Realtek RTL8019

Full-Duplex Ethernet Controller with Plug and Play Function

DESCRIPTION

The RTL8019 is a highly integrated Ethernet Controller which offers a simple solution to implement a Plug and Play NE2000 compatible adapter with full-duplex and power down features. With the three level power down control features, the RTL8019 is made to be an ideal choice of the network device for a GREEN PC system. The full-duplex function enables simultaneously transmission and reception on the twisted-pair link to a full-duplex Ethernet switching hub. This feature not only increases the channel bandwidth from 10 to 20 Mbps but also avoids the performance degrading problem due to the channel contention characteristics of the Ethernet CSMA/CD protocol. The Microsoft's Plug and Play function can relieve the users from pains of taking care the adapter's resource configurations such as IRQ, I/O, and memory address, etc. However, for special applications not to be used as a Plug and Play compatible device, the RTL8019 also supports the jumper and proprietary jumperless options.

To offer a fully *plug and play* solution, the RTL8019 provides the auto-detect capability between the integrated 10BaseT transceiver and AUI interface. Besides, the 10BaseT transceiver can automatically correct the polarity error on its receiving pair. Furthermore, 8 IRQ lines and 16 I/O base address options are provided for grand resource configuration flexibility.

The RTL8019 supports 16k, 32k & 64k byte BROM. It also offers the page mode function which can support up to 4M-byte BROM within only 16k-byte system memory space. Besides, the BROM disable command is provided to release the BROM memory space for other system usage (e.g. EMM386, etc.) after the BROM program is loaded.

FEATURES

- 100-pin PQFP
- Compliant to Ethernet II and IEEE802.3 10Base5, 10Base2, 10BaseT
- Software compatible with NE2000 on both 8 and 16-bit slots
- Supports both jumper and jumperless modes
- Supports Microsoft's Plug and Play configuration for jumperless mode
- Supports Full-Duplex Ethernet function to double channel bandwidth
- Supports three level power down modes:
    - Sleep
    - Power down with internal clock running
    - Power down with internal clock halted
- Built-in data prefetch function to improve performance
- Provides auto-detect capability between integrated 10BaseT transceiver and Attachment Unit Interface (AUI).
- Supports auto polarity correction for 10BaseT
- Support 8 IRQ lines
- Supports 16 I/O base address options
- Supports 16K, 32K, 64K and 16K-page mode access to BROM (up to 256 pages with 16K bytes/page)
- Supports BROM disable command to release memory after remote boot
- Use two 8K or single 32K byte SRAM as local buffer memory
- Use 9346 (64*16-bit EEPROM) to store resource configurations and ID parameters
- Capable of programming blank 9346 on board for manufacturing convenience
- Support 4 diagnostic LED pins with programmable outputs