KSZ9xxx Switch Driver Setup Guide

Rev 0.2

December 21, 2016

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1 Revision History

Revision	Date	Summary of Changes
0.1	12/21/2016	Initial revision.

2 Introduction

This document describes the driver and application setup for Microchip KSZ9xxx switches. The name KSZ9897 will be used to refer to the whole switch family. The switch has 7 ports. There are 6-port, 5-port and 3-port version of the switch available. The number of ports support can be recognized by referring the switch part number KSZ989x where x represents number of ports. Ex: KSZ9893 supports 3 ports. The KSZ98xx or KSZ95xx series switches support 10/100/1000 Mbps. The KSZ85xx series support 10/100 Mbps. The KSZ956x and KSZ856x version of the switch has 1588 PTP and AVB capabilities. The KSZ947x version has all the functionalities of the switch including Ring Redundancy protocol support like High-availability Seamless Redundancy (HSR) and Device Level Ring (DLR).

3 Software Components

Microchip provides Linux drivers and applications to support the functionalities of switch. The source code can be downloaded from GitHub repository: https://github.com/Micrel/UNG8071.

The source code contains the build environment to support EVB UNG8071. The EVB UNG8071 has SAMA5D3 SOC and KSZ9477 switch. The complete source code which includes U-Boot, buildroot, kernel and application is provided to build the image for this board.

The switch driver supports Linux kernel 3.18.

4 Driver Setup

The KSZ9897 switch needs to be configured properly in the switch driver to support certain features. These configurations can be done through kernel configurations (Kconfig) or through kernel boot arguments.

4.1 Kernel configurations

The driver feature can be enabled by these CONFIG_ parameters. Depending on the platform memory footprint customers can enable or disable certain switch functions during build time.

4.1.1 CONFIG_KSZ_PTP

This conditional enables the 1588 PTP code. The 1588 PTP function will be disabled when running non-1588 PTP switches.

4.1.2 CONFIG_KSZ_STP

This conditional enables the RSTP code. The STP/RSTP is implemented in the driver and requires no need of application level daemon.

4.1.3 CONFIG_KSZ_IBA

This conditional enables the In-Band Communication Access function. This function can be turned off using the `iba` variable in the Linux command line boot arguments.

4.1.4 CONFIG_KSZ_MRP

This conditional enables Multiple Registration Protocol (MRP) support. It is required for MSRP support.

4.1.5 CONFIG_KSZ_MSRP

This configuration enables MSRP support and it is needed for AVB support. It enables bandwidth management in the AVB switch. The AVB mode is used by default.

4.1.6 CONFIG_KSZ_DLR

This conditional enables Device Level Ring support. The function will be disabled when not running KSZ947x switches. When this configuration is enabled and the CONFIG_KSZ_MSRP and CONFIG_KSZ_HSR are not defined the switch will start in DLR mode without further user configuration.

4.1.7 CONFIG_KSZ_HSR

This conditional enables HSR support. The function will be disabled when not running KSZ947x switches. When this configuration is enabled and the CONFIG_KSZ_MSRP and CONFIG_KSZ_DLR are not defined the switch will start in HSR mode without further user configuration.