



Application Note 118

Programming Procedure for Speed Change from
100Mbps to 10Mbps under Forced Mode

KS8995M/X

General Description

When a user programs a linkup on the port and a speed change from 100Mbps to 10Mbps under forced mode, the KS8995M/X can run into application problems. Packets being sent from the PHY to the MAC are blocked.

This application note offers two solutions to overcome the potential issue that could be caused by programming a speed change under forced mode.

Description of Application Problem

Suddenly changing the KS8995M/X device's internal status from 100Mbps to 10Mbps may cause the 100Mbps data (the data still being received from the link partner) to truncate and assert a RXER (receive error). The RXER is a MII interface signal that resides inside the device. The change in speed to 10BASE-T mode can cause the clock of the device 100BASE-TX module to stop.

At this point, the 10BASE-T module begins transmitting and receiving packets internally. However, since RXER is still being asserted and is now trapped at the output of the 100BASE-TX module, the internal MII interface always has RXER asserted. This can cause the MAC to ignore the 10BASE-T packets.

In the system application environment, the KS8995M/X device appears to "hang," as packets are received by the PHY but ignored by the MAC. Actually, the device is blocked, rather than "hung."

Recommended Workarounds

For the application issues discussed in this application note, the following two workarounds are provided. Solution 1 requires the manual removal of the Ethernet cable to bring down the link between the KS8995M/X device and its link partner. Solution 2 uses an external EEPROM configuration update and a hardware reset to the KS8995M/X device.

Solution 1

1. Unplug the Ethernet cable to the PHY port.
2. Program the forced speed change for the PHY port.
3. Plug back the Ethernet cable to the PHY port.

Solution 2

1. Program external EEPROM with the forced speed change configuration.
2. Send a hardware reset to the KS8995X (pin 115).
3. Read in and program the KS8995M/X registers with the updated configuration at the de-assertion of reset.

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

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