



## **SIM8905** Series Smart Module I2C Configure Guide

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# About Document

## Document Information

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## Related Documents

This document applies to the following products:

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# 1 Purpose of this document

I2C bus is a simple, two-way two wire synchronous serial bus. It only needs two wires to transmit information between devices connected to the bus. This document directs how to configure I2C for SIM8905 series smart module.

## 2 I2C Configure Process

### 2.1 Configure Dts File

Adding a new I2C bus is mainly to modify DTS file, and to add driver file. In SIM8905 series smart module, QUP ( Qualcomm universal peripheral (serial)) can be configures as I2C. Each QUP is identified by BLSP core and the QUP core.

QUP Physical address

BLSP Hardware ID	QUP core	Physical address
BLSP 1	BLSP 1 QUP 1	0x78B5000
BLSP 1	BLSP 1 QUP 2	0x78B6000
BLSP 1	BLSP 1 QUP 3	0x78B7000
BLSP 1	BLSP 1 QUP 4	0x78B8000
BLSP 1	BLSP 1 QUP 5	0x78B9000
BLSP 1	BLSP 1 QUP 6	0x78BA000

QUP IRQ

BLSP Hardware ID	QUP core	IRQ
BLSP 1	BLSP 1 QUP 1	95
BLSP 1	BLSP 1 QUP 2	96
BLSP 1	BLSP 1 QUP 3	97
BLSP 1	BLSP 1 QUP 4	98
BLSP 1	BLSP 1 QUP 5	99
BLSP 1	BLSP 1 QUP 6	100

For example, add a new one I2C0. The first step is to check hardware schematic and if the I2C0\_SCL、I2C0\_SDA are corresponding to GPIO6 and GPIO7, the following file can be modified as:

```
/kernel/arch/arm/boot/dts/qcom/msm8909.dtsi
i2c_0: i2c@78b6000 { /* BLSP1 QUP2 */
    compatible = "qcom,i2c-msm-v2";
```

```

reg-names = "qup_phys_addr", "bam_phys_addr";
reg = <0x78b6000 0x1000>,
      <0x7884000 0x23000>;
interrupt-names = "qup_irq", "bam_irq";
interrupts = <0 96 0>, <0 238 0>;
clocks = <&clock_gcc clk_gcc_blspl1_ahb_clk>,
        <&clock_gcc clk_gcc_blspl1_qup2_i2c_apps_clk>;
clock-names = "iface_clk", "core_clk";
qcom,clk-freq-out = <400000>;
qcom,clk-freq-in = <19200000>;
pinctrl-names = "i2c_active ", "i2c_sleep";
pinctrl-0 = <&i2c_2_active>;
pinctrl-1 = <&i2c_2_sleep>;
qcom,noise-rjct-scl = <0>;
qcom,noise-rjct-sda = <0>;
qcom,bam-pipe-idx-cons = <6>;
qcom,bam-pipe-idx-prod = <7>;
qcom,master-id = <86>;
};

```

## 2.2 Configure I2C GPIO

In order to configure I2C GPIOs, the following file can be modified as:

kernel/arch/arm/boot/dts/qcom/msm8909-pinctrl.dtsi

```

i2c0_active {
    /* CLK, DATA */
    qcom,pins = <&gp 7>, <&gp 6>;
    qcom,num-grp-pins = <2>;
    qcom,pin-func = <3>;
    label = "i2c0-active";
    /* active state */
    i2c_default:default {
        drive-strength = <2>; /* 2 MA */
        bias-disable = <0>; /* No PULL */
    };
};

i2c0_suspend {
    /* CLK, DATA */
    qcom,pins = <&gp 7>, <&gp 6>;
    qcom,num-grp-pins = <2>;
    qcom,pin-func = <0>;
    label = "i2c0-suspend";
};

```

```
/*suspended state */  
i2c_sleep: sleep {  
    drive-strength = <2>; /* 2 MA */  
    bias-disable = <0>; /* No PULL */  
};  
};
```

# Contact

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