

# SI-BUS Protocol and Controller Testing

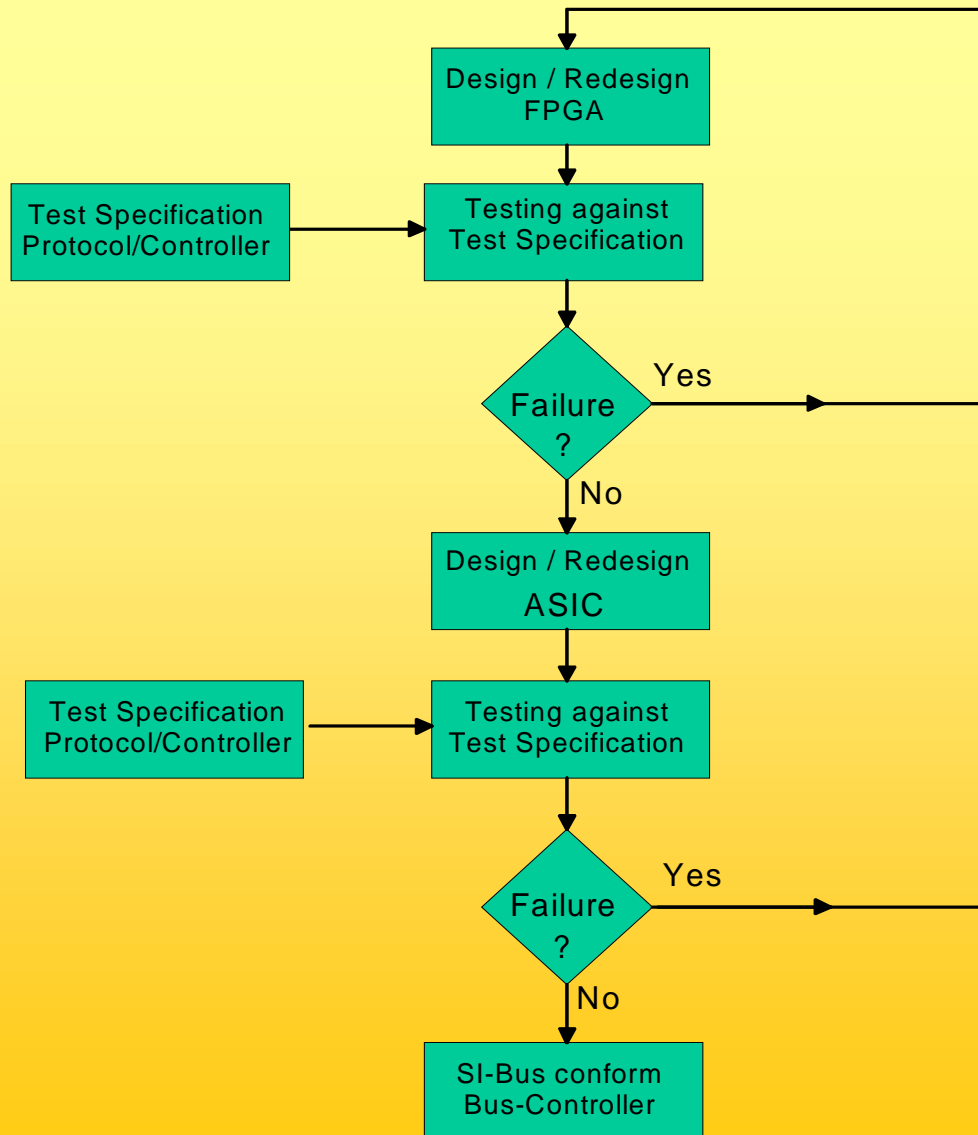
## Conformance Test of SI-Protocol

- Bus Timing
- Message Formatting
- Error Handling

## Bus Controller Testing

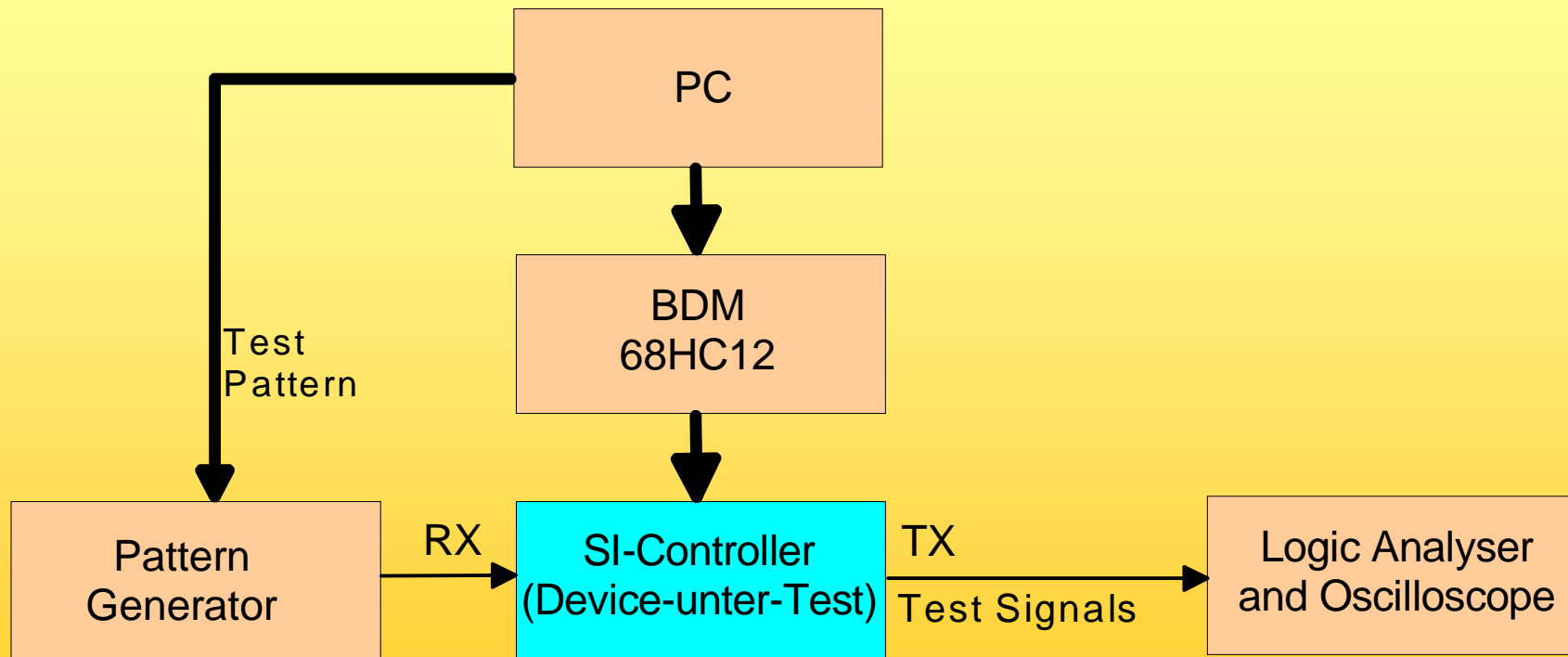
- Receive Buffer
- Transmit Buffer
- CPU-Interface and Control Register

# SI-BUS Conformance Test



# SI-BUS Conformance Test

## Test Arrangement



# SI-BUS Conformance Test

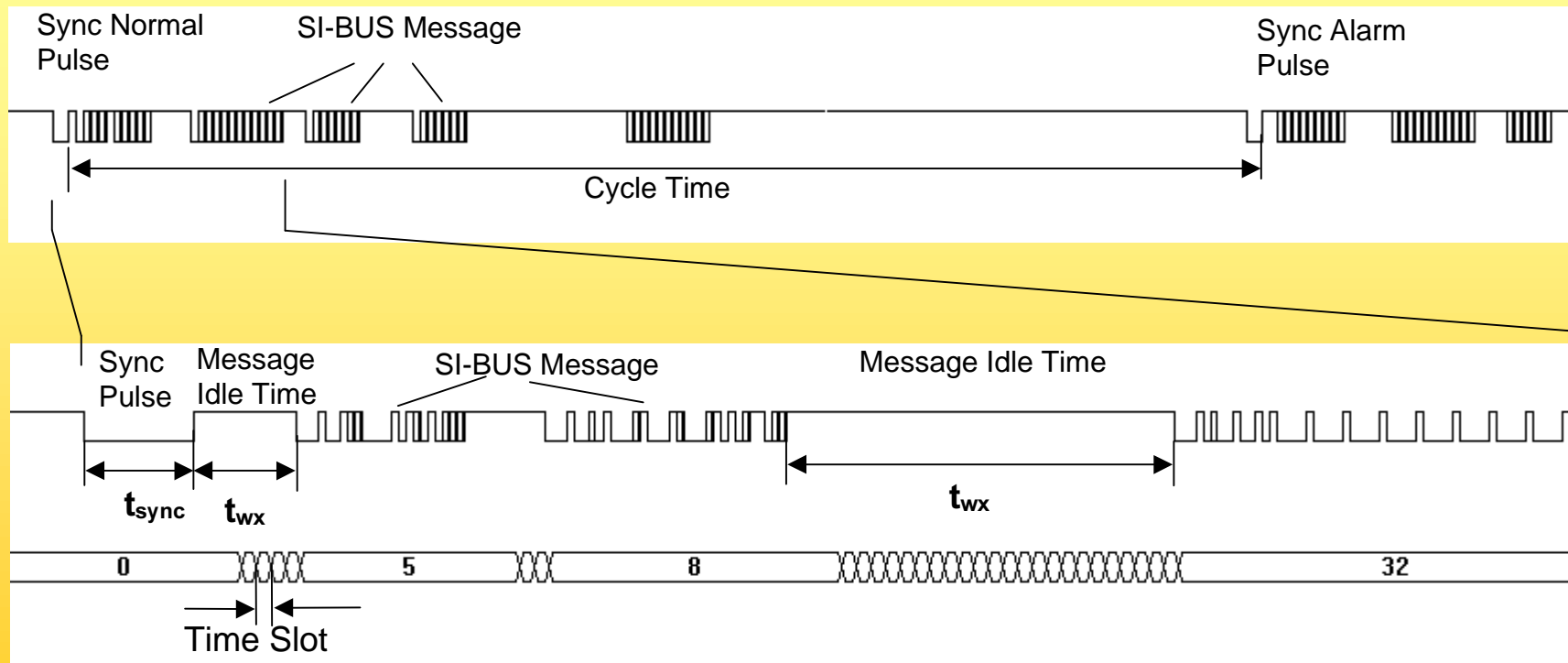
## SI-Bus Timing

### Tested Parameters

- Length of Synchronisation Normal and Alarm Pulse
- Duration of Cycle Time
- Message Idle Times
- Other Timing Parameters

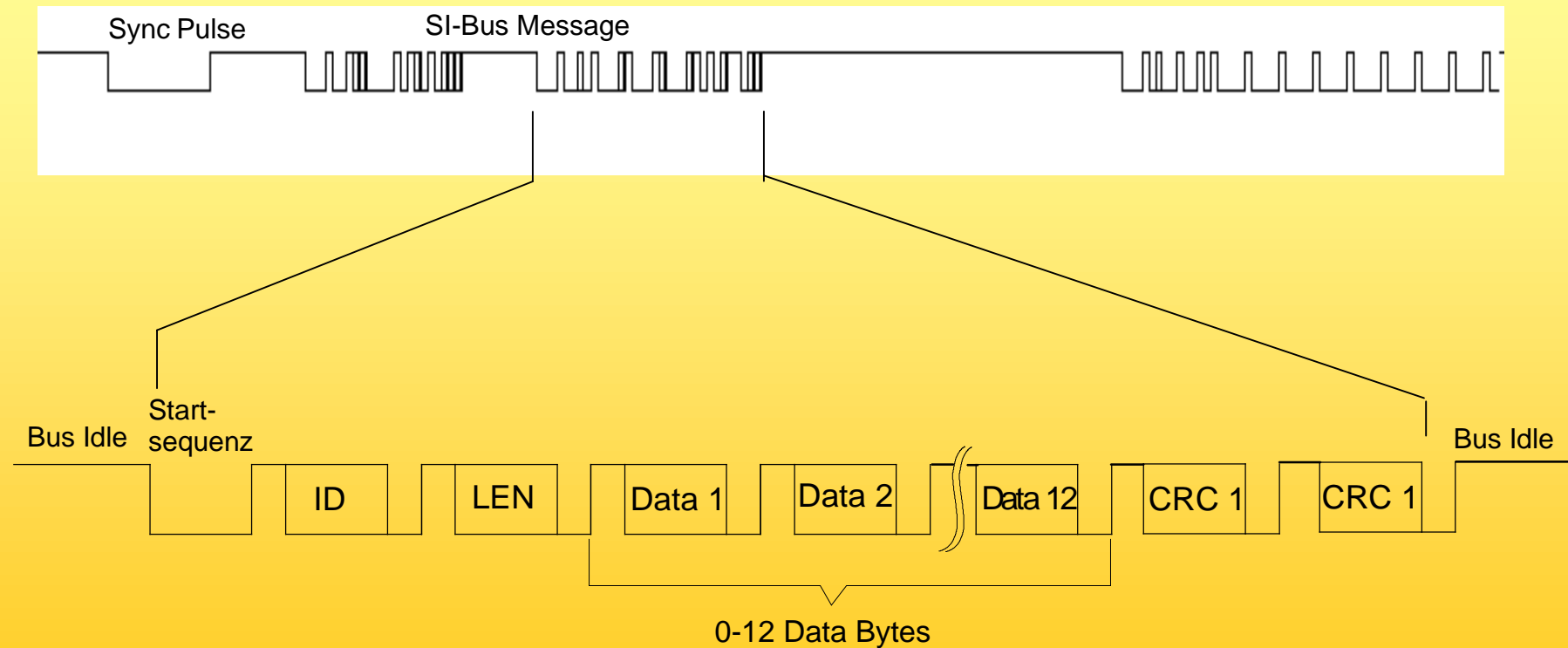
# SI-BUS Conformance Test

## SI-Bus Timing



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## SI-Bus Timing



# SI-BUS Conformance Test

## Receive Buffers

- FIFO Buffer
  - Configuration
  - FIFO overrun
  - Reading of messages from FIFO Buffer
  - Function of control flags
- Receive Buffer
  - Configuration
  - Reading of messages from RX Buffer
  - Function of control flags

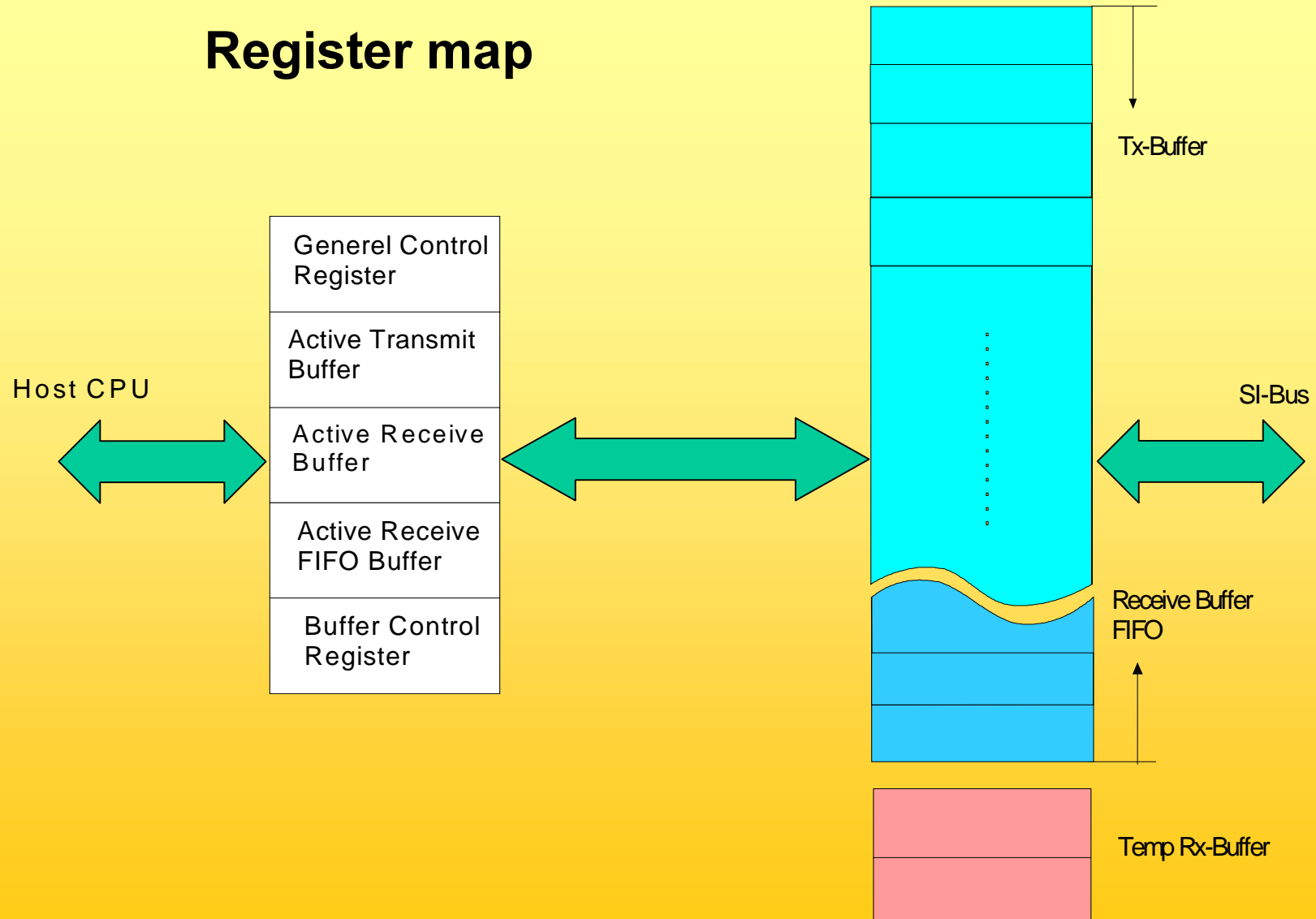
# SI-BUS Conformance Test

## Transmit Buffers

- Transmit Buffer
  - Configuration
  - Transmitting of messages
  - Aborting of messages
  - Function of control flags

# SI-BUS Conformance Test

## Register map



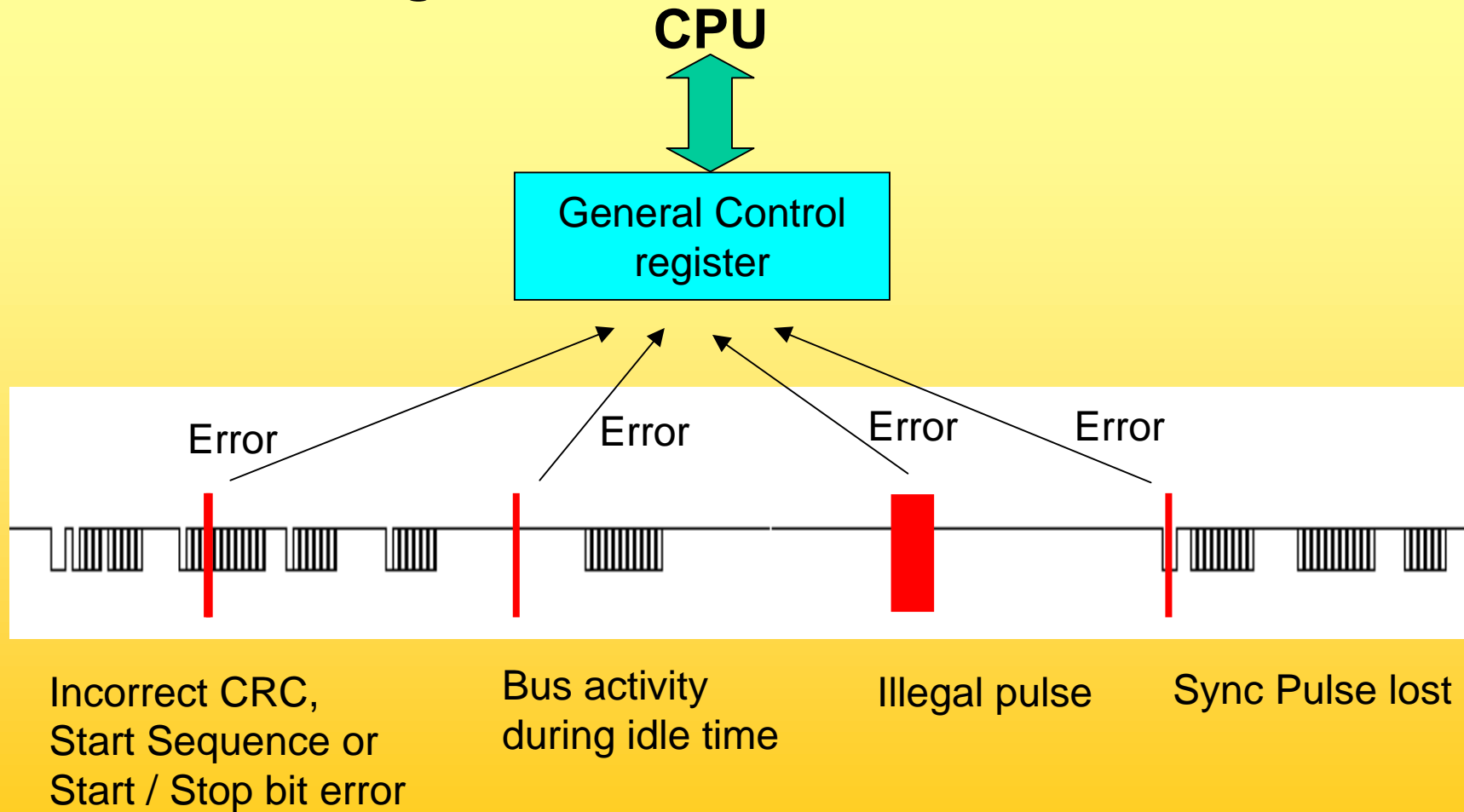
# SI-BUS Conformance Test

## Error Handling

- Detection of bus activity during idle time
- Detection of incorrect messages
  - incorrect CRC
  - corrupted or missing start sequence
  - start or stop bit error
- Detection of illegal pulses
- Detection of lost Sync pulse or too early Sync pulse
- Function of error flags
- Error recovery
  - after illegal pulse
  - after error

# SI-BUS Conformance Test

## Error Handling



# SI-BUS Conformance Test

## SI-Protocol-Controller Interface Testing

