KENDIN

COMMUNICATIONS

Gigabit and Beyond

KS8995E – 5 Port 10/100 Integrated Switch with PHY and Frame Buffers

Introduction

The KS8995E contains five 10/100 physical layer transceivers, five MAC (Media Access Control) units with an integrated layer 2 switch. The device runs in two modes. The first mode is a five port integrated switch and the second is as a five port switch with the fifth port decoupled from the physical port. In this mode access to the fifth MAC is provided using a MII (Media Independent Interface).

Useful configurations include a stand alone five port switch as well as a four port switch with a routing element connected to the extra MII port. The additional port is also useful for public network interfacing.

The KS8995E is designed to reside in an unmanaged design not requiring processor intervention. This is achieved through I/O strapping or EEPROM programming at system reset time

On the media side, the KS8995E supports 10BaseT, 100BaseTX and 100BaseFX as specified by the IEEE 802.3 committee.

Physical signal transmission and reception are enhanced through use of analog circuitry that makes the design more efficient and allows for lower power consumption and smaller chip die size.

The major enhancements from the KS8995 to the KS8995E are support for VLAN, traffic priority queuing, EEPROM programming for expanded control and MDI / MDI-X auto crossover.
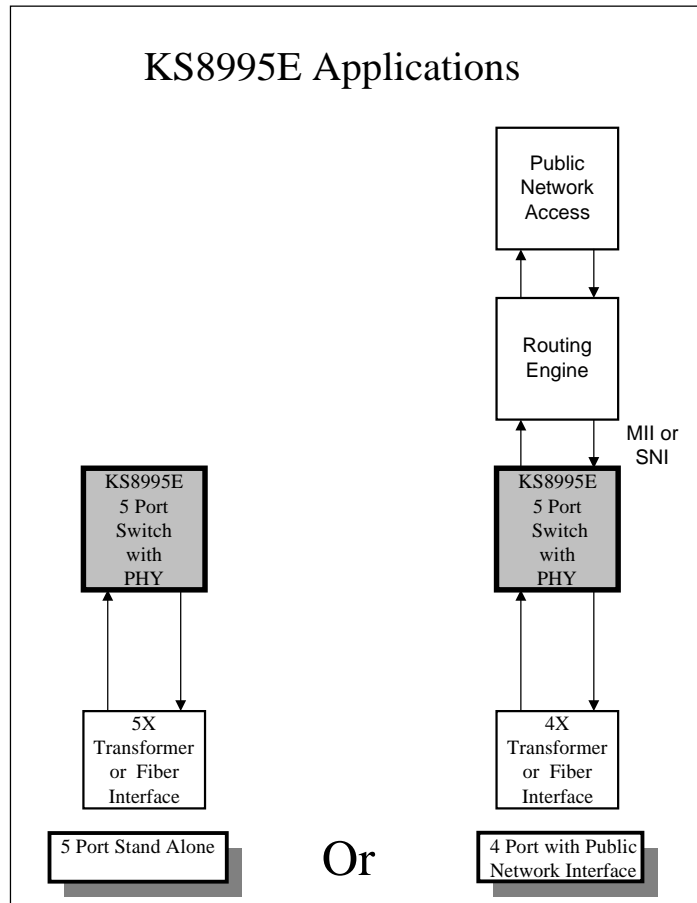
Highlights

- 5 port 10/100 Integrated Switch with Physical Layer Transceivers
- SRAM on chip for frame buffering
- 1.4Gbps high performance memory bandwidth
- 10BaseT, 100BaseTX and 100BaseFX modes of operation
- Superior analog technology for reduced power and die size
- Single 2.5 V power supply
- 500 mA (1.25 W) including physical transmit drivers
- 128 pin PQFP package
- Supports port based VLAN

- Supports DiffServ priority, 802.1p based priority or port based priority
- Support for UTP or fiber installations
- Indicators for link, activity, full / half duplex and speed
- Unmanaged operation via strapping or EEPROM at system reset time
- Hardware based 10/100, full/half, flow control and auto negotiation
- Individual port forced modes (full duplex, 100BaseTX) when auto negotiation is disabled
- Wire speed reception and transmission
- Integrated address Look-Up Engine, supports 1K absolute MAC addresses
- Automatic address learning, address aging and address migration
- Broadcast storm protection
- Full duplex IEEE 802.3x flow control
- Half duplex back pressure flow control
- Comprehensive LED support
- External MAC interface (MII or SNI) for router applications
- Supports MDI / MDI-X auto crossover

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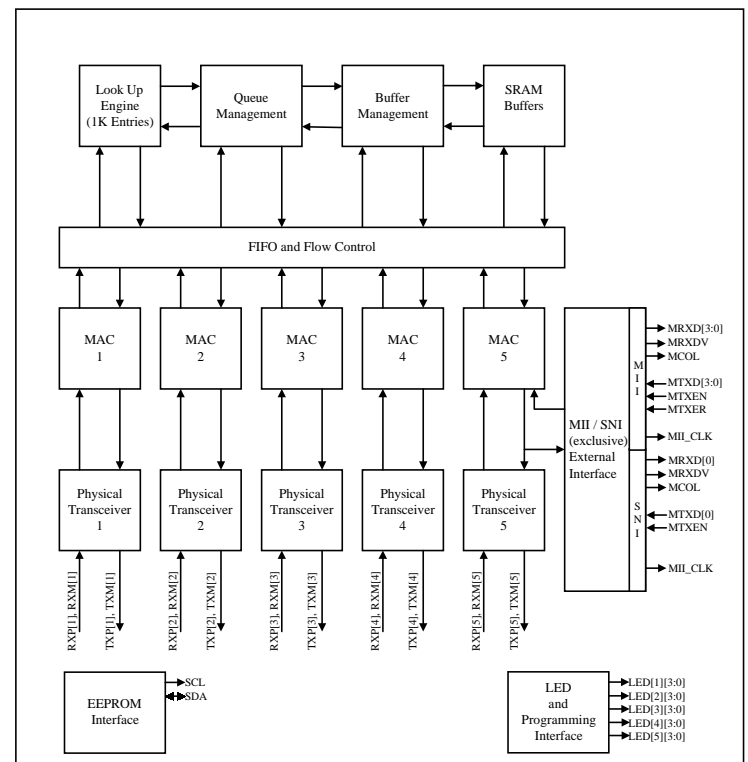
System Level Applications

The KS8995E can be configured to fit either in a five port 10/100 application or as a four port 10/100 network interface with an extra MII / SNI port. This MII / SNI port can be connected to an external processor and used for routing purposes or public network access. The major benefits of using the KS8995E are the lower power consumption, unmanaged operation, flexible configuration, built in frame buffering, VLAN abilities and traffic priority control. Two such applications are depicted below.

KS8995E Applications

Public Network Access

Routing Engine

MII or SNI

KS8995E 5 Port Switch with PHY

KS8995E 5 Port Switch with PHY

5X Transformer or Fiber Interface

4X Transformer or Fiber Interface

5 Port Stand Alone

Or

4 Port with Public Network Interface

more information
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