

# ASCLIN

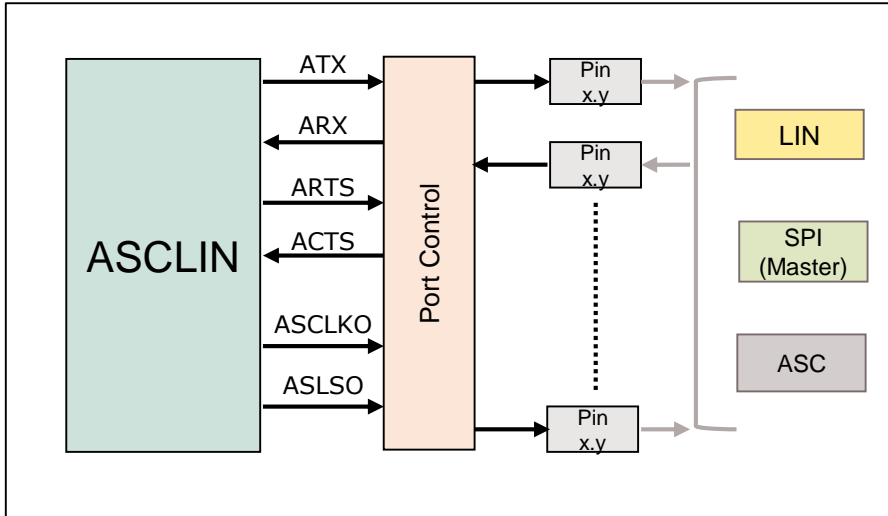
## Asynchronous Synchronous Interface

AURIX™ TC2xx Microcontroller Training  
V1.0 2019-03



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# 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

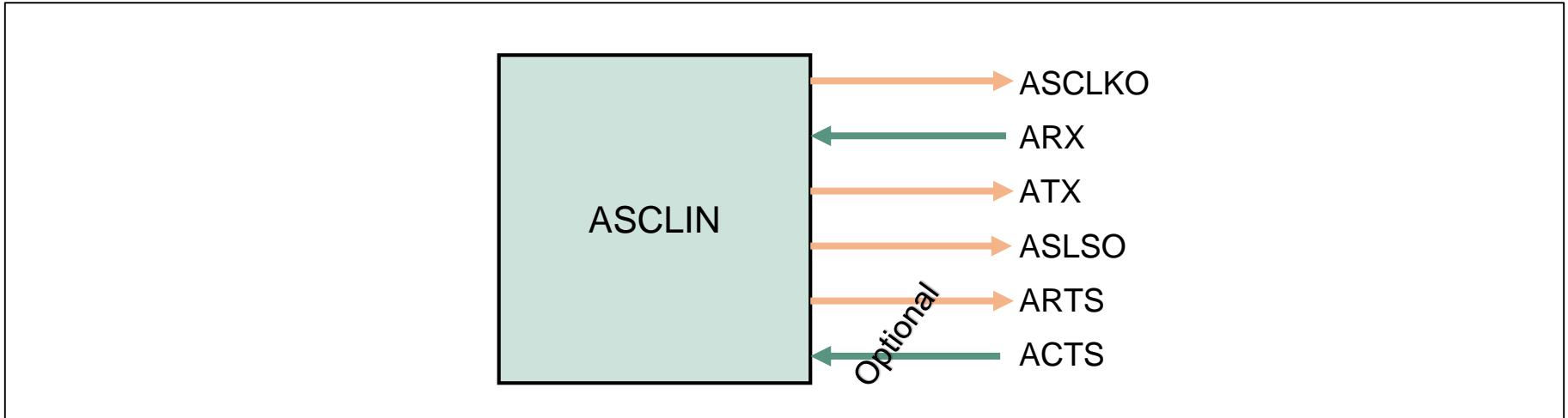
## Customer Benefits

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

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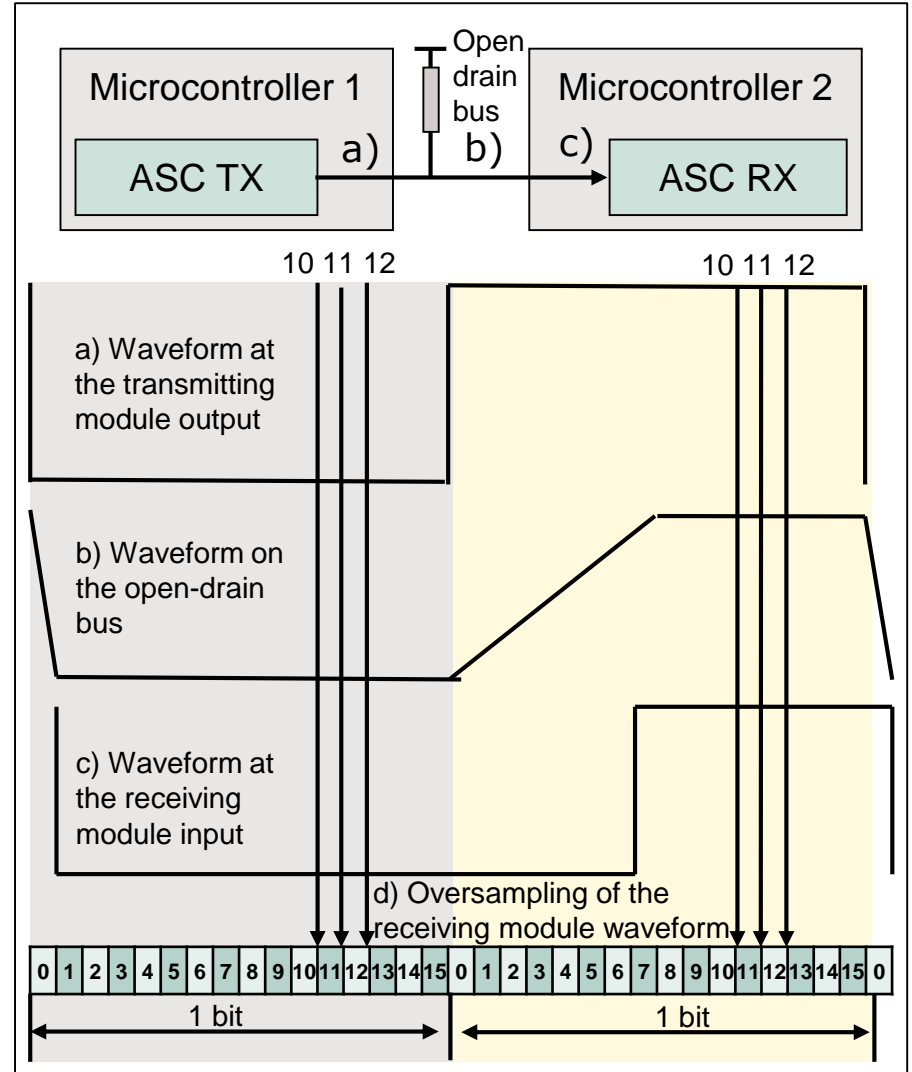
## 3 in 1 Module



- › 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)

## Configurable oversampling per bit

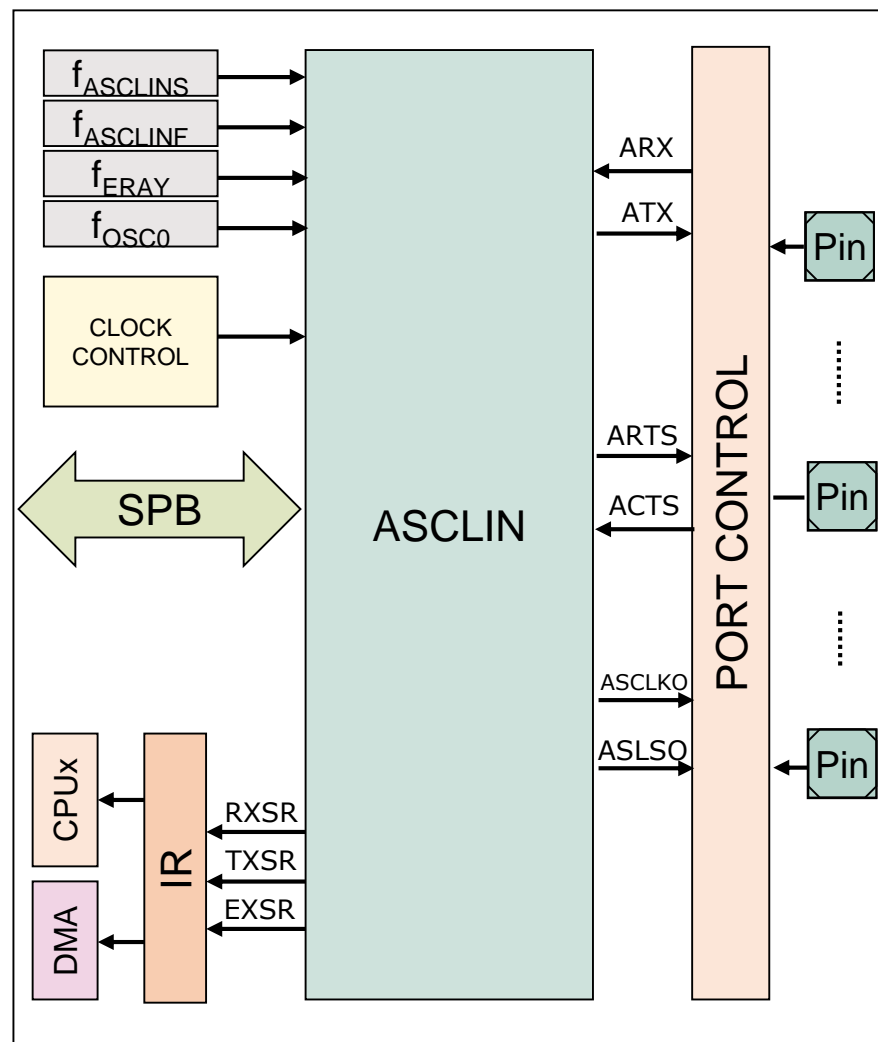
- › Programmable oversampling of 4 to 16 times per Bit as shown in figure waveform
- › Programmable sample point position with respect to the oversampling points in the range of 0 to 15
- › Programmable number of samples per bit between 1 or 3

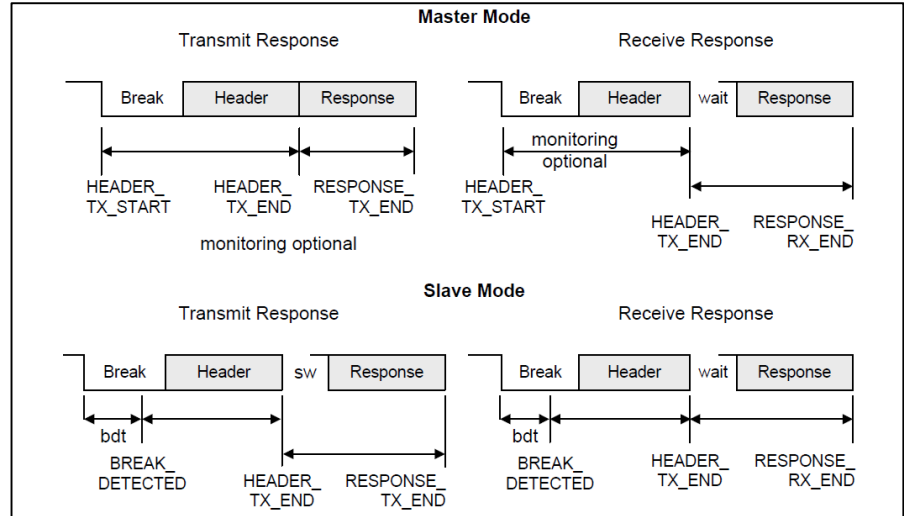
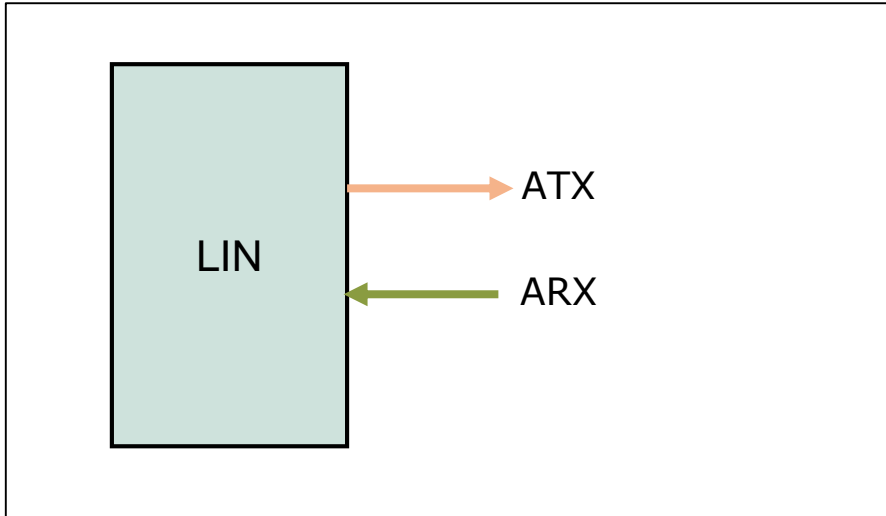


# ASCLIN

## 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



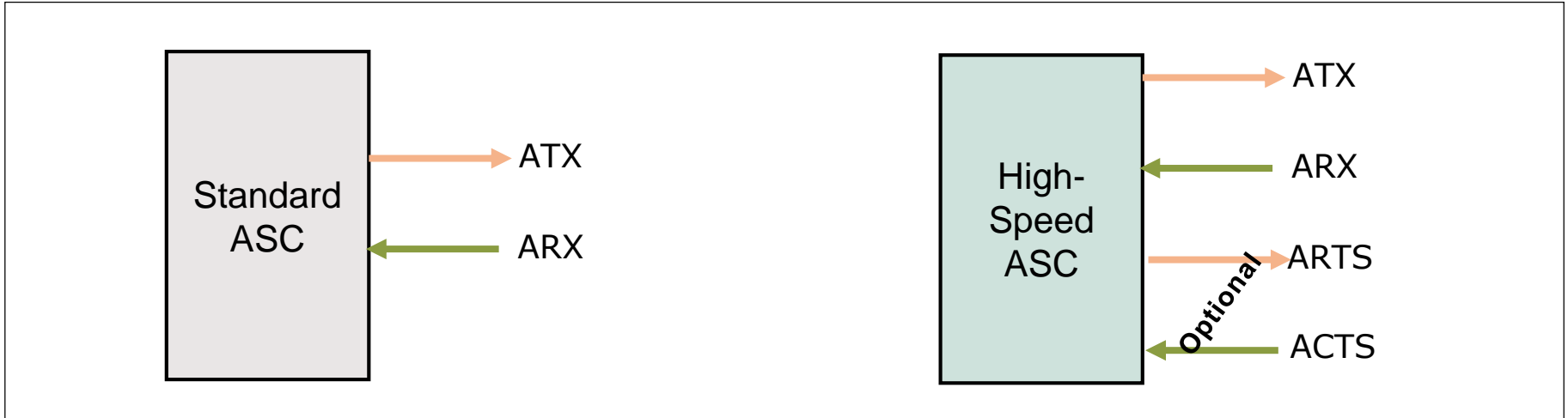


## Overview

- › 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



### Overview

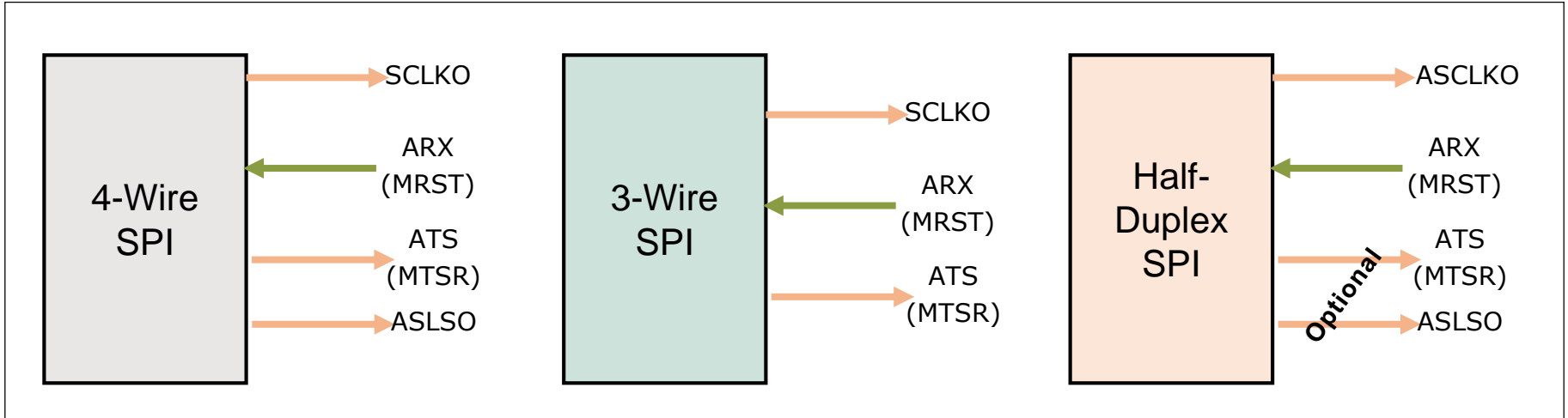
- › Configure UART communications
- › Support UART standard JASO D 903
- › Supports baudrates up to 25 MBaud

### 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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**Document reference**

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