

## Motorcomm YT8531S Product Brief

The YT8531S is a highly integrated Ethernet transceiver that complies with 10BASE-Te, 100BASE-TX, and 1000BASE-T IEEE 802.3 standards.

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### Overview

YT8531S provides all the necessary physical layer functions to transmit and receive Ethernet packets over CAT.5E UTP cable.

The YT8531S 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 YT8531S to provide robust transmission and reception capabilities at 10Mbps, 100Mbps, or 1000Mbps.

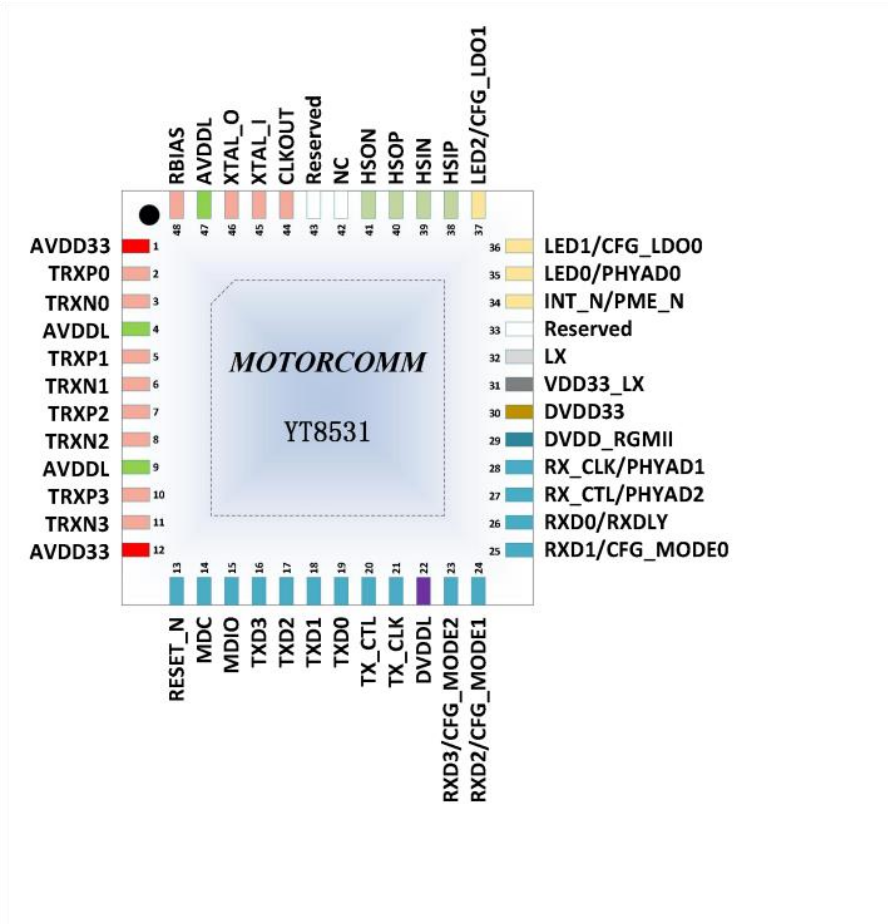
Data transfer between MAC and PHY is via the Reduced Gigabit Media Independent Interface (RGMI), or Serial Gigabit Media Independent Interface (SGMI) for 1000BASE-T, 100BASE-TX and 10BASE-Te.

The YT8531S supports various RGMI signaling voltages, including 3.3V, 2.5V, and 1.8V.

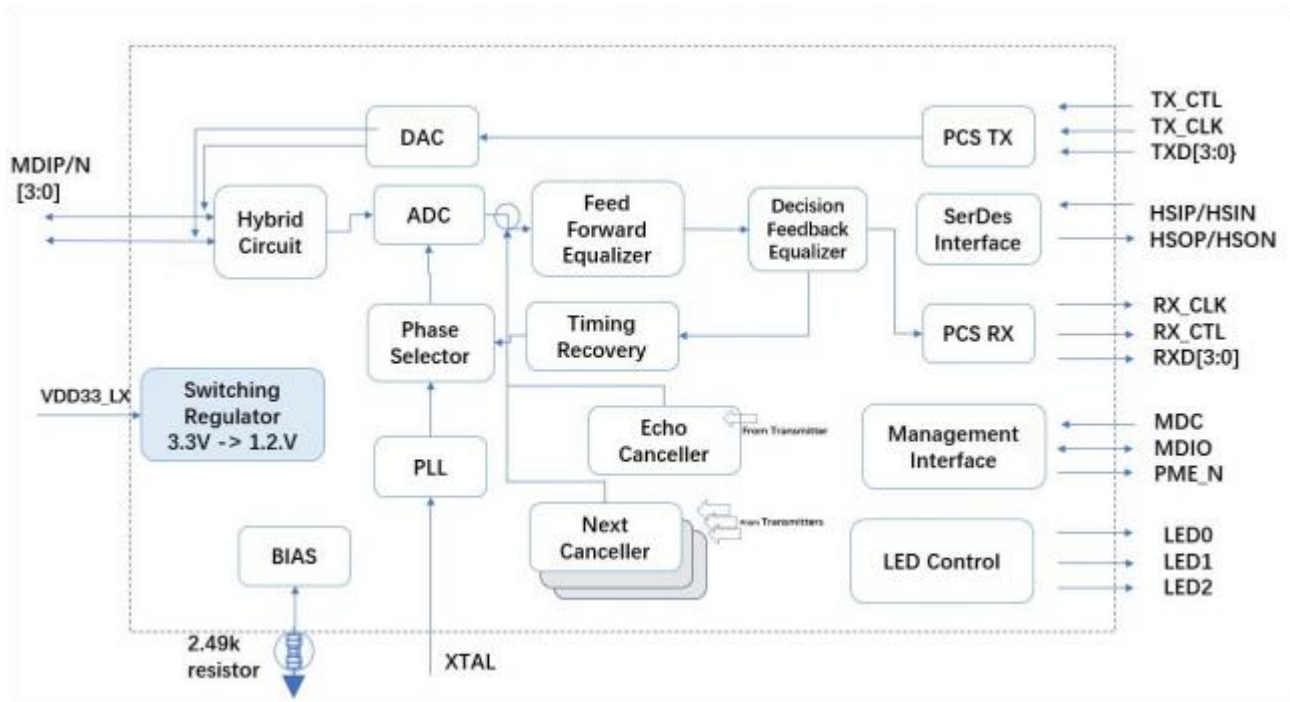
The YT8531S also supports a SerDes interface that can be configured as SGMI, 1000BASE-X or 100BASE-FX.

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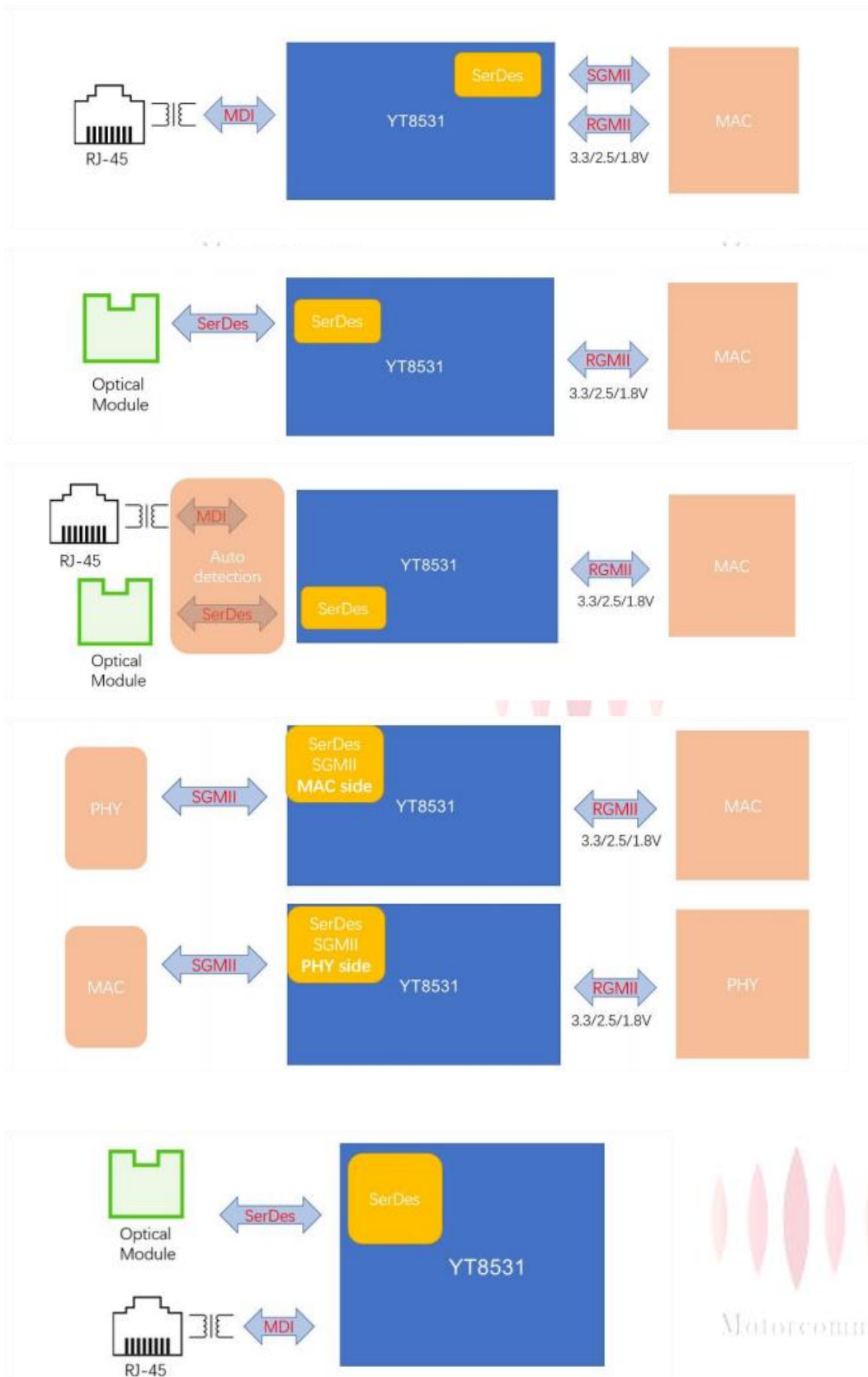
# Pin Assignment



# 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 1000BASE-X / 100BASE-FX
- Support LRE100-4
  - Long Reach Ethernet up to 400 meter @100Mbps by 4-pairs in the CAT.5E UTP cable
- Supports RGMII/SGMII MAC interface
- Supports IEEE 802.3az-2010 (Energy Efficient Ethernet)
  - EEE Buffering
  - Incorporates EEE buffering for seamless support of legacy MACs
- Supports Synchronous Ethernet (Sync-E)
- Built-in Wake-on-LAN (WOL) over UTP/Fiber
- Supports interrupt function over UTP/Fiber
- 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 125MHz clock source for MAC
- Provides 3 network status LEDs
- Supports Link Down Power Saving (Sleep Mode)
- Built-in Switching Regulator and LDO
- Industrial grade manufacturing process
- Supports SERDES (SGMII/1000BASE-X )
- Supports Fiber-to-UTP Media Convertor mode or SGMII-to-RGMII Bridge mode
- Supports UTP/Fiber Auto Detection
- Supports 18k bytes jumbo frame when 1000BASE-T and 100BASE-TX, and 10k bytes when 10BASE-Te
- 48-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