ASCLIN
Asynchronous Synchronous Interface

**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

**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.
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)
**ASCLIN**

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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