MICREL ®

# 2-Port Ethernet Switch with Non-PCI Interface and 10B-FL / 100B-SX / 100B-FX Support

## Description

The KSZ8862-16MQL (or -32MQL) is the industry's first fully managed 2-port switch with a non-PCI CPU interface. It is similar to the KSZ8842-16MQL (or –32MQL) family, however port-1 supports fiber mode, while port-2 supports 10B-T / 100B-TX. It is based on a proven, 4th generation, integrated Layer 2 switch that is compliant to the IEEE 802.3u standard.

The KS8862-16MQL (or –32MQL) contains two 10/100 transceivers with patented mixed-signal low-power technology, two media access control (MAC) units and a direct memory access (DMA) channel, a high-speed non-blocking switch fabric, a dedicated 1K entry forwarding table, and an on-chip frame buffer memory. In fiber mode, the port-1 PHY can be configured to 100BASE-FX, 100BASE-SX, or 10BASE-FL fiber. Port-2 supports 10BASE-T and 100BASE-TX, which therefore makes the devices ideal for use in managed Media Converter applications. An LED driver and post amplifier are also included on-chip for 10Base-FL applications, thus making for a very cost effective solution.
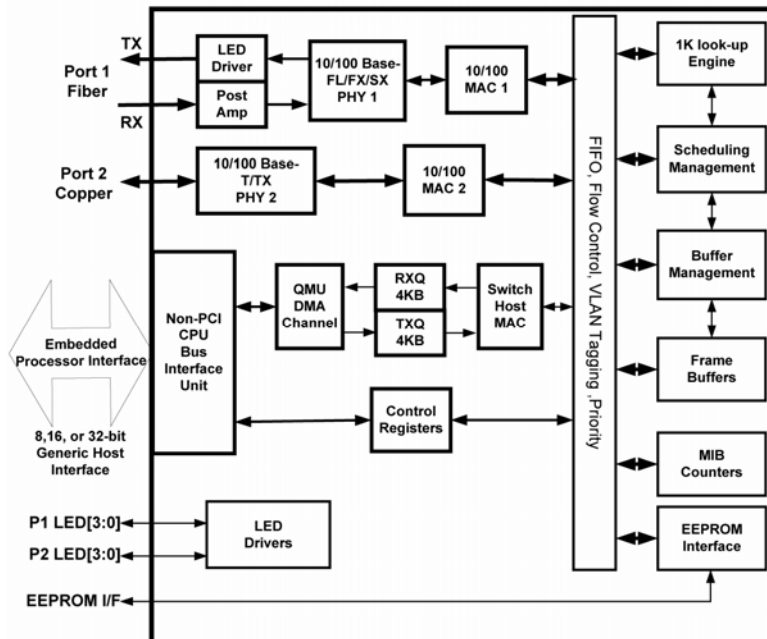
The KS8862-16MQL (or –32MQL) offers an extensive feature set that includes tag/port-based VLAN, QoS priority management, MAC filtering, MIB counters, and CPU control/data interfaces to effectively address both current and emerging Fast Ethernet applications.

Data sheets and support documentation can be found on Micrel's web site at www.micrel.com.

## Applications

- Managed Media Converters
- Ethernet Controllers with copper & Fiber requirements
- Legacy 10B-FL applications

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## Block Diagram



**KSZ8862-16MQL or KSZ8862-32MQL Block Diagram**

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| Features | Benefits |
|---|---|
| • Integrated LED driver and post amplifier | • Enable usage of low cost "sugar cube" optical modules |
| • Advanced PHY technology with LinkMD | • TDR based cable diagnostic for simplified IT services |
| • Packet prioritization support<br>  – Per-port, 802.1p and DiffServ based<br>  – Re-mapping of 802.1p priority field per-port basis<br>  – Four priority levels | • Enables latency critical applications to transport network traffic with minimal interruption. Per-port re-mapping enforces priority policies by overriding packet embedded priority levels.<br>• Triple play (voice, video, data) application ready |
| • 802.1q VLAN support for up to 16 groups. Tag/untag on a per-port basis | • Secures and segregates network traffic. Full range of VLAN IDs supported. |
| • Advanced switch features<br>  – Programmable priority based ingress and egress rate limiting<br>  – Broadcast storm protection with % control<br>  – 802.1d Spanning Tree Protocol support | • Shape/protect traffic and enable redundancy<br>  – Allows creation of bandwidth-based tiered services, optimizes bandwidth based on applications<br>  – Guard against denial of service attacks<br>  – Resolve loops, permit redundancy |
| • Switch management<br>  – Port mirroring/monitoring/sniffing: ingress and/or egress traffic to any port or MII, 34 MIB counters per port<br>  – IGMP snooping (IPv4) and MLD snooping (IPv6) | • Comprehensive remote management capability enables complete view of network activity. |
| • Generic Bus Support<br>  – 8 or 16- bit generic host bus connectivity to FPGA or microprocessors (KSZ8862-16MQL)<br>  – 32-bit generic host bus connectivity to FPGA or microprocessors (KSZ8862-32MQL) | • Ability to interface with wide variety of devices<br>  – Connectivity to CPU/EEPROM for managed operation.<br>  – On the fly configuration of switch/PHY operating parameters |
| • Optimized power modes<br>  – Full-chip hardware power-down, port-based software power save mode<br>  – Lead-free packages<br>  – Single 3.3V Supply<br>  – Compact 128-pin PQFP | • Choose best package/power option for each environment<br>  – Avg. power consumption of <400 mW. Ideal for low-power applications, increased reliability<br>  – Environmentally friendly<br>  – Simplified Power supply requirements<br>  – Ability to operate in harsh environments<br>  – Suitable for space constrained applications |

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