

2-Port Ethernet Switch with Non-PCI Interface

Description

The KSZ8842-16MQL and KSZ8842-32MQL are the industry's first 2-port switches with a non-PCI CPU interface. The KSZ8842-16MQL (or -32MQL) is a proven, 4th generation, integrated, Layer 2 switch that is compliant to the IEEE802.3u standard.

The KSZ8842-16MQL (or -32MQL) can be configured as a low-latency repeater to allow for 'cut thru' in latency critical Embedded or Industrial Ethernet applications. For industrial automation applications in the repeater mode, the KSZ8842-16MQL (or -32MQL) runs in half-duplex mode regardless of the application.

The KSZ8842-16MQL (or -32MQL) offers an extensive feature set that includes tag/port-based VLAN, QoS priority management, MAC filtering function, MIB counters, and CPU control/data interfaces to effectively address both current and emerging Fast Ethernet applications.

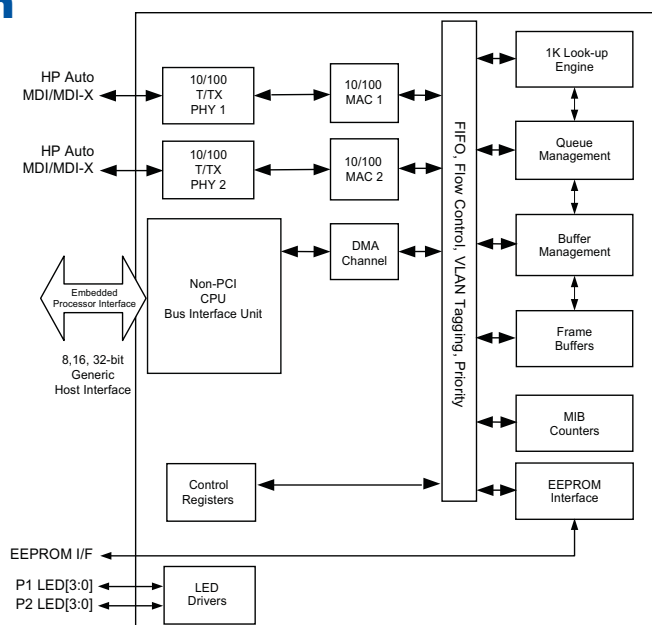
The KSZ8842-16MQL (or -32MQL) contains two 10/100 transceivers with patented mixed-signal low-power technology, two media access control (MAC) units, a direct memory access (DMA) channel, a high-speed non-blocking switch fabric, a dedicated 1K entry forwarding table, and on-chip frame buffer memory.

Benefits

Offers all of the features of an integrated Layer 2 managed switch plus:

- Fully compliant to the IEEE802.3u standard
- Repeater mode capabilities to allow for 'cut-thru' in latency critical Industrial Ethernet or Embedded Ethernet applications
- MAC filtering function to filter unicast packets
- Dynamic buffer memory scheme
 - Essential for applications such as Video over IP where image jitter is unacceptable
- 2-Port switch with flexible 8-, 16- or 32-bit generic host processor interfaces
- Micrel LinkMD[®] cable diagnostic capabilities to determine cable length, diagnose faulty cables, and determine distance to fault
- HP Auto MDIX crossover with disable and enable option
- Industrial temperature support: -40°C to +85°C (KSZ8842-16MVLI samples available)
- Four priority queues to handle voice, video, data, and control packets

Block Diagram



Note: For an MII/RMII, I²C or SPI interface, use the KSZ8893MQL.
LinkMD is a registered trademark of Micrel, Inc.

Features

Switch Management

- Non-blocking switch fabric assures fast packet delivery by utilizing a 1K entry forwarding table
- Fully compliant to the IEEE 802.3u standard
- Full-duplex IEEE 802.3x flow control (Pause) with force mode option
- Half-duplex back pressure flow control

Advanced Switch Management

- IEEE 802.1q VLAN support for up to 16 groups (full-range of VLAN ID)
- VLAN ID tag/untag options, per port basis
- IEEE 802.1p/q tag insertion or removal on a per port basis (egress)
- Programmable rate limiting at the ingress and egress port
- Broadcast storm protection
- IEEE 802.1d spanning tree protocol support
- MAC filtering function to filter or forward unknown unicast packets
- Unknown MAC address forwarding function
- Direct forwarding mode enabling the processor to identify the ingress port and to specify the egress port
- IGMP v1/v2 snooping support for multicast packet filtering
- IPv6 Multicast Listener Discovery (MLD) snooping support

Monitoring

- Port mirroring/monitoring/sniffing: ingress and/or egress traffic to any port
- Management information base (MIB) counters for fully compliant statistics gathering: 34 MIB counters per port
- Loopback modes for remote diagnostic of failure

Comprehensive Register Access

- Control registers configurable on the fly (port-priority, 802.1p/d/q)

QoS/CoS Packets Prioritization Support

- Per port, 802.1p and DiffServ based
- Re-mapping of 802.1p priority field per port basis

Power Modes, Packaging and Power Supplies

- Full-chip hardware power-down (register configuration not saved) provides for low power dissipation
- Per port-based software power-save on PHY (idle link detection, register configuration preserved)
- Single power supply: 3.3V
- Commercial temperature range: 0°C to +70°C
- Industrial temperature range: -40°C to +85°C (KSZ8842-16MVL1 ordering code)
- RoHS compliant devices

Applications

- Industrial applications for daisy chaining multiple devices
- Industrial control in latency critical applications
- Port redundancy and port monitoring
- Security cameras
- VoIP phone and ATA adaptors

Markets

- Fast Ethernet
- Embedded Ethernet
- Industrial Ethernet

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

Contact Micrel Semiconductor

Location	Address		Telephone	Fax
Corporate HQ	2180 Fortune Drive	San Jose, CA 95131 USA	+1 408 944 0800	+1 408 944 0970
Western USA	2180 Fortune Drive	San Jose, CA 95131 USA	+1 408 944 0800	+1 408 944 0970
Central USA	2425 N. Central Express Way, Suite 351	Richardson, TX 75080 USA	+1 972 393 2533	+1 408 474 1210
Eastern USA	93 Branch Street	Medford, NJ 08055 USA	+1 609 654 0078	+1 609 654 0989
Latin America	2425 N. Central Express Way, Suite 351	Richardson, TX 75080 USA	+1 972 393 2533	+1 408 474 1210
China	Rm 601, Bldg B, Int'l Chamber of Commerce Mansion, Fuhua Rd 1 Futian Dist	Shenzhen, P.R. China 518048	+86 755 8302 7618	+86 755 8302 7637
Japan	Queens Tower 14F, 2-3-1, Minatomirai, Nishi-ku, Yokohama-shi	Kanagawa 220-8543, Japan	+81 45 224 6616	+81 45 224 6716
Korea	8F, AnnJay Tower Bldg, 718-2, Yeoksam-dong, Kangnam-ku	Seoul 135-080, Korea	+82 2 538 2380	+82 2 538 2381
New Zealand	Office 2, CML Bldg, 2 Perry Street	Masterton, New Zealand	+64 6 378 9799	+64 6 378 9599
Singapore/India	300 Beach Road, #10-07 The Concourse	Singapore 199555	+65 6291 1318	+65 6291 1332
Taiwan	4F, No. 18 Lane 321, Yang-Guang Street, Nei-Hu Chu	Taipei 11475 Taiwan, R.O.C	+866 2 8751 0600	+866 2 8751 0746
UK/EMEA	1st Floor, 3 Lockside Place, Mill Lane, Newbury, Berks	United Kingdom RG14 5QS	+44 1635 524455	+44 1635 524466
France/Southern Europe	10 Avenue du Quebec, Villebon - B.P. 116, 91944 Courtaboeuf Cedex	France	+33 1 60 92 4190	+33 1 60 92 4189
Sweden/Nordic	Lundagatan 11 6tr, SE-171 63 Solna	Sweden	+46 8 470 5950	+46 8 470 5950