

SPI Master Slave Communication

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Abstract: *The serial-peripheral interface (SPI) protocol also called asynchronous serial interface specification is used for communication between single master and single/multiple slaves. With the increase in number of slaves causing high complexity of circuit creates a demand in self-test ability feature for SPI module in order to test for fault free circuits. Built-In-Self-Test (BIST) in the answer for self-test in circuits as well as it helps in reduction of maintenance and testing cost. Design of BIST embedded SPI module with single master and single slave configuration has been introduced in these paper, Here 8-bit is transferred across the module, Where the Circuit under Test (CUT) is being Self-Tested with BIST feature for its correctness. This SPI module is designed using Verilog hardware description language(HDL) using EDA playground platform for application like applications specific integrated circuit (ASIC) or system on chip (SOC). SPI stands for the Serial Peripheral Interface. It is a serial communication protocol that is used to connect low-speed devices. It was developed by Motorola in the mid-1980 for inter-chip communication. It is commonly used for communication with flash memory, sensors, real-time clock (RTC), analog-to-digital converters, and more. It is a full-duplex synchronous serial communication, which means that data can be simultaneously transmitted from both directions. The main advantage of the SPI is to transfer the data without any interruption. Many bits can be sent or received at a time in this protocol. In this protocol, devices are communicated in the master-slave relationship. The master device controls the slave device, and the slave device takes the instruction from the master device. The simplest configuration of the Serial Peripheral Interface (SPI) is a combination of a single slave and a single master. But, one master device can control multiple slave devices..*

Keywords: Serial Peripheral Interface

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