



HT8531(D)H/HT8531(D)C/HT8531P

Single-port Gigabit Ethernet physical layer transceiver

1.intro

HT8531H/HT8531C/HT8531DH/HT8531DC/HT8531P is a highly integrated Ethernet transceiver that complies with the 10BASE-T_e, 100BASE-TX and 1000BASE-T IEEE 802.3 standards . All physical layer functionality required to transmit and receive Ethernet packets over CAT5E UTP cables is provided.

The HT8531(D)(P) uses the most advanced DSP technology and analog front end (AFE) to enable high-speed data transmission and reception over UTP cables. HT8531(D)(P) realizes cross detection and automatic correction, polarity correction, adaptive equalization, crosstalk cancellation

Remove, echo cancellation, timing recovery, and error correction to provide powerful 10Mbps, 100Mbps, or 1000Mbps transmission and reception capabilities.

Data transfer between MAC and PHY is via the Reduced Gigabit Media Independent Interface (RGMII) of 1000BASE-T, 100BASE-TX, and 10BASE-T_e. The HT8531(D)(P) supports a variety of RGMII signal voltages, including 3.3V, 2.5V, and 1.8V.

The HT8531(D)(P) features a Motorcomm proprietary feature called LRE100-4 that enables the device to automatically negotiate and connect with LRE100-4 compliant link partners at 100Mbps in extended cable range applications (CAT5E cables up to 400 meters).

Commercial grade models: HT8531C HT8531DC, HT8531P

Industrial model :HT8531H,HT8531DH

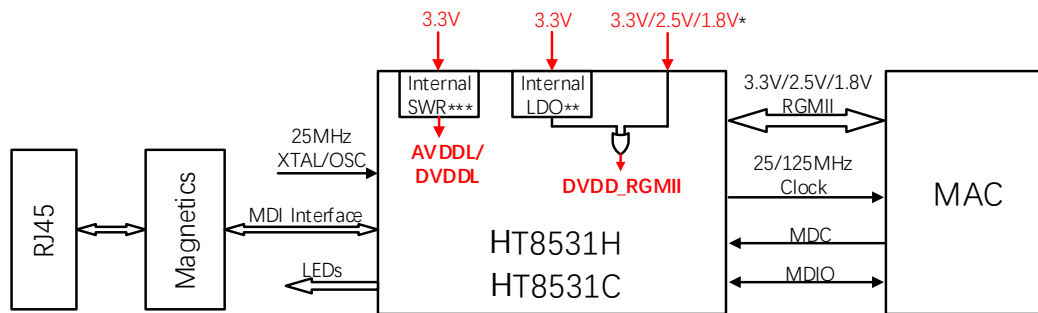
Apply

- Digital television
- Game machine
- Printers and office machines
- DVD player and video camera
- Ethernet switch
- Base station and controller
- Router
- PON equipment
- Test and measurement systems
- Industrial and factory automation equipment
- Multimedia synchronization and real-time networking
- Embedded systems with Ethernet MAC that require a UTP physical connection



Application block diagram

HT8531H/HT8531C

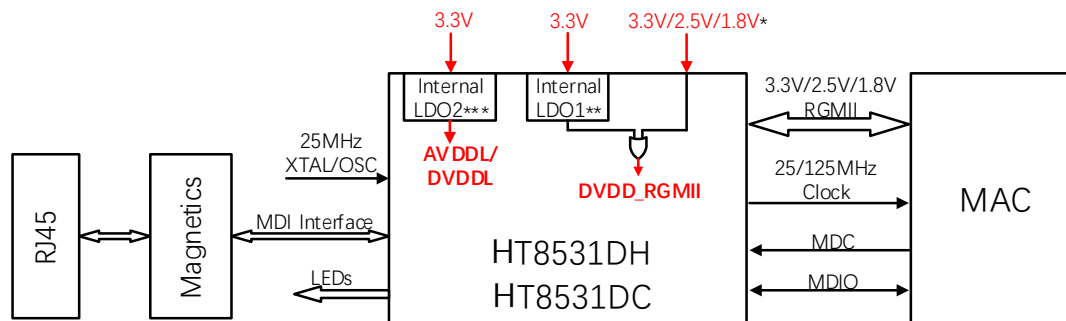


**Note: 3.3V/2.5V/1.8V power here means I/O power sourced from external power, not from the internal LDO.*

***Note: I/O power only support 2.5V/1.8V when sourced from the internal LDO.*

****Note: Internal SWR is for HT8531H/HT8531C.*

HT8531DH/HT8531DC



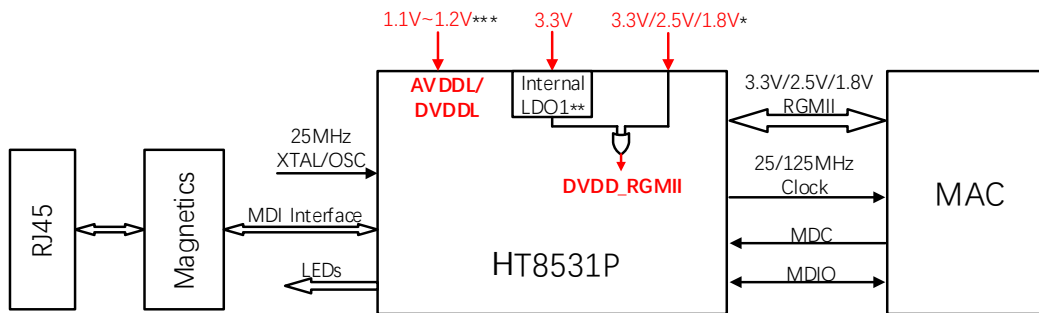
**Note: 3.3V/2.5V/1.8V power here means I/O power sourced from external power, not from the internal LDO.*

***Note: I/O power only support 2.5V/1.8V when sourced from the internal LDO.*

****Note: Internal LDO2 is for HT8531DH/HT8531DC*



HT8531P



**Note: 3.3V/2.5V/1.8V power here means I/O power sourced from external power, not from the internal LDO.*

***Note: I/O power only support 2.5V/1.8V when sourced from the internal LDO.*

****Note: 1.1V~1.2V means core power sourced from external power for HT8531P.*

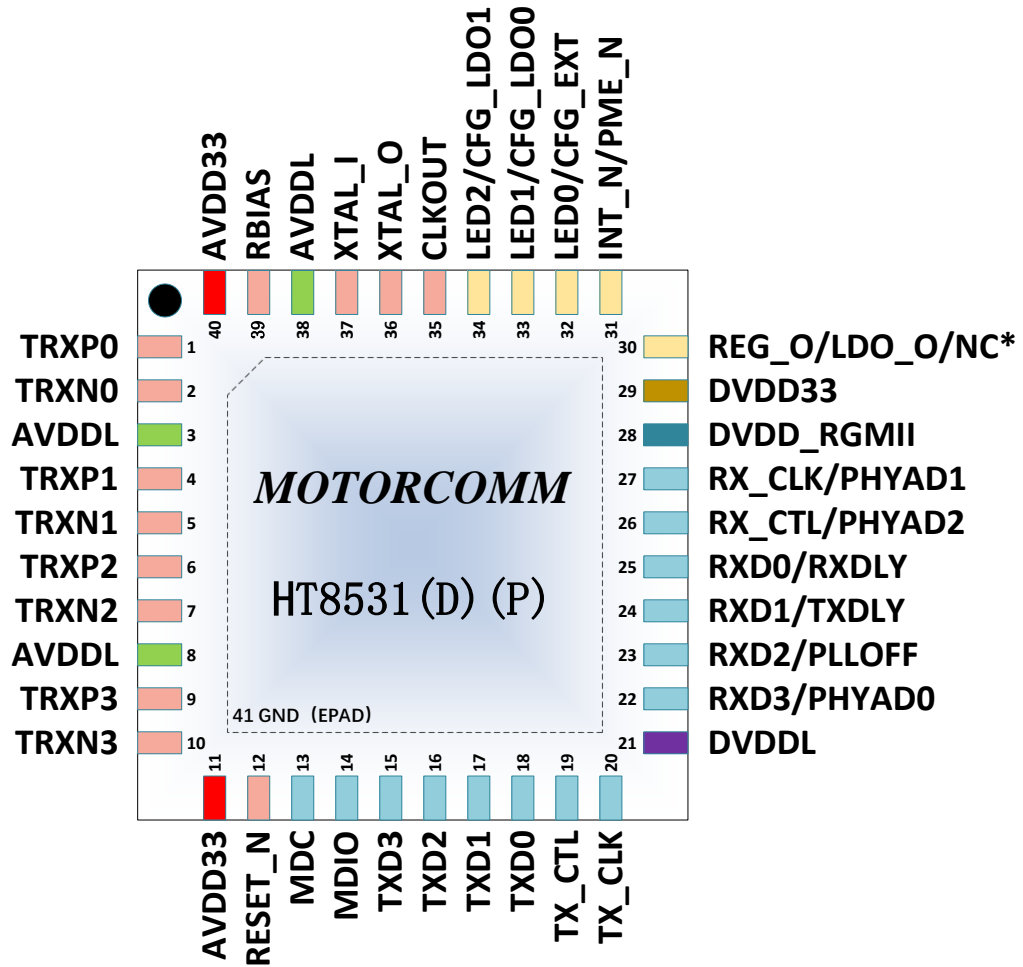


2. Main function

- 1000BASE-T IEEE 802.3ab Compliant
- 100BASE-TX IEEE 802.3u Compliant
- 10BASE-Te IEEE 802.3 Compliant
- Support LRE100-4 only for HT8531D/HT8531P
 - 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 (HT8531H/HT8531DH)
- 40-pin QFN Green Package



3.pin



**Note:*

For HT8531H/HT8531C, pin 30 is REG_O, which means switch regulator output

. For HT8531DH/HT8531DC, pin 30 is LDO_O, which means LDO output.

For HT8531P, pin 30 is NC, which means no connection.