

DP83910/NS324910 CMOS Serial Network Interface

General Description

The DP83910 CMOS Serial Network Interface (SNI) is a direct-pin equivalent of the bipolar DP8391 and provides the Manchester data encoding and decoding functions for IEEE 802.3 Ethernet/Thin-Ethernet type local area networks. The SNI interfaces the DP8390 Network Interface Controller (NIC) to the Ethernet transceiver cable. When transmitting, the SNI converts non-return-to-zero (NRZ) data from the controller and clock pulses into Manchester data and sends the converted data differentially to the transceiver. Conversely, when receiving, a phase-locked loop decodes the 10 Mbit/sec data rate.

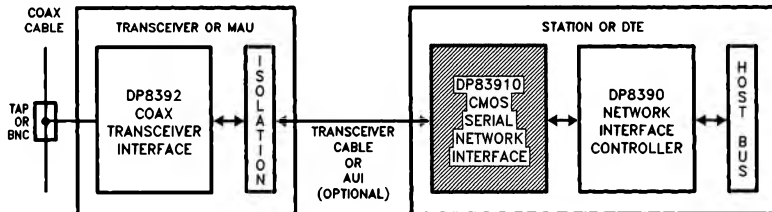
The DP83910 operates in conjunction with the DP8392 Coaxial Transceiver Interface (CTI) and the DP8390 Network Interface Controller (NIC) to form a three-chip set that implements the complete IEEE 802.3 compatible network as shown below. The DP83910 is a functionally complete Manchester encoder/decoder including a balanced driver and receiver, on-board crystal oscillator, collision signal transla-

tor, and a diagnostic loopback feature. The DP83910, fabricated in low-power microCMOS, typically consumes less than 100 mA.

Features

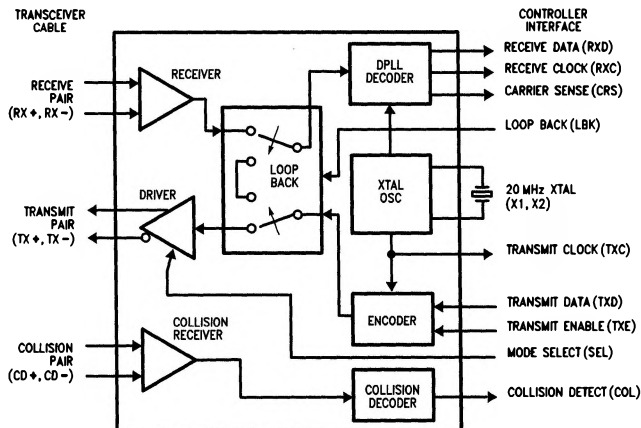
- Compatible with Ethernet II, IEEE 802.3 10base5 and 10base2 (Thin Ethernet)
- Functional and pin-out duplicate of the DP8381
- 10 Mbits/sec Manchester encoding/decoding with receive clock recovery
- Requires no precision components
- Decodes Manchester data with up to ± 20 ns of jitter
- Loopback capability for diagnostics
- Externally selectable half or full step modes of operation at transmit output
- Squelch circuitry at the receive and collision inputs reject noise
- TTL/MOS compatible controller interface
- Connects directly to the transceiver (AUI) cable

1.0 System Diagram



TL/F/9365-1

2.0 Block Diagram



TL/F/9365-2