Application Report
SLLA347–January 2014

Link Aggregation Interface Application Sheet

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Communications Interface - CIF

Application

The TLK10081 is used to aggregate eight independent Gigabit Ethernet sources together into one 10 Gbps high-speed serial link.

The low-speed serial data rate received by the TLK10081 device is 1.25 Gbps.

The low-speed serial lanes are then aggregated into one 10 Gbps high-speed serial link that is transmitted downstream either optically or electrically (shown here as an electrical link).

The high-speed serial link is then de-aggregated by a second TLK10081 device with the eight original Gigabit Ethernet sources intact.

The eight lanes of data are then sent to their destination providing a substantial reduction in the number of serial links and the associated power.

Key Requirements

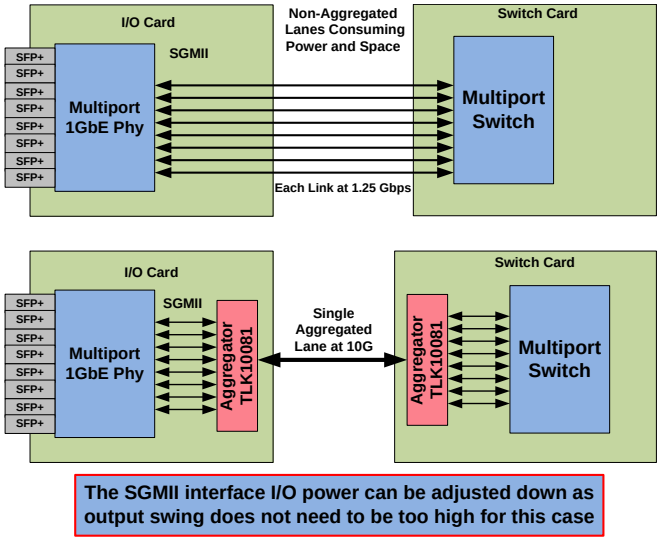
- Voltage supply:
  - Core supply: 1.0 V
  - I/O supply: 1.5 V / 1.8 V
- Clocking: The TLK10081 device supports a large range of frequencies allowing support for many different applications. Some of the typical frequencies that the TLK10081 device supports include:
  - 122.88, 125, 156.25, 153.6, 312.5 MHz

NOTE: Other frequencies are supported.

Aggregation Demo Description

- Eight Sources: 1.25 Gbps/Lane
- Data format: PRBS $2^{31} – 1$
- Bit interleave mode implemented on the TLK10081 device
- 10 Gbps high-speed link

System Impact



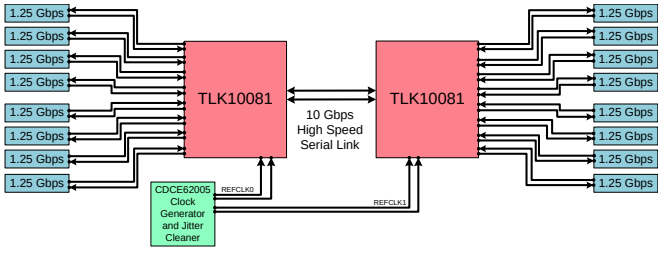
Provisioning

- The TLK10081 device is configured for 8:1 operation, bit interleave mode, link training disabled, and REF_CLK 1
  - Write 0x302 to register 0x01
- Lane marker function enabled for lane alignment
  - Write 0xABC to register 0x17

Documentation References

- TLK10081 tool folders: www.ti.com/tool/tlk10081evm
- TLK10081 data sheet (SLLSEE9)
- EVM user's guide (SLLU187)
- EVM GUI software (SLLU188)
- IBIS-AMI model (SLLM234)

Block Diagram



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