

## Motorcomm YT8510 Product Brief

The YT8510 is an IEEE 100BASE-TX/10BASE-Te and LRE100-1/LRE10-1 Ethernet physical layer transceiver (PHY).

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### Overview

Besides legacy 100BASE-TX/10BASE-Te, YT8510 supports LRE100/10-1 function. Long Range Ethernet working at 100/10Mbps over 1-pair cable can achieve very long link distance: 300m@100Mbps and 1000m@10Mbps (depending on cable type and individual cable parameters).

When YT8510 connects with IEEE 802.3 complied PHY, IEEE auto-negotiation mechanism shall be started and links up to 100/10BT accordingly.

Once both of YT8510 are connected, LRE function and all the 100/10BT and LRE100/10-1 abilities are enabled by default. They start LDS (Link Discover Signaling) auto-negotiation process, auto detect the cable length, and link up to the proper speed depending on the cable length (link up to LRE100-1 if cable length <300m, otherwise LRE10-1).

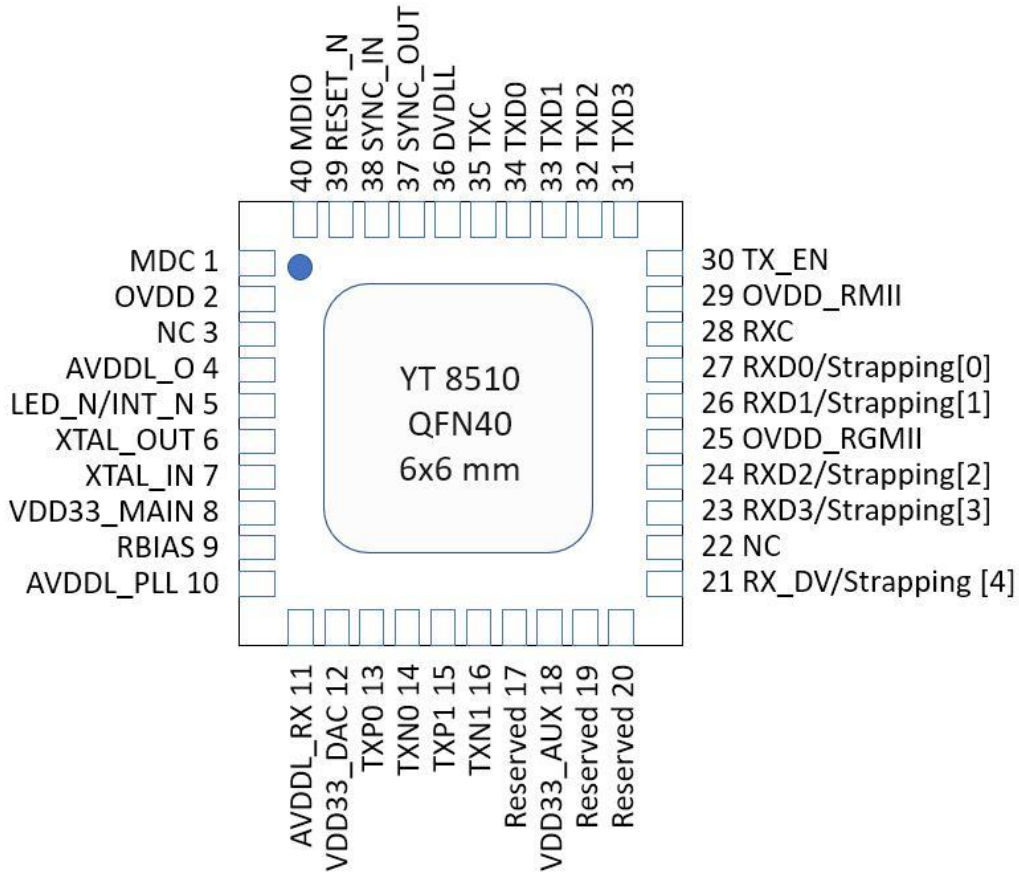
Based on cutting-edge DSP technology, combining adaptive equalizers, echo canceller, ADCs, phase-locked loops, line drivers, encoders/decoders and all other required support circuitry at a 100Mbps data rate to achieve robust performance and exceed automotive electromagnetic interference (EMI) requirements in noisy environments with very low power dissipation.

YT8510 is designed to be fully compliant with RGMII, RMII and MII interface specifications, allowing compatibility with standard Ethernet media access controllers (MACs) and switch controllers.

YT8510 delivers the most comprehensive enterprise technology solution required by industrial application.

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# Pin Assignment



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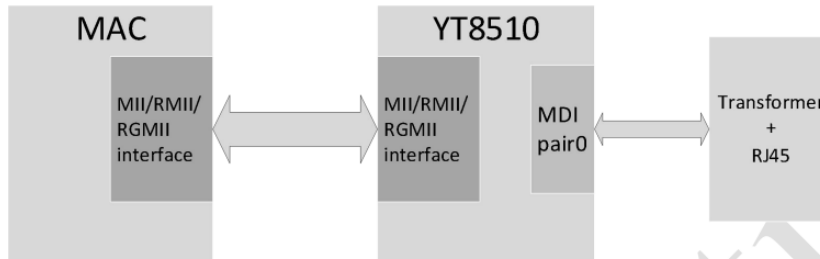
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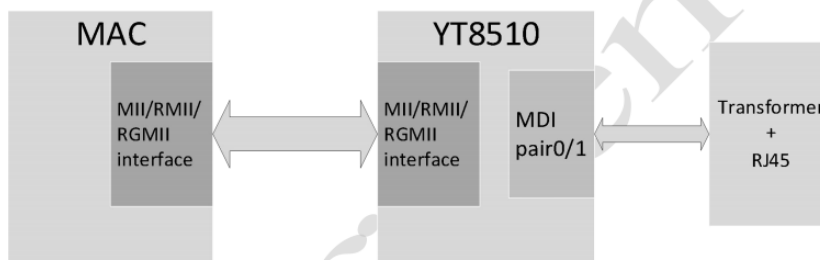
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## Application Diagram

### 4.1.1. LRE100-1/LRE10-1 application



### 4.1.2. 100Base-Tx/10Base-Te application



## Key Features

- Support for the following interfaces via twisted-pair or coaxial cable
  - 100Base-Tx.
  - 10Base-Te.
  - 100Mbps long range ethernet. (Reach over 300 meters via one pair of cat5e twisted-pair cable)
  - 10Mbps long range ethernet. (Reach over 800 meters via one pair of cat5e twisted-pair cable)
- Support IEEE auto-negotiation and LDS (link discover signaling) on twisted-pair cable.
- Support LDS and LRE100/10-1 on coaxial cable
- Support auto cable detection and speed selection.
- MII/RMII/RGMII support
- RMII/RGMII interface EMI enhancement
- Support latency accommodation of RGMII clock
- Support IEEE 802.1AS



- Support POE function
- Automotive Cable Diagnostics support
- Integrated LDO regulator allowing a single 3.3V power supply
- Internal, external and remote loopback mode for diagnosis
- Jumbo frame support up to 16 kB
- Polarity detection and auto/manual correction



## Target Applications

- General Embedded Applications
- Video Surveillance
- Industrial Controls
- Factory Automation

