35 High Speed Serial Link (HSSL)

The HSSL module provides point-to-point communication of both single data values and of large data blocks, called streams. The communicating devices can be complex microcontrollers, or a microcontroller and a device with only basic execution capabilities. There are four channels to transfer single values to/from target. They support direct writing of 8/16/32 bit data from the initiator into a target's register, as well as reading a value from a target, performed by a modules internal master on the target side. For transferring large data blocks there is a channel containing FIFOs. The HSSL module implements Transport Layer tasks and hands over the data to another module which provides Data Link Layer and Physical Layer services, data serialization and transmission. All transfers are protected by safety features like CRC and timeout.

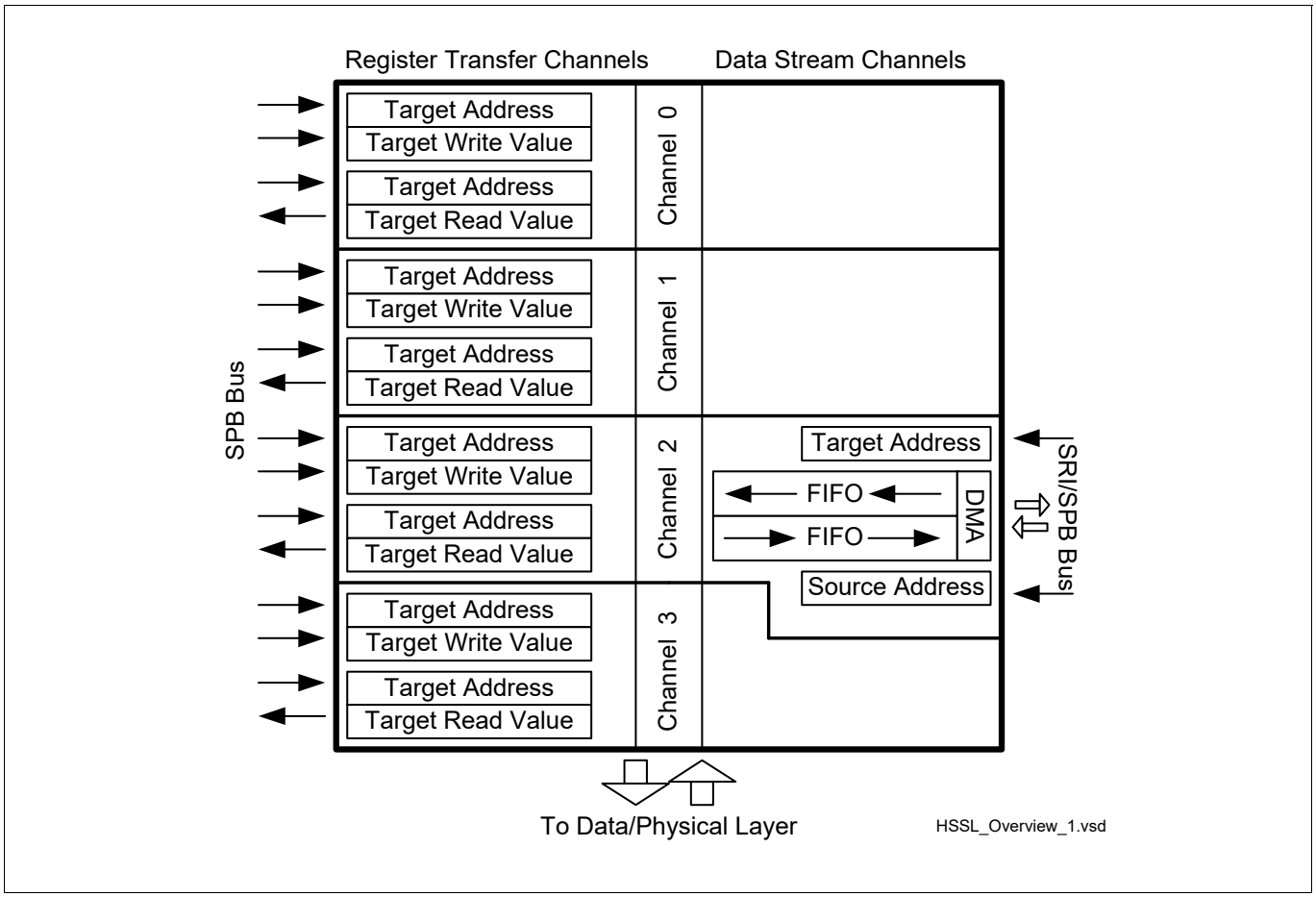

Figure 355 Block Diagram HSSL

35.1 Feature List

- Connects microcontroller to microcontroller or to any digital device
- Writing a single 8 / 16 / 32 bit data value into the register of a target device
- Reading single data from an 8 / 16 / 32 bit register of a target device
- Support of 32-bit address range
- Transfers protected by CRC16
- Programmable time outs for detection of blocked answer transfers
- Automatic frame transfer ID generation for detection of dropped frames
- Support of DMA driven multiple register write / read transfers
- Efficient transmission and reception of large data blocks / streams

- Acknowledge for command and stream frames to reduce latency of error detection
- Two stage FIFOs for transmitting and receiving streaming data
- Automatic FIFO flush when entering the run mode, for error handling
- Write protection by an external Memory Protection Unit MPU
- Remote trigger of event / interrupt in the target device by the initiator
- Identification of the target by the JTAG ID number
- Feature set identification of the HSSL module possible by using the JTAG ID number
- Access protection from an external master