National Semiconductor

ADVANCE INFORMATION

DP83910
CMOS Serial Network Interface

General Description

The DP83910 CMOS Serial Network Interface (SNI) is a direct-pin equivalent of the bipolar DP8391 SNI 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 DP8392 CTI or an Ethernet transceiver cable. When transmitting, the SNI converts non-return-to-zero (NRZ) data from the controller into Manchester data and sends the converted data differentially to the transceiver. Conversely, when receiving, a Phase Lock Loop decodes the 10 Mbit/s data from the transceiver into NRZ data for the controller.

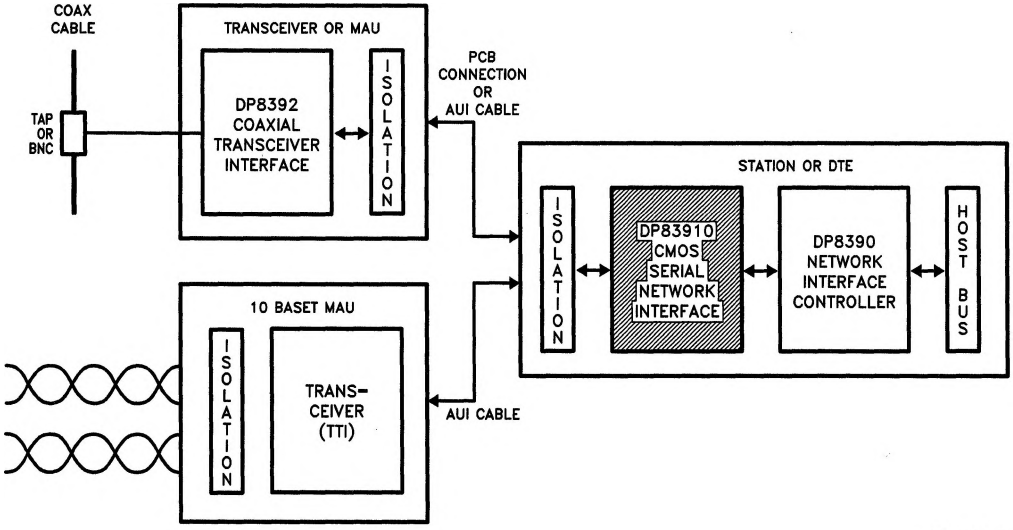
The DP83910 operates in conjunction with the DP8392 Coaxial Transceiver Interface (CTI) and the DP8390 Network Interface Controller (NIC) to form a three-chip set that implements a complete IEEE 802.3 compatible network as shown below. The DP83910 is a functionally complete Manchester encoder/decoder including a balanced driver and receiver, on-board crystal oscillator, collision signal translator, and a diagnostic loopback feature. The DP83910, fabricated in low-power microCMOS, typically consumes less than 70 mA of current. However, as a result of being CMOS, the DP83910's differential signals must be isolated in both Ethernet and thin wire Ethernet.

Features

- Compatible with Ethernet I, IEEE 802.3, 10base5, and 10base2 (Thin-Ethernet)
- Designed to interface with 10 baseT transceivers
- Functional and pin-out duplicate of the DP8391
- 10 Mbits/s 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 to reject noise
- TTL/MOS compatible controller interface

1.0 System Diagram

IEEE 802.3 Compatible Ethernet/Thin-Ethernet/10 Baset Local Area Network Chip Set



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