Motorcomm YT8531 Product Brief

The YT8531(D)(P) is a highly integrated Ethernet transceiver that complies with 10BASE-Te, 100BASE-TX, and 1000BASE-T IEEE 802.3 standards.

Overview

YT8531(D)(P) provides all the necessary physical layer functions to transmit and receive Ethernet packets over CAT.5E UTP cable.
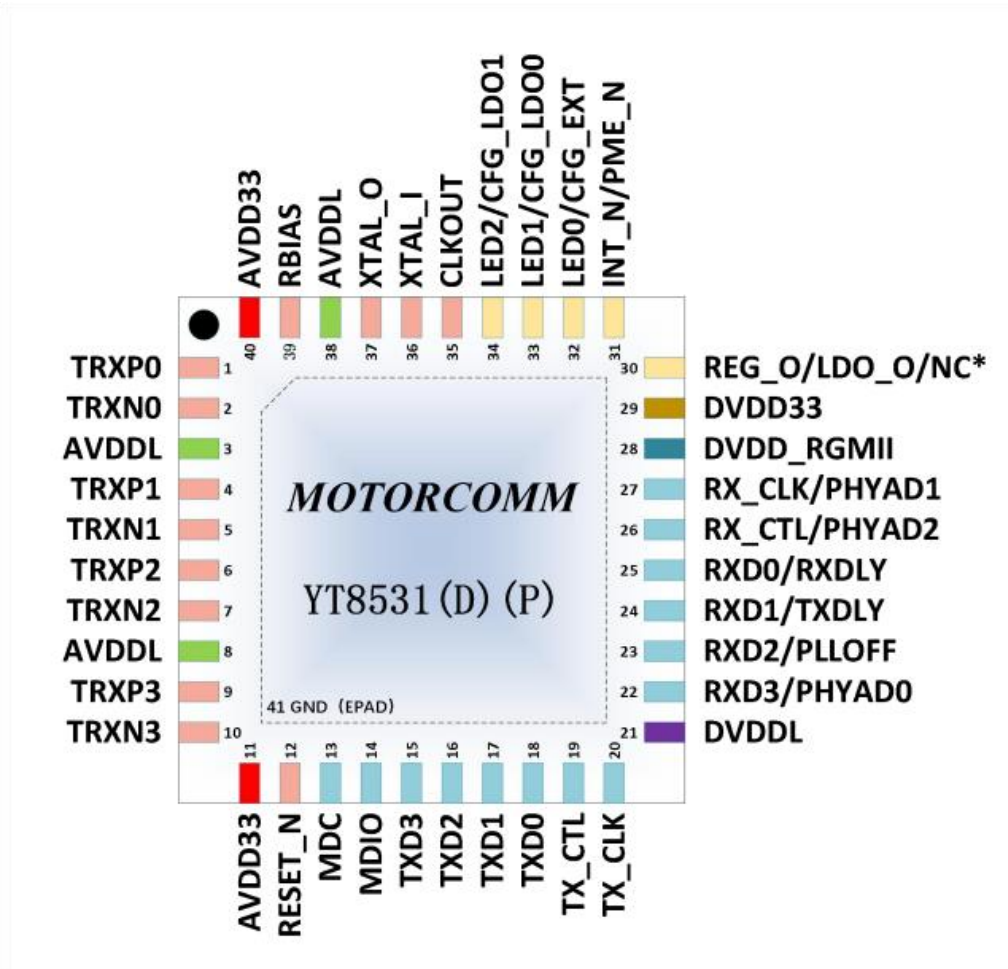
The YT8531(D)(P) uses state-of-the-art DSP technology and an Analog Front End (AFE) to enable high-speed data transmission and reception over UTP cable. Functions such as Crossover Detection & Auto-Correction, polarity correction, adaptive equalization, cross-talk cancellation, echo cancellation, timing recovery, and error correction are implemented in the YT8531(D)(P) to provide robust transmission and reception capabilities at 10Mbps, 100Mbps, or 1000Mbps.

Data transfer between MAC and PHY is via the Reduced Gigabit Media Independent Interface (RGMII) for 1000BASE-T, 100BASE-TX and 10BASE-Te.
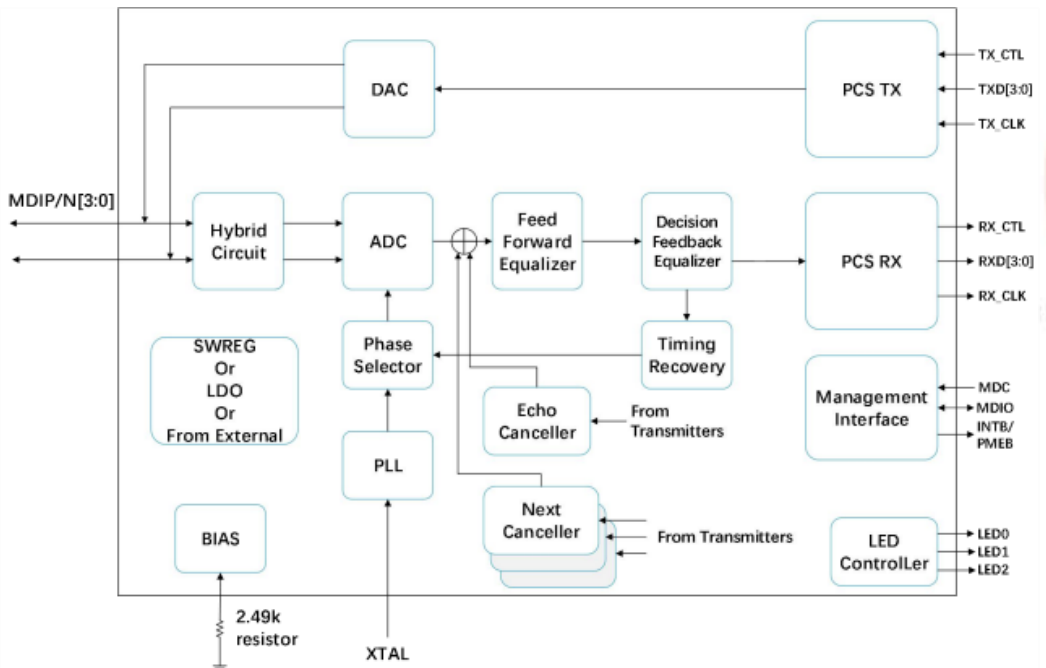
The YT8531(D)(P) supports various RGMII signaling voltages, including 3.3V, 2.5V, and 1.8V.

The YT8531(D)(P) features a Motorcomm proprietary feature called LRE100-4, which enables the device to auto-negotiate and link up with LRE100-4 compliant link partners in extended cable reach applications up to 400 meter at 100Mbps over CAT.5E cable.
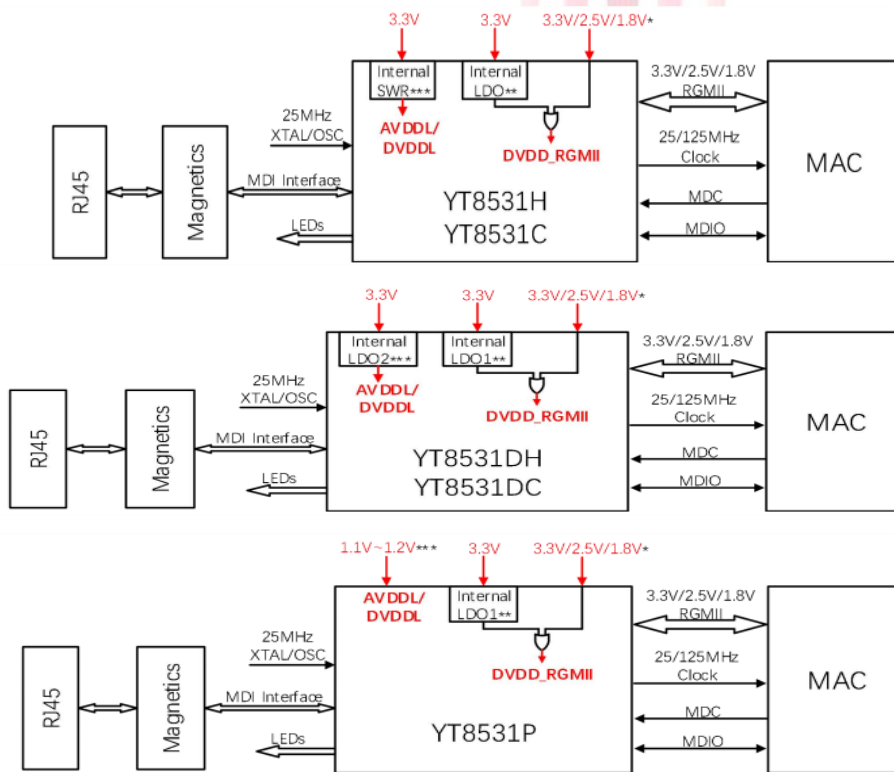
Pin Assignment

Block Diagram

Application Diagram

Key Features

- 1000BASE-T IEEE 802.3ab Compliant
- 100BASE-TX IEEE 802.3u Compliant
- 10BASE-Te IEEE 802.3 Compliant
- Support LRE100-4 for YT8531D/YT8531P
  - Long Reach Ethernet up to 400 meter @100Mbps by 4-pairs in the CAT.5E UTP cable
- Supports RGMII
- Supports IEEE 802.3az-2010 (Energy Efficient Ethernet)
- Supports Synchronous Ethernet (Sync-E)
- Built-in Wake-on-LAN (WOL) over UTP
- Supports interrupt function over UTP
- Supports Parallel Detection
- Crossover Detection & Auto-Correction
- Automatic polarity correction
- Baseline Wander Correction
- Supports 120m for CAT.5E cable in 1000BASE-T
- Selectable 3.3V/2.5V/1.8V signaling for RGMII.
- Supports 25MHz external crystal or OSC
- Provides 25MHz/125MHz clock source for MAC
- Provides 3 network status LEDs
- Supports Link Down Power Saving (Sleep Mode)
- Built-in Switching Regulator or LDO
- Supports 18k bytes jumbo frame for 1000BASE-T and 100BASE-TX, and 10k bytes for 10BASE-Te
- Industrial grade manufacturing process for YT8531H and YT8531DH
- 40-pin QFN Green Package

Target Applications

- DTV (Digital TV)
- MAU (Media Access Unit)
- CNR (Communication and Network Riser)
- Game Console
- Printer and Office Machine
- DVD Player and Recorder
- Ethernet Hub
- Ethernet Switch
- Base Stations and Controllers
- Routers, DSLAMs, PON Equipment
- Test and Measurement Systems
- Industrial and Factory Automation Equipment
- Multimedia synchronization and Real Time Networking
- Any embedded system with an Ethernet MAC that needs a UTP physical