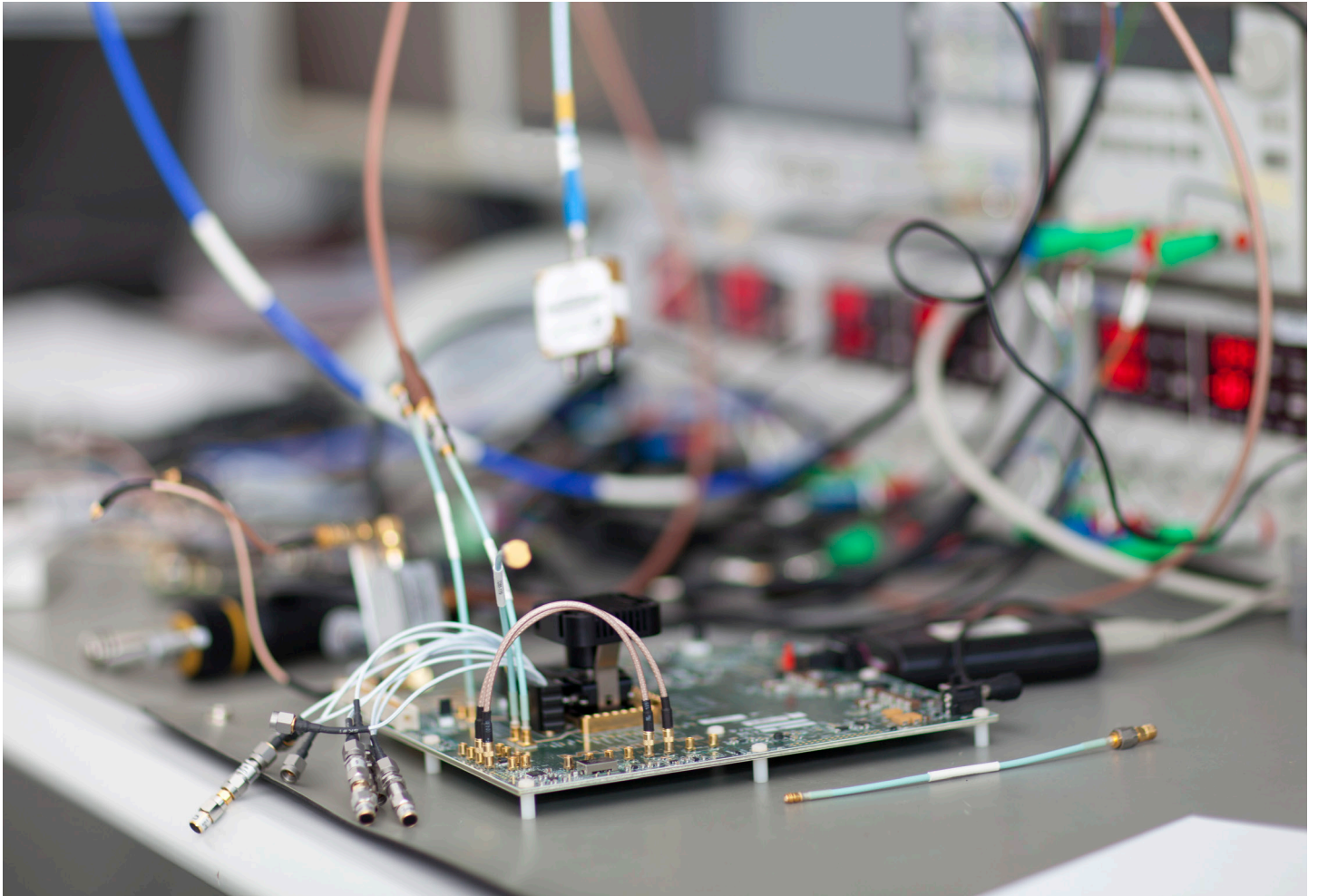


DMT ASSP

100Gbps DMT Transceiver Device SCK101CR3



Overview

The DMT ASSP chip is a complete single-channel Discrete Multi-tone Transmission (DMT) PHY for transmission of 100+Gbps data over short-reach Optical Single Mode Fiber (SMF) using low-cost optics.

DMT ASSP handles all DMT Processing and algorithms using a combination of optimised on-chip hardware for real-time DMT processing and an integrated CPU with firmware for processing of training and background DMT algorithms. The device includes integrated high performance ADC and DAC for direct interface to optical components.

A link communication channel is supported in hardware and firmware for exchange and synchronous updating of bit/power mapping tables, and general end-to-end communication.

Applications

- Optical transport
 - 100Gb/s short haul transmissions systems
 - 50Gb/s medium haul transmissions systems

Key Features

- Complete DMT based PHY targeting single λ 100Gbps optical transmission systems
- Fully transparent to client signal
- Supports any 100Gb/s class client (e.g. 100GE, ODU4, OTU4, 128GFC, CPRI, eCPRI)
- Support for half-rate and quarter-rate clients (e.g. 25GbE, 50GbE)
- Integrated Ultra High-Speed 8-bit ADC/DAC with sampling rate of 55-64GSa/s
- CAUI-4 (c2m) / OTL4.4 compliant system interface
- Optimised hardware engine for real-time DMT data path processing
- On-chip digital Rx timing recovery and low-jitter Rx clock generation
- Single external reference clock required
- Integrated high coding gain FEC
- Comprehensive support for link monitoring and alarm handling
- Integrated ARM® Cortex®-M3 processor for device, link and DMT management
- Out-of-band link communication channel for link negotiation and management
- Auxiliary I/O for compact systems design
- Small footprint - Plastic Flip Chip Package FCBGA-156, 10mm x 10mm, 0.65mm pitch



Transmit Path

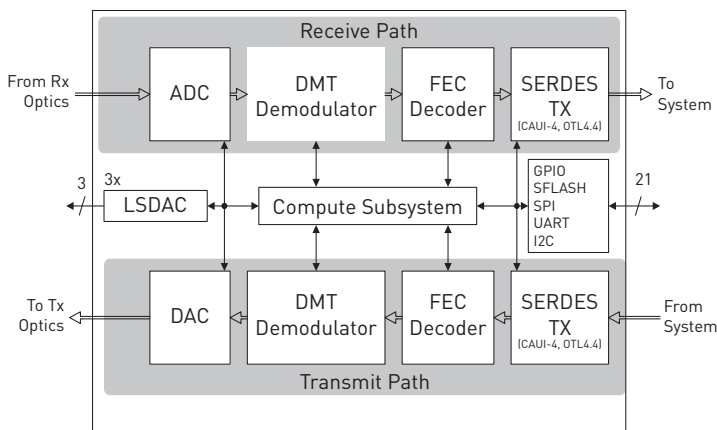
The transmit path accepts a client payload stream through the CAUI-4/OTL4.4 compliant client-side interface, adds FEC protection and provides the final modulated DMT signal to the DAC, which typically drives a direct or externally modulated optical transmitter.

Receive Path

The receive path accepts a DMT modulated electrical signal from an external optical receiver, which is sampled and digitized by the ADC. After demodulation and error correction, the recovered client payload stream is passed to the downstream system through the CAUI-4/OTL4.4 compliant client-side interface. In steady state transmission a maximum frequency offset of 200ppm between Rx and Tx data path is supported.

CPU & Peripherals

A set of common infrastructure elements are used for device configuration and to ensure efficient operation of the main data path. This consists of an ARM® Cortex®-M3 based subsystem, a set of generic I/O ports for interfacing to an external management system and a single channel, high resolution, low speed DAC for external TIA control.



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