

## General Description

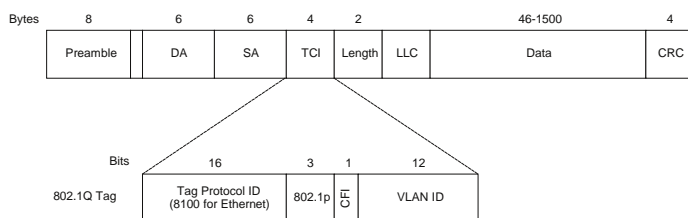
Internet Group Management Protocol (IGMP) is used to manage IP multicast subscription. IGMP enables IP hosts and their multicast agents to allocate group addresses and define members from the host group.

A host group is defined as one or more hosts that can be identified by a single IP destination address. Multicast applications include streaming video, internet video conferencing, and streaming audio to subscribing hosts.

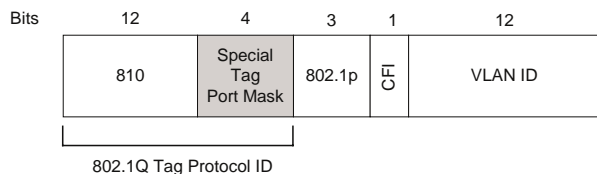
The KS8995M IGMP support is made up of two parts:

The first is IGMP snooping, where the switch in the KS8995M captures IGMP packets and forwards them only to the processor port (port 5). IGMP packets are defined as Ethernet IP or IEEE 802.3 SNAP IP packets using IP version 4 and protocol number 0x2.

The second part of KS8995M's IGMP support is "multicast address insertion" in the static media access control (MAC) table. To inform the processor of an IGMP packet's ingress port, the KS8995M uses a proprietary scheme called special tagging mode. In special tagging mode, the KS8995M inserts a 4-bit special tag port mask in the least significant nibble of the 802.1Q tag protocol ID field shown in Figures 1 and 2.



**Figure 1. Tagged Ethernet Packet**



**Figure 2. Special Tag Port Mask**

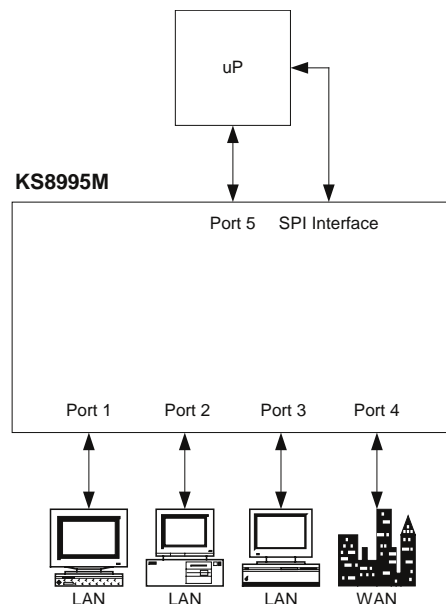
The 4 bit special tag port mask is defined as:

- "0001" for packets received on port 1
- "0010" for packets received on port 2
- "0100" for packets received on port 3
- "1000" for packets received on port 4

The processor uses the information in the special tag port mask to determine which addresses to program into the static MAC table. The KS8995M provides a management interface through which a processor can update the static MAC table with the multicast addresses. Once the multicast addresses are programmed, the multicast session is trimmed to the subscriber ports instead of being broadcast to all ports, saving bandwidth and resources. The subscriber ports send IGMP packets to the processor periodically to inform it of their subscription status.

## KS8995M Register Settings for IGMP Support

The following KS8995M register settings will enable IGMP support for a typical application. In this application, ports 1-4 on the KS8995M are connected to a LAN or WAN and port 5 is connected to a microprocessor, as shown in Figure 3.



**Figure 3. Example of a Typical Application**

Set the KS8995M registers as follows:

1. Enable IGMP snooping – Set register 5, bit 6 to '1'
2. Enable Special Tagging Mode – Set register 11, bit 0 to '1'
3. Enable tag insertion on port 5 – Set register 80, bit 2 to '1'

## Conclusion

The combination of IGMP snooping, management interface, and special tagging mode features offered by the KS8995M provides a convenient way for the designer to offer IGMP multicast support in a system implementation.

IGMP multicast support enables the end customer to trim the bandwidth requirements of multicast applications that would usually be broadcast to all ports.

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

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