

I3C Host IP Subsystem

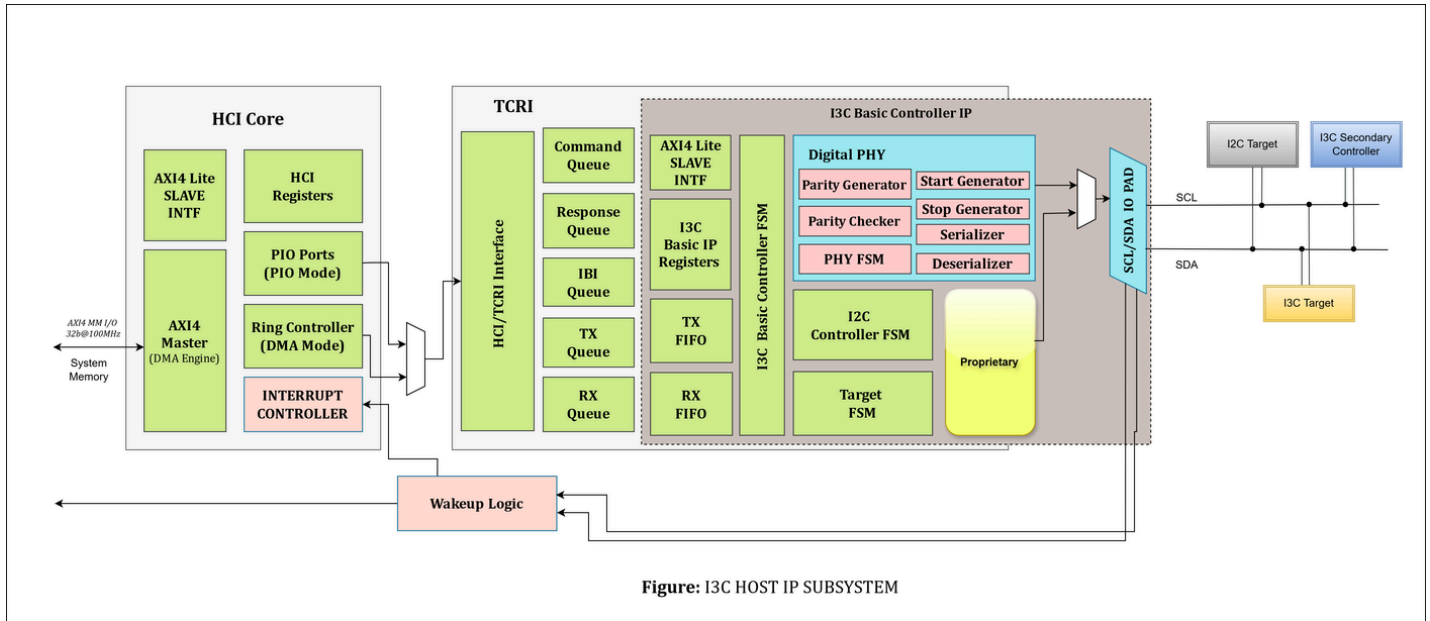
Overview

Our I3C Host IP subsystem is compliant with “MIPI I3C Basic v1.2”, “MIPI I3C HCI v1.2” and “MIPI I3C TCRI v1.0”. This IP operates as an I3C Primary Controller and it supports SDR mode to perform data transfers of up-to 12.5Mb/s. It has In-Band Interrupt support and optional features such as timing controls, DMA mode. The IP is backward compatible and can work along with legacy I2C targets. It also supports JEDEC JESD403-1 specification for DDR5 Sideband communication.

Core Features

- Primary Controller (Controller and Target) Mode
- SDR Mode
- Dynamic Address Assignment (DAA)
- Common Command Code (CCC)
- In-Band Interrupt (IBI)
- Hot Join supported
- Error Detection and Recovery
- Wake Up function
- Group Addressing
- Asynchronous Timing Control
- Backward compatible with Legacy I2C Targets
 - Fast Mode (Fm)
 - Fast Mode Plus (Fm+)
- Up to 255 Write or Read bytes with a single command
- Digital Noise Filter (DNF) on SCL and SDA inputs
- Configurable Features
 - TX and RX FIFO (Depth of up-to 512 locations)
 - Command Queue Depth
 - Response Queue Depth
 - DMA Rings (Up to 8 Command/Response descriptor rings)
 - Frequency Divider for SCL via Configuration registers

Block Diagram



Deliverables

- Clean, readable, synthesizable Verilog/SV source code (RTL) — encrypted
- Complete verification testbench (encrypted), excluding Top and Interface files
- Bare-metal driver 'C' code
- Synthesis scripts
- Lint Report and Clock Domain Crossing (CDC) Report
- Synthesis and Timing Report
- Verification report — Code Coverage and Functional Coverage
- MIPI I3C / HCI Compliance Certification
- Documentation package — Datasheet, Integration Guide, Quick Setup Guide, Test Plan Document, Release Notes
- Known Bug/Issue Log

About Us

Guided by our ethos to "Ignite, Innovate, and Liberate," RiRe Technologies is dedicated to advancing semiconductor innovation. Headquartered in Bengaluru, our focus is on engineering excellence and delivering high-quality, rigorously verified IP solutions. We are committed to building enduring trust with our customers through reliable designs, while proudly contributing to the nation's technological self-reliance.

Contact Us

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