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Advance Information

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DESCRIPTION

The SSI 78Q8370 is a highly integrated Ethernet IC for use in PCMCIA (Personal Computer Memory Card International Association) applications. It contains a Media Access Controller (MAC), a 10 Mbit/s Manchester encoder/decoder (ENDEC), a 10BaseT transceiver, a memory-card bus interface (PCMCIA), and an Attachment Unit Interface (AUI). This level of integration allows the user to implement a PCMCIA card for 10BaseT using only the SSI 78Q8370, external SRAM, and some passive components. The internal bus interface circuit allows connection to a PCMCIA 2.0 bus without other external components. The SSI 78Q8370 connects to twisted-pair media via line transformers through the on-chip transceiver circuit. Connection to other media such as coaxial cable is made through the AUI port to an external transceiver, such as the SSI 78Q8330 Ethernet Coax Transceiver.

The SSI 78Q8370 has a sophisticated power management capability with three different operating modes allowing the user to maximize power savings, making it ideal for use in PCMCIA applications. During normal operation, the IC monitors its own actions and shuts down the circuits that are not being used, resulting in the lowest possible operating power. It also has a standby mode which leaves only the oscillator running, and a full shutdown mode which also turns off the oscillator.

An intelligent Buffer Manager is controlled by the host read, host write, receive and transmit pointers, and the SSI 78Q8370 manages the pointers internally without any host intervention. The device interleaves access to the buffer memory so that accesses from the host and from the network media seem to operate concurrently. Interface with the host can be accomplished by memory mapping or I/O mapping. Big and little endian byte orderings make for simple bus interface to all standard microprocessors.

The SSI 78Q8370 is available in both a 100-lead QFP and thin QFP (TQFP) packages, and uses a single 5V supply.

FEATURES

- **Single-chip solution for 10BaseT/PCMCIA designs**
- **Integrated 10BaseT transceiver:**
  - **Programmable/automatic selection of twisted pair (RJ45) or AUI port**
  - **Receive polarity detection/correction on twisted-pair inputs**
- **Manchester Encoder/Decoder circuit**
- **AUI port for connection to 10Base2/5 transceiver or AUI cable**
- **Integrated bus interface compliant with PCMCIA 2.0 specification**
- **Protocol Contoller compliant with IEEE 802.3 and Ethernet 2.0**
- **Advanced Buffer Manager architecture:**
  - **Automatic management of all pointers**
  - **Allows "simultaneous" access to data in buffer memory by both the network and host**
  - **High-speed received packet skip**
- **Configurable Buffer Memory for design flexibility:**
  - **Two-bank transmit buffer in 2, 4, 8, or 16 Kbyte sizes**
  - **Ring-structure receive buffer from 4 to 30 Kbytes**
- **Software-configurable system bus structure:**
  - **Compatible with major microprocessors**
  - **8- or 16-bit wide data path communications with hosts**
- **Power management options include:**
  - **Intelligent power mode automatically shuts off unused circuitry**
  - **Standby mode reduces power while not in operation**
  - **Full power-down mode offers maximum power savings**
- **Three different loopback modes**
- **Multicast address filtering via 64-element hash table**
- **Available in 100-lead QFP and TQFP**
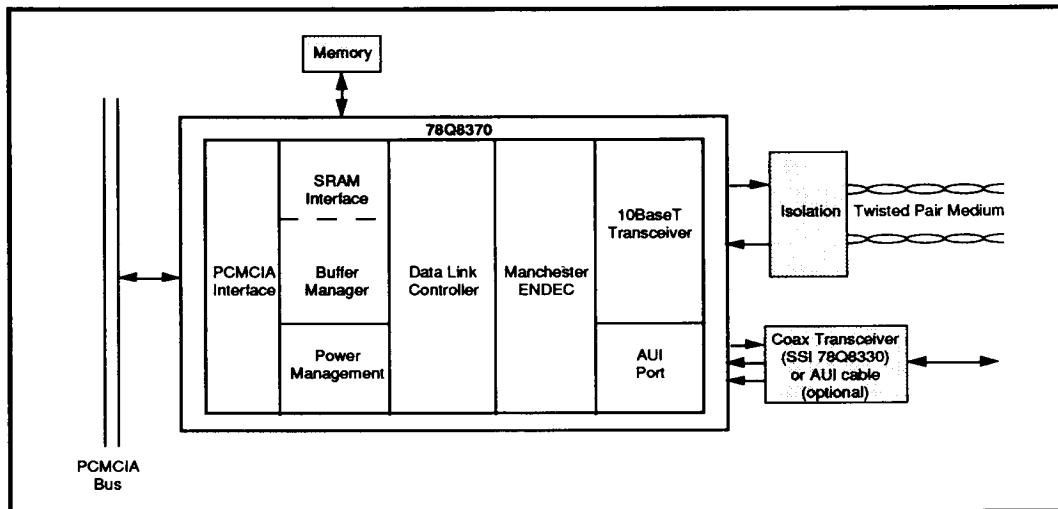
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SSI 78Q8370
PCMCIA
Ethernet Combo

FIGURE 1: System Diagram

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