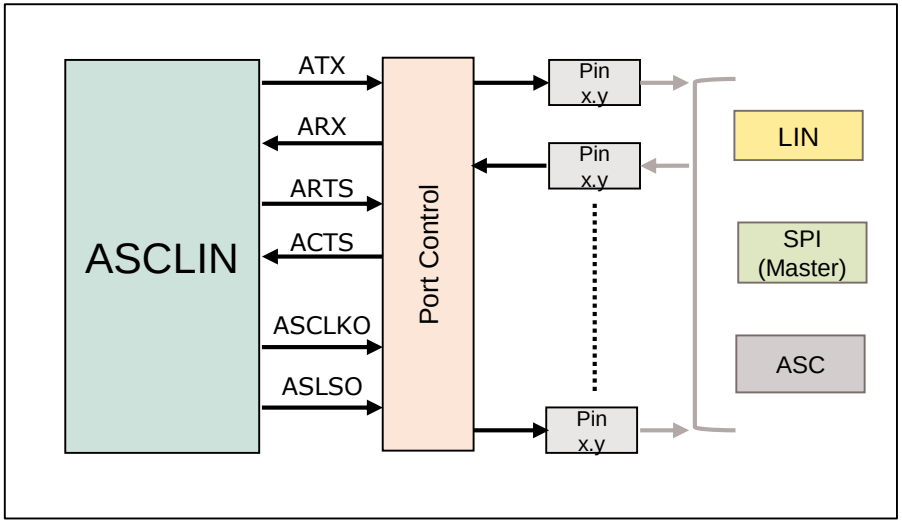
ASCLIN

Asynchronous Synchronous Interface

AURIX™ TC2xx Microcontroller Training
V1.0 2019-03

ASCLIN
Asynchronous Synchronous Interface



Highlights

Provide asynchronous serial communication with external devices using only data-in, data-out signals. The focus of the module is set to fast and flexible communication: either fast point-to-point or master-to-many slaves communication using the LIN protocol

Key Features

3 in 1 module

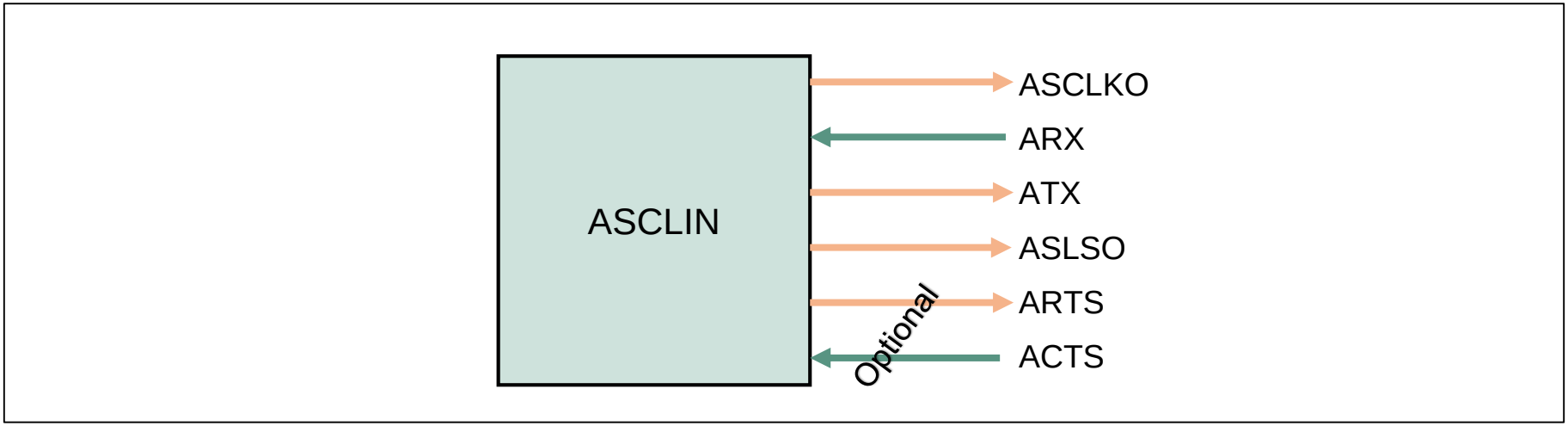
Configurable oversampling per bit

Customer Benefits

Customer can use single module for ASC (UART), LIN and Master SPI applications

Choose up to 16 oversampling per bit for higher accuracy for higher baud rates

ASCLIN
3 in 1 Module



- ASCLIN module supports three different serial protocol standards:
  - ASC(UART)
  - LIN
  - SPI
- Customer can leverage three protocols support without additional hardware
- SPI master is supported with three or four wire approach (with or without slave select output signal)

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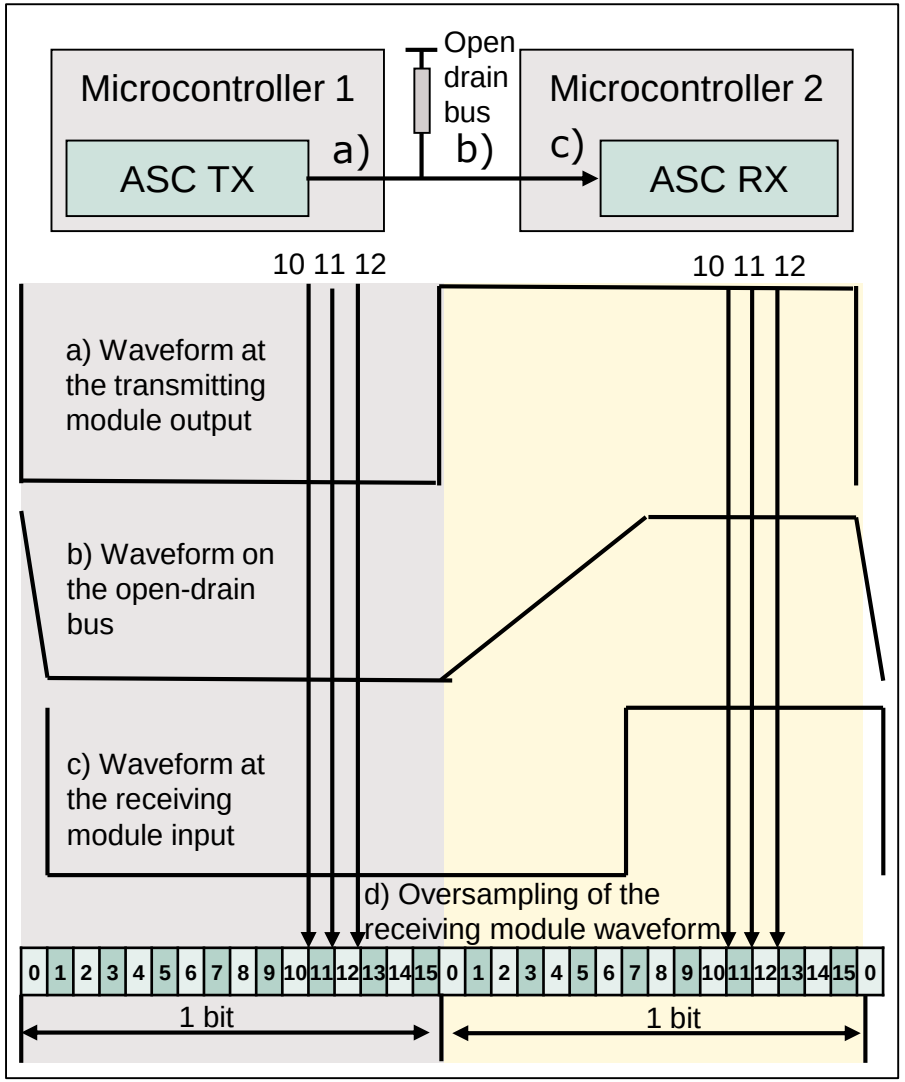
Configurable oversampling per bit

- Programmable oversampling of 4 to 16 times per Bit as shown in figure waveform
- Programmable sample point position with respect to the oversampling points in the range of 0 to 15
- Programmable number of samples per bit between 1 or 3



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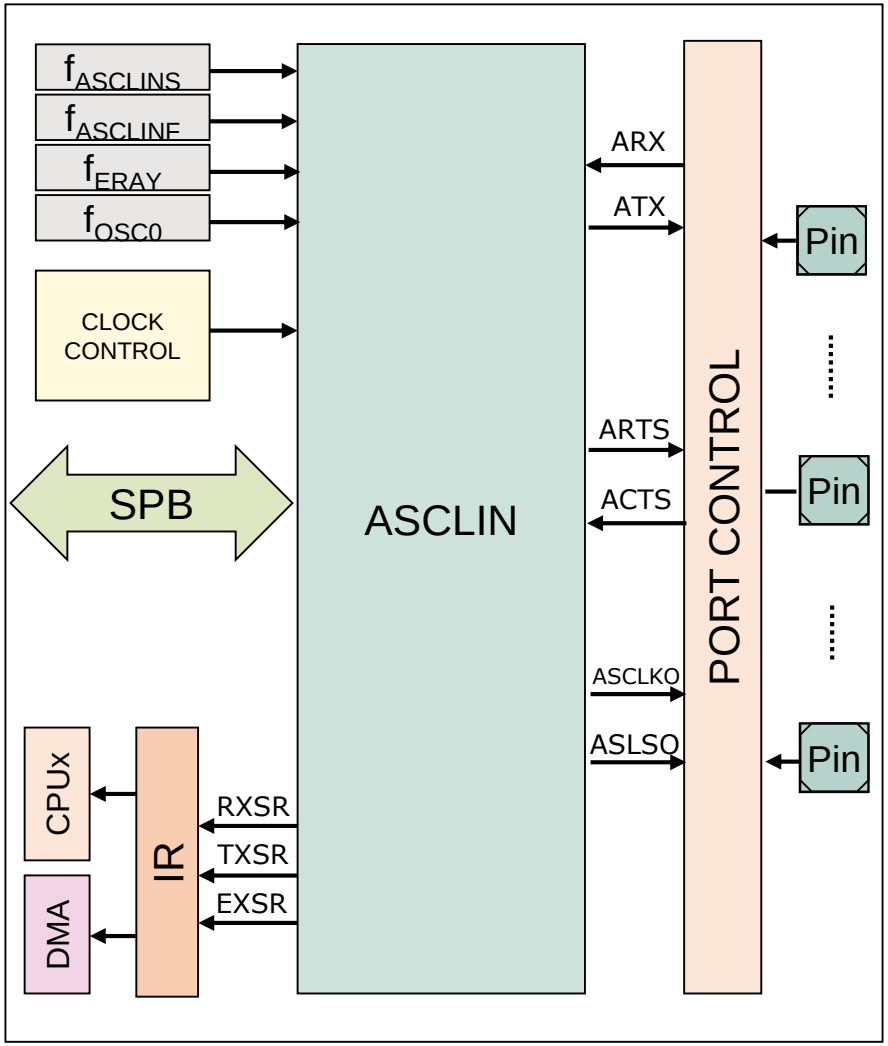
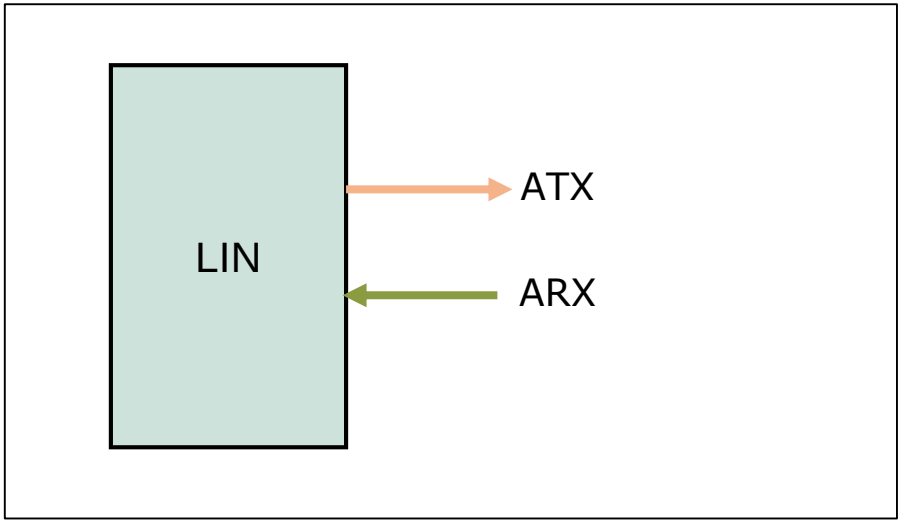
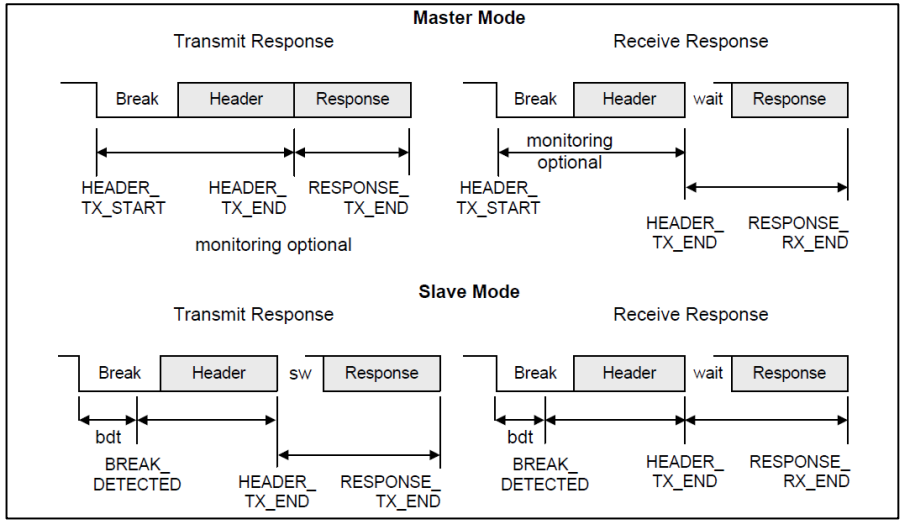
System integration

- ASCLIN module is integrated to provide following benefits:
  - Interrupts signals capable of triggering either CPU or DMA
  - Internal loop-back mode for test functionality
  - Up to 4 ASCLIN channels available with flexible connections to multiple GPIO via multiplexers for transmission and reception respectively



Application example
LIN





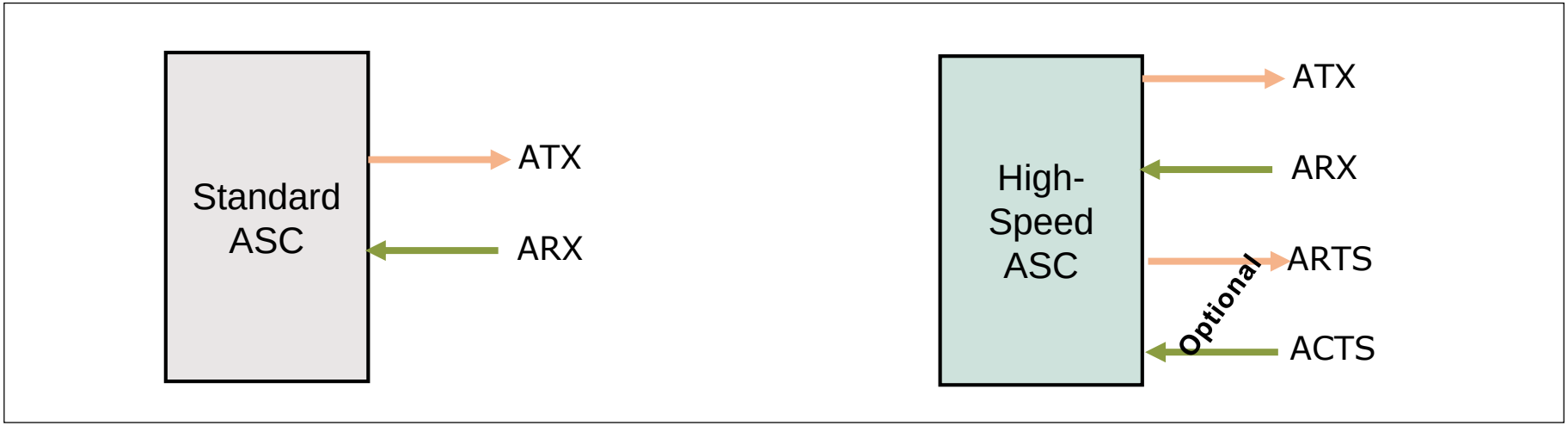
Overview

- Supports all four elementary LIN transactions including header/response transmission & reception, as master or slave
- Supports standard v1.3/2.0/2.1 and J2602 with collision detection

Advantages

- Auto baud detection
- Optional collision detection
- Bus idle monitoring and wake-up capabilities
- Stuck at zero/one monitoring for safety

Application example ASC



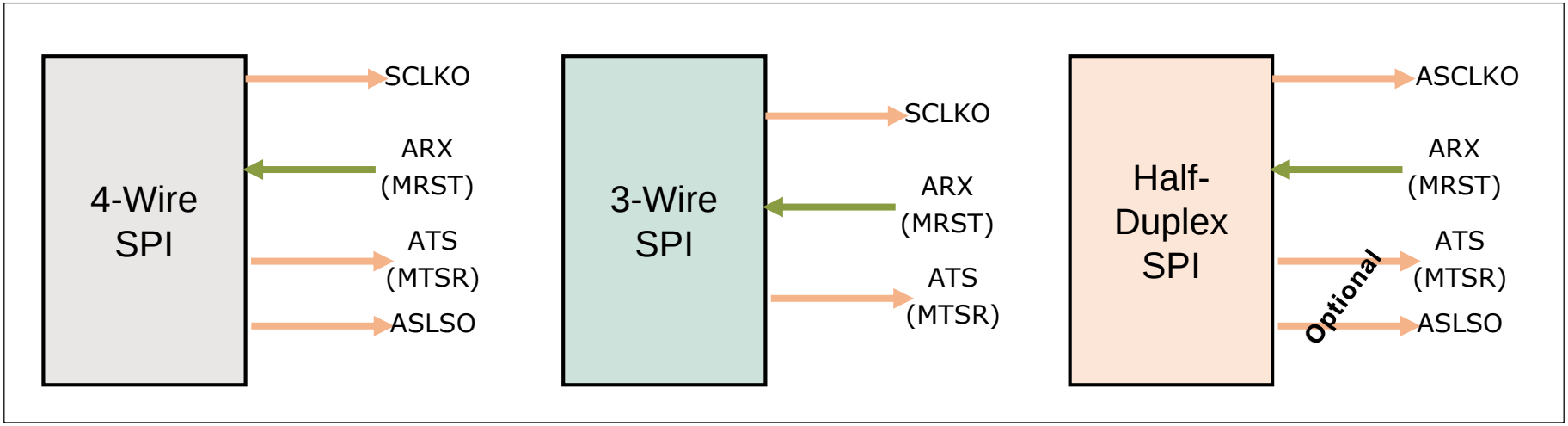
Overview

- Configure UART communications
- Support UART standard JASO D 903
- Supports baudrates up to 25 MBaud

Advantages

- Extended supports of different sensors through high-speed ASC extension
- Extension in functionality to support optional handshaking (RTS/CTS) for high-speed ASC communication

Application example
SPI master



Overview

- SPI master configuration for SPI based communications in multiple configurations
- Support of full and half duplex
- Supports baudrates up to 25 MBaud

Advantages

- Up to 16 bit data width supported
- Programmable leading & trailing delays

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