RS-232 Controller

Functional Description

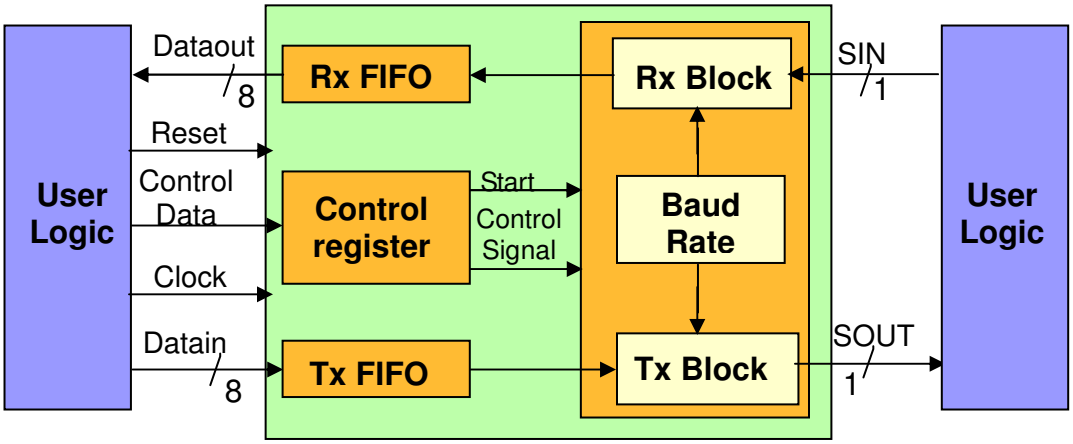
The RS-232 controller provides a easy to use interface for the user to communicate data to other devices using the RS-232 serial transmission protocol. The controller supports full duplex mode. The interface can be configured to operate at different baud rates. User can also configure the number of stop bits to be used and the number of parity bits.

Features

Fully programmable serial interface characteristics, user can set the control register to configure different features of controller :

- 5, 6, 7, or 8 bit characters
- Even, odd, or no-parity bit generation
- 1 or 2 stop bit generation
- Baud generation
- Use of Rx only, Tx only or both
- Number of data bytes to be transferred

Block Diagram:



Performance:

Device	Slice Count	Frequency
Spartan-3A (xc3s700a-4fg484)	49	96.59 MHz
Virtex-4 (xc4vlx25-ff668)	49	150.89 MHz

Verification:

The RS-232 controller module has been verified with following approaches:

- Exhaustive Functional/Timing simulation
- Prototyped on Xilinx Spartan-3A development board

Deliverables:

- Verilog RTL source code
- Test benches
- Synthesis and Simulation scripts
- Detailed user documentation, including RTL source code documentation

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