SIM8950 Series UART Driver Development Guide Manual_V1.01

Smart Module

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Version History

Version	Date	Chapter	What is new
V1.00	2018-09-12		New version
V1.01	2018-09-19	2.1.1	1. SIM8950 Series UART Driver Development Guide Manual

Contents

This document describes the UART and explains how to configure it in the kernel. Through these chapter, you can know to configure UART.

1 Introduction

1.1 The UART Overview

The core of UART is used to transmit and receive data through serial interface, which is mainly used to communicate with other UART protocol terminals. This document describes how to configure it.

Key features added fot the chipset:

1. BAM support
2. Single-character mode
3. Baudrates 300 bps up to 4M bps

2 UART Configure Process

2.1 Dts Configure

Adding new UART mainly modifies the DTS file, and the driver system is built without changing it. To match the labeling in the software interface manual, BLSP core 1 and UART core (1 to 2) must identify each UART.

UART Physical address

BLSP Hardware ID	UART core	UART_DM_BASE_ADDRESS
BLSP1	BLSP1 UART1	0x78AF000
BLSP1	BLSP1 UART2	0x78B0000
BLSP2	BLSP2 UART1	0x7AEF000
BLSP2	BLSP2 UART2	0x7AF0000

UART IRQ List

BLSP Hardware ID	UART core	IRQ #
BLSP1	BLSP1 UART1	139
BLSP1	BLSP1 UART2	140
BLSP2	BLSP2 UART1	338
BLSP2	BLSP2 UART2	339

Low speed UART is a UART driver based on FIFO, designed for small and low-speed data transmission.For example, According to the schematic diagram, we should config uart1_rx, uart1_tx corresponding GPIO for GPIO4, GPIO5. Are modified steps as follows:

/kernel/msm-3.18/arch/arm/boot/dts/qcom/sim8950-msm8953.dtsi

```
blsp1_uart1: serial@78af000 {
        compatible = "qcom,msm-lsuart-v14";
        reg = <0x78af000 0x200>;
        interrupts = <0 107 0>;
        status = "ok";
        clocks = <&clock_gcc clk_gcc_blsp1_uart1_apps_clk>,
                 <&clock_gcc clk_gcc_blsp1_ahb_clk>;
        clock-names = "core_clk", "iface_clk";
    };
```

2.2 GPIO I2C Configure

The file we have to modify :
/kernel/msm-3.18/arch/arm/boot/dts/qcom/sim8950-msm8953-pinctrl.dtsi

```
  uart1_console {
    uart1_console_active: uart1_console_active {
        mux{
            pins="gpio4","gpio5";
            function="blsp_uart2";
        };
        config {
            pins="gpio4","gpio5";
            drive-strength=<2>;
            bias-disable;
        };
     };
    uart1_console_sleep: uart1_console_sleep {
        mux {
            pins="gpio4","gpio5";
            function="blsp_uart2";
        };
        config {
            pins="gpio4","gpio5";
            drive-strength=<2>;
            bias-pull-down;
        };
    };
};
```

3 Enable the UART for Debugging

File to modify:
/bootable/bootloader/lk/project/msm8953.mk
//Set the flag WITH_DEBUG_UART to TRUE.
DEFINES += WITH_DEBUG_UART = 1