KSZ8841
PMQL/PMQLI
Product Brief

Ethernet MAC Controller with PCI Interface

Description

The KSZ8841P is a single chip Fast Ethernet MAC controller with a 32 bit/33MHz PCI processor interface. The KSZ8841P is fully compliant with the IEEE 802.3u standard. It will also be available in an Industrial Temperature part, the KSZ8841-PMQLI from Q1 2006.

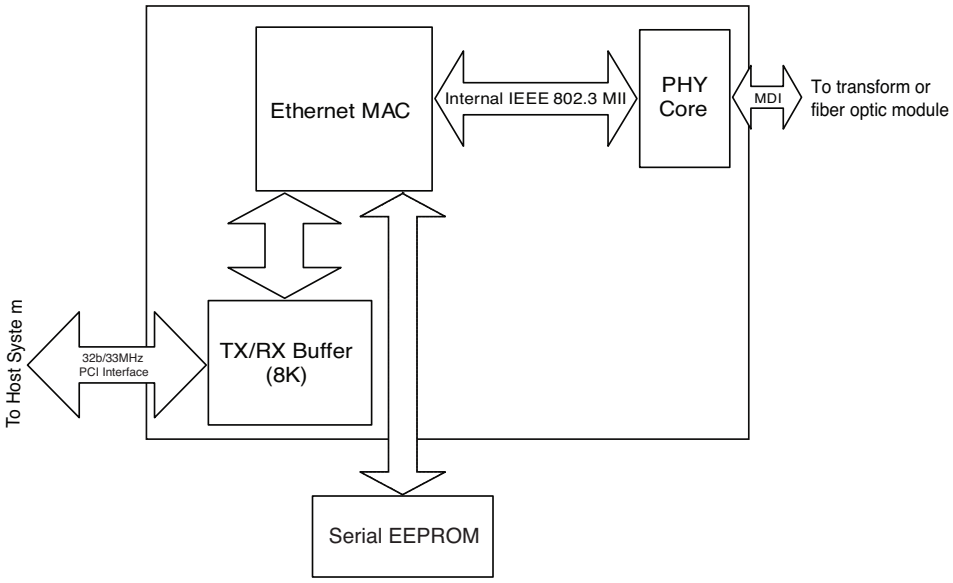
Physical signal transmission and reception are enhanced through the use of analog circuitry that makes the design more efficient and allows for lower power consumption and smaller chip die size. The KSZ8841P is designed with a low-power CMOS design and a high-performance process that uses a single 3.3V power supply with 5V tolerant I/O.

The KSZ8841P is a mixed signal analog/digital device offering wake-on-LAN technology. Its extensive feature set includes management information base (MIB) counters and CPU control/data interfaces to effectively address both current and emerging Fast Ethernet applications.

Benefits

- Single chip Ethernet controller with IEEE 802.3u support
- 32 bit/33MHz PCI bus for different host processor interfaces
- Early TX/RX mode support, to allow for “cut thru” in Potency Critical Industrial Ethernet or Embedded Ethernet Application
- Dynamic buffer memory scheme
  – Essential for applications such as Video over IP where image jitter is unacceptable
- Micrel LinkMD™ cable diagnostic capabilities to determine cable length and distance to fault, and to diagnose faulty cables
- Wake-on-LAN technology
- HP Auto MDIX crossover with disable and enable option
- Enhanced power management feature with power-down feature
- Industrial Temperature support: –40°C to +85°C

Block Diagram



LinkMD is a trademark of Micrel, Inc.
Magic Packet is a trademark of Advanced Micro Devices, Inc.

Features

- Supports 10/100BASE-T/TX/FX
- Supports IEEE 802.3x full-duplex flow control and half-duplex backpressure collision flow control
- Fully compliant to the IEEE 802.3u standard
- Supports burst data transfers
- 8KB internal memory for RX/TX FIFO buffers
- Early TX/RX functions to minimize latency through the device
- Single 25MHz reference clock for both PHY + MAC

Network Features

- Fully integrated IEEE 802.3u
  – 10BASE-T and 100BASE-TX/FX support
- Supports IEEE 802.1q multiple VLAN tagging
- Auto-negotiation: 10/100Mbps full and half duplex
- On-chip wave shaping – No external filters required
- Adaptive equalizer
- Baseline wander correction

Power Modes, Packaging, and Power Supplies

- Single 3.3Vpower supply with 5V tolerant I/O buffers
- Enhanced power management feature with power down feature to ensure low power dissipation during device idle periods
- Wake-on-LAN functionality
  – Incorporates Magic Packet™, network link state, and wake-up frame technology
- Comprehensive LED indicator support for link, activity, full/half duplex, and 10/100 speed (3 LEDs)
- Low-power CMOS design
- Commercial Temperature Range: 0°C to +70°C
- Industrial Temperature Range: –40°C to +85°C (KSZ8841-PMQLI ordering code)
- Available in 128-pin PQFP

Applications

- Consumer Applications:
  – Set-Top Box • Fax • TV • Digital TV
- Video over IP
- Industrial Control Sensor Devices:
  – Temperature • Pressure • Level • Valves
- Security and Surveillance Devices

Markets

Fast Ethernet
Embedded Ethernet
Industrial Ethernet

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