





■ Data Transmit

- Manchester encoding for 10Mbps and 4B/5B encoding for 100Mbps
- Differential Driver for 100Ohm load
- Collision detection

■ Data Receive

- Adaptive Equalization for received network signals
- Clock recovery and bit synchronization
- Manchester decoding for 10Mbps and 4B/5B decoding for 100Mbps

■ Auto-negotiation

- Automatic selection of link speed for 10M/100M ethernet
- Selects highest data rates

■ Operating Voltage : 3.3V**■ Power consumption : 700mW****■ Process : CMOS 0.35um****■ Package : 64QFP****■ Engineering Sample : 98. 8**

- To provide a simple, inexpensive and easily implemented interconnection between the MAC sublayer and PHY devices and Station management
- Management Station ; provide additional control of auto negotiation through the Management function but the presence of a management agent is not required
- Generating a control signal indicating the availability of the PMD to a PCS or other client and synchronizing with Auto-negotiation
- Provides the auto-negotiation transmit, receive, arbitration and Normal Link Pulse(NLP) receive link integrity test functions
- En-/Decoding of MII data nibbles to/from 5bit code group(4B/5B)
- De-/Serialization of code groups for reception/transmission on the underlying serial PMA
- Mapping of Transmit, Receive, Carrier Sense and Collision between the MII and the underlying PMA
- Generating Carrier Sense and Collision Detect indications

- 4B/5B CODING
- MLT-3
- SCRAMBLING
- CLOCK RECOVERY
- ADAPTIVE RECOVERY
- ADAPTIVE EQUALIZATION
- BASELINE WANDER ; The scrambler causes very long run

- Much Better Bandwidth Efficiency than Manchester Code
- Guarantee Two Transitions in Every Five Bit Intervals
- Provide for Control Systems
- Provide Mechanism for Symbol Frame Synchronization

4B Symbol	5B Symbol
0000	11110
0001	01001
0010	10100
0011	10101
0100	01010
...	...
1110	11100
1111	11101
I	11111
J	11000
K	10001

- Decrease RF emissions by converting to a 3-level code.
 - Prohibit transitions from +1V to -1V state
 - Is not sufficient to meet FCC RF emissions requirements
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- MLT-3 Code (below)

