

## Integrated 3-Port 10/100 Managed Switch with PHY

### Description

The KS8993M family is a highly integrated Layer 2 managed switch designed for low-port count, cost-sensitive 10/100 Mbps switch systems. It offers an extensive feature set that includes tag/port-based VLAN, QoS priority, switch management, MIB counters, MII/SMI interface, and CPU control/data interfaces to effectively address both current and emerging Fast Ethernet applications.

The KS8993M contains two 10/100 transceivers with patented mixed-signal low-power technology, three media access control (MAC) units, a high-speed non-blocking switch fabric, a dedicated address look-up engine, and an on-chip frame buffer memory.

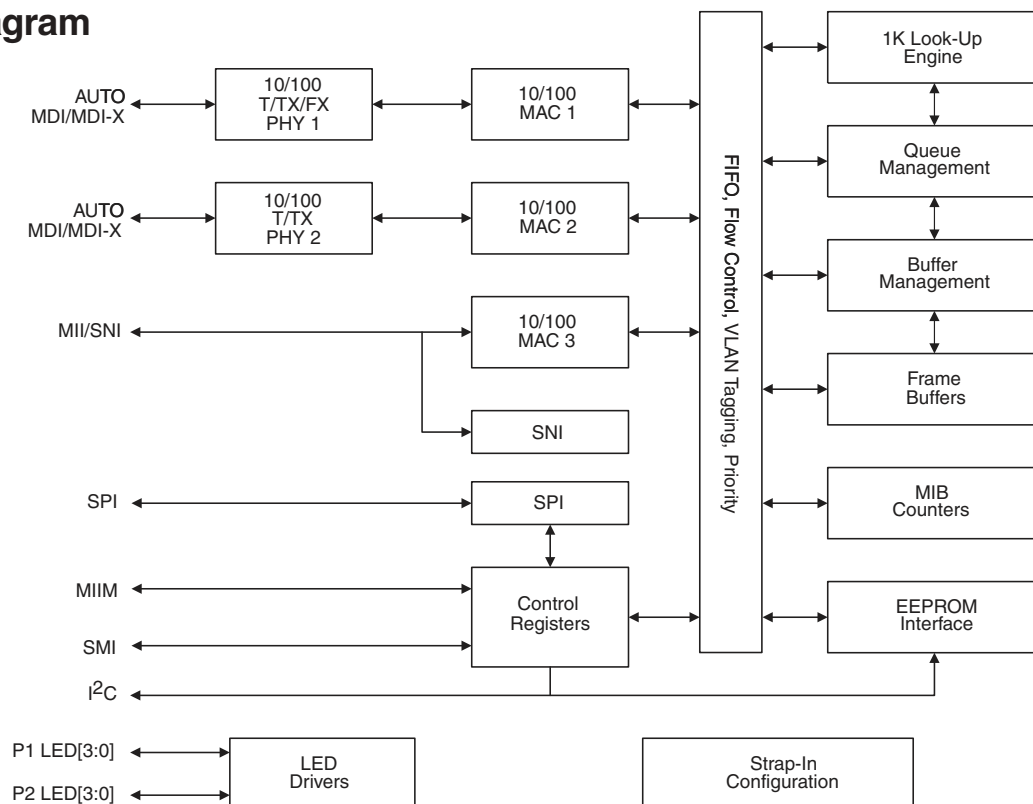
Both PHY ports support 10BASE-T and 100BASE-TX with Auto-MDIX for reliable detection of and correction for straight-through and crossover cables. In addition, one PHY port supports 100BASE-FX for managed media converter applications.

QoS prioritization, both tag and port-based, makes the KS8993M family ideal for latency critical applications such as Voice over Internet Protocol (VoIP) phones and industrial Ethernet applications.

The KS8993M is available in a wide variety of power supply, packaging, and temperature options to fit the demanding needs of today's applications. Commercial temperature range: 0°C to +70°C; Industrial temperature range: -40°C to +85°C.

For additional information, contact your local Micrel Field Application Engineer or salesperson.

### Block Diagram



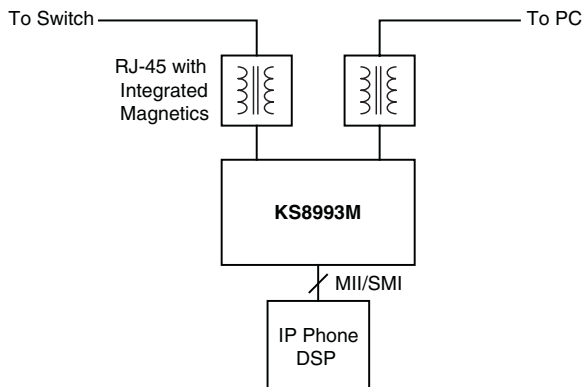
Features	Benefits
<ul style="list-style-type: none"> <li>• QoS packet prioritization support               <ul style="list-style-type: none"> <li>– Per port, 802.1p, and DiffServ-based</li> <li>– Re-mapping of IEEE 802.1p priority field per port basis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Enables latency critical applications to transport network traffic with minimal interruption. Per port re-mapping enforces priority policies by overriding embedded levels.</li> </ul>
<ul style="list-style-type: none"> <li>• IEEE 802.1q VLAN support for up to 16 groups               <ul style="list-style-type: none"> <li>– Tag/untag on per port basis</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Secures and segregates network traffic               <ul style="list-style-type: none"> <li>– Supports a full range of VLAN IDs (4096)</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Advanced switch features               <ul style="list-style-type: none"> <li>– IEEE 802.1d Spanning Tree Protocol support</li> <li>– Programmable rate limiting from 0Mbps to 100Mbps</li> <li>– Broadcast storm protection with % control</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Allows redundancy and shape/protect traffic               <ul style="list-style-type: none"> <li>– Resolves loops and permits redundancy</li> <li>– Allocates bandwidth with 32kbps granularity</li> <li>– Guards against denial of service (DoS) attacks</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Switch management               <ul style="list-style-type: none"> <li>– Port mirroring/sniffing: 34 MIB counters per port.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Delivers comprehensive remote management capability               <ul style="list-style-type: none"> <li>– Enables complete view of network activity</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Multiple register access options               <ul style="list-style-type: none"> <li>– SMI, SPI, and I<sup>2</sup>C interface to all registers</li> <li>– MII management (MIIM) access to PHY registers</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Interfaces with a wide variety of devices               <ul style="list-style-type: none"> <li>– Connects to EEPROM/CPU for un/managed operations</li> <li>– On the fly configuration of switch/PHY parameters</li> </ul> </li> </ul>
<ul style="list-style-type: none"> <li>• Optimized power modes, packaging, and power supplies               <ul style="list-style-type: none"> <li>– Full-chip hardware power-down, port-based software power save mode.</li> <li>– Lead-free and standard packages available</li> <li>– 1.8V and 2.5V/3.3V or 3.3V only option</li> <li>– Industrial and commercial temperature options.</li> <li>– Available in 128-pin PQFP</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Provides packages/power options for each environment               <ul style="list-style-type: none"> <li>– Delivers an average power consumption of &lt;800mW Ideal for low-power applications – increased reliability.</li> <li>– Available in environmentally friendly packages</li> <li>– Supplied in power options to suit system rails</li> <li>– Operates in harsh environments</li> <li>– Suitable for space-constrained applications</li> </ul> </li> </ul>

## Applications

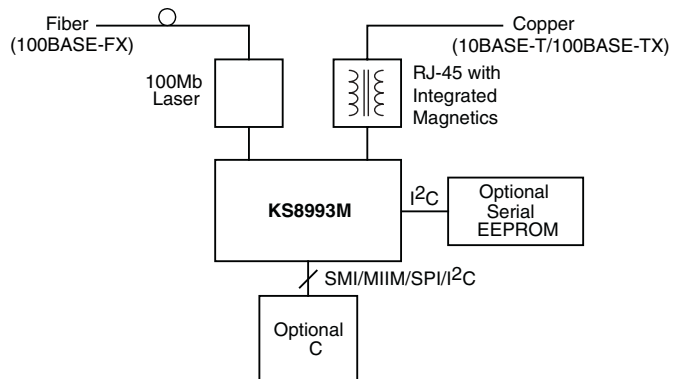
Media Converter  
VoIP Phone

Integrated DSL/Cable Modem  
SOHO Residential Gateway

Set-Top/Game Box  
Industrial Ethernet Applications



Voice over IP Application



Media Converter Application

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