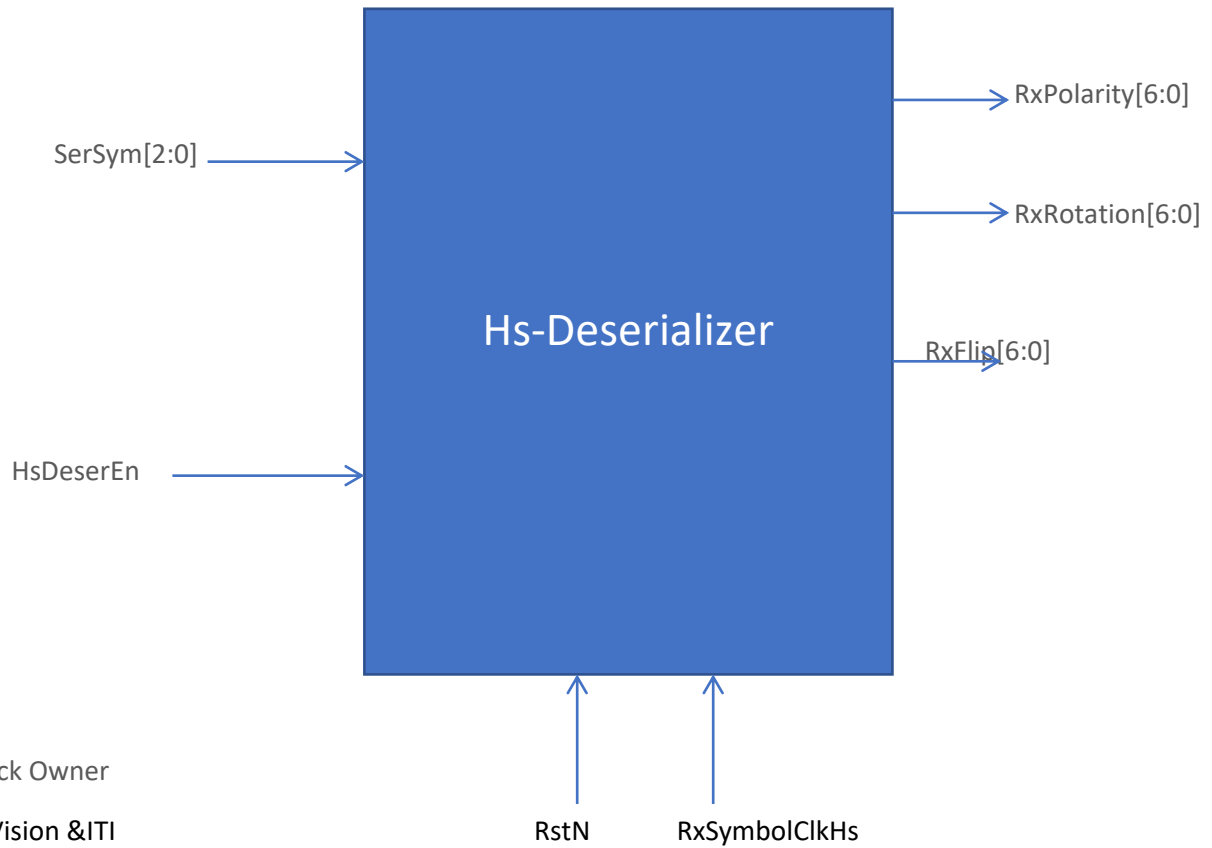


# Hs-Deserializer

Induction Training

Version 1.0



Block Owner

Si-Vision & ITI

Authors

<Ahmed Thabit>

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## 2 Overview

## 3 Operation and Description

### 3.1 Digital Interface

#### 3.1.1 Parameters Names

Parameter Name	Default	Description
None		

#### 3.1.2 Ports Names

Port Name	Port Width	Port Type	Description
RxPolarity	7	output	7-bit parallel output for polarity.
RxRotation	7	output	7-bit parallel output for rotation
RxFlip	7	output	7-bit parallel output for flip
HsDeserEn	1	Input	Enable signal
RstN	1	Input	Negative reset
TxSymbolClkHs	1	Input	Clock
SerSym	3	input	Incoming serialized symbol: {flip, rotation, polarity}

### 3.2 Functional Description

The HS\_Deserializer module performs high-speed (HS) deserialization of incoming serialized 3-bit C-PHY symbols (polarity, rotation, and flip) in the receiver. Operating in the RxSymClkHS domain, it sequentially collects these symbols over 7 cycles and outputs the accumulated 7-symbol-wide parallel vectors (RxPolarity, RxRotation, RxFlip). The module is enabled through the HSDeserEn signal and supports an active-low reset (RstN). This deserialization step is crucial for aligning serial symbol streams into parallel data words for subsequent processing in the C-PHY receiver chain.

4.1 Timing diagram

