SuperSpeedPlus Dual Role (SSP-DR) Controller

General Description:

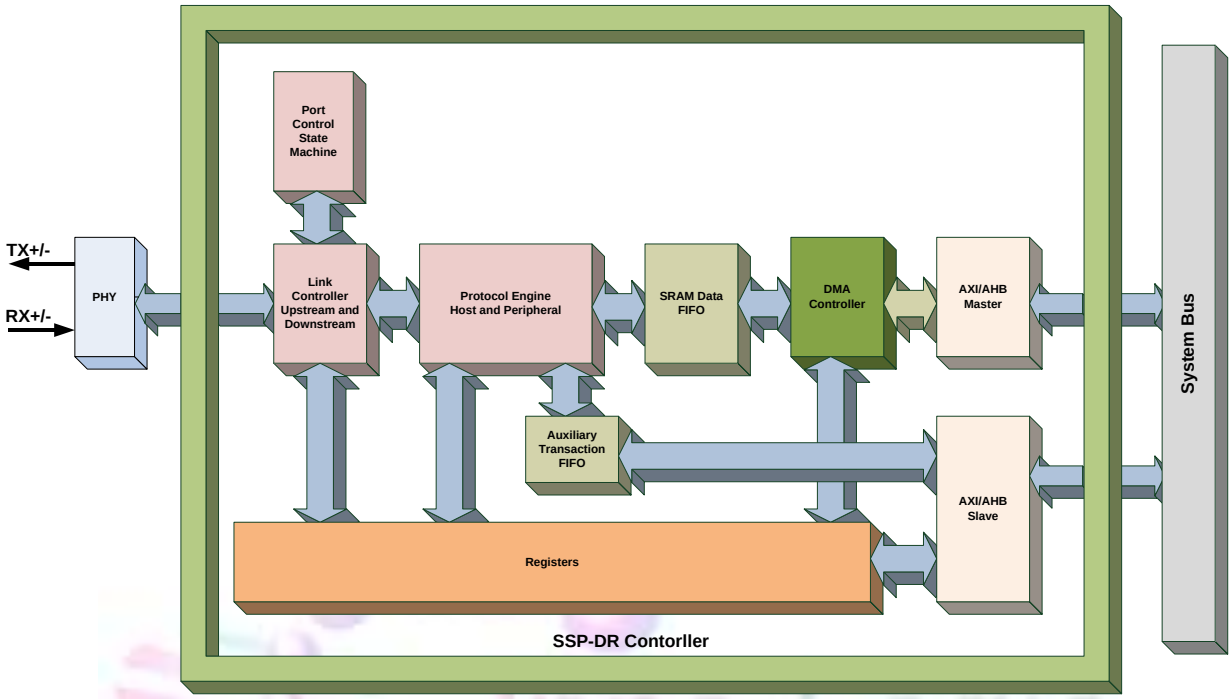
Innovative Logic SSP-DR controller IP is complaint with USB3.1. SSP-DR controller is able to function both as an Embedded USB3.1 Host and a USB3.1 peripheral while operating at SuperSpeedPlus. An external selection input determines the role the controller to take. As Host Innovative Logic SSP-DR controller IP is capable of handling multiple devices.

Innovative Logic SSP-DR controller IP support multiple System bus Interfaces – AHB/AXI/PLB with 32/64 bit data bus.

Features and Specifications:

- Compliant with:
  - USB3.1 specification
  - USB3.1 PIPE interface
    - Support 8/16/32 data bus width
  - AXI, AHB, PLB Bus standards
    - Support 32/64 bit data bus
- Hub Class support
- Support USB3.1 power down modes
- Support Control, Bulk, Isochronous and Interrupt transaction
- Configurable up to 15 transmit and 15 receipt endpoints apart from default endpoint
- Dynamically configurable Endpoint FIFO for optimum usage of memory
- Synchronous SRAM interface for FIFO
- Integrated DMA controller

Block Diagram:



Block diagram of SSP-DR Controller

Target Applications:

- Removable hard disks
- Digital camera
- Printer, scanner etc
- Multimedia Applications
- Mobile phones and Tablets
- TV, DVD players, Set top Boxes

Deliverables:

- Documents
  - Specification Document
  - Micro Architecture document
  - Test bench Architecture Document

  - Test Plan Document
- Synthesizable RTL developed in Verilog
- Constraints for synthesis
- Test bench developed in System Verilog
- Test cases developed in System Verilog
- Functional and Code Coverage report.

