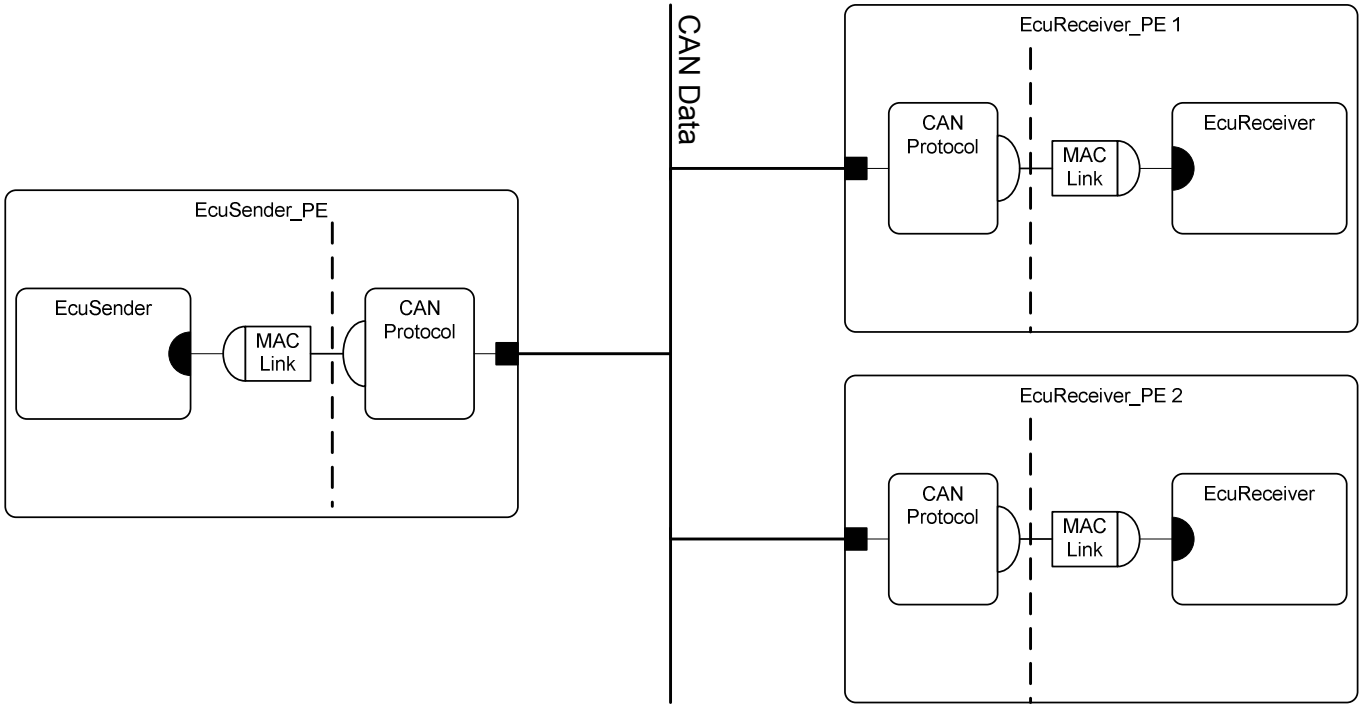
Homework Assignment 3

- Controller Area Network (CAN) Bus
  - Example
    - Transaction level model (file **`canEcu_tlm.sc`**)



Homework Assignment 3

- Controller Area Network (CAN) Bus
  - Example
    - Bus-functional model (file **`canEcu_bfm.sc`**)



Homework Assignment 3

- Deliverables
  - Documentation
    - Schematic view of refined ECU models
    - Brief (!) description of functionality (in English)
    - e.g. **`FloorDoor_TLM.pdf`**, **`FloorDoor_BFM.pdf`**
  - Refined ECU models in proper test bench
    - SpecC source code
    - e.g. **`FloorDoor_TLM.sc`**, **`FloorDoor_BFM.sc`**
  - Successful simulation run
    - e.g. **`FloorDoor_TLM.log`**, **`FloorDoor_BFM.log`**
- Due
  - March 8, 2006, 11:59pm
  - Email to **`doemer@uci.edu`**