

S5D9 I2C Bus Example (IIC Driver Version)

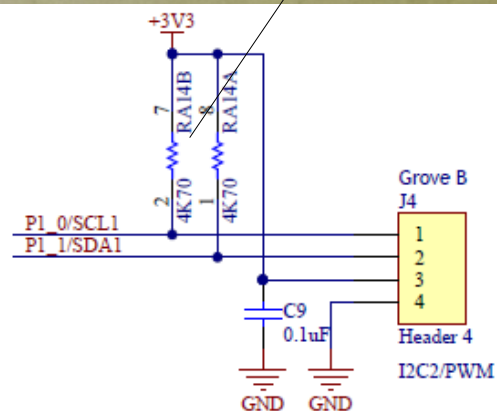
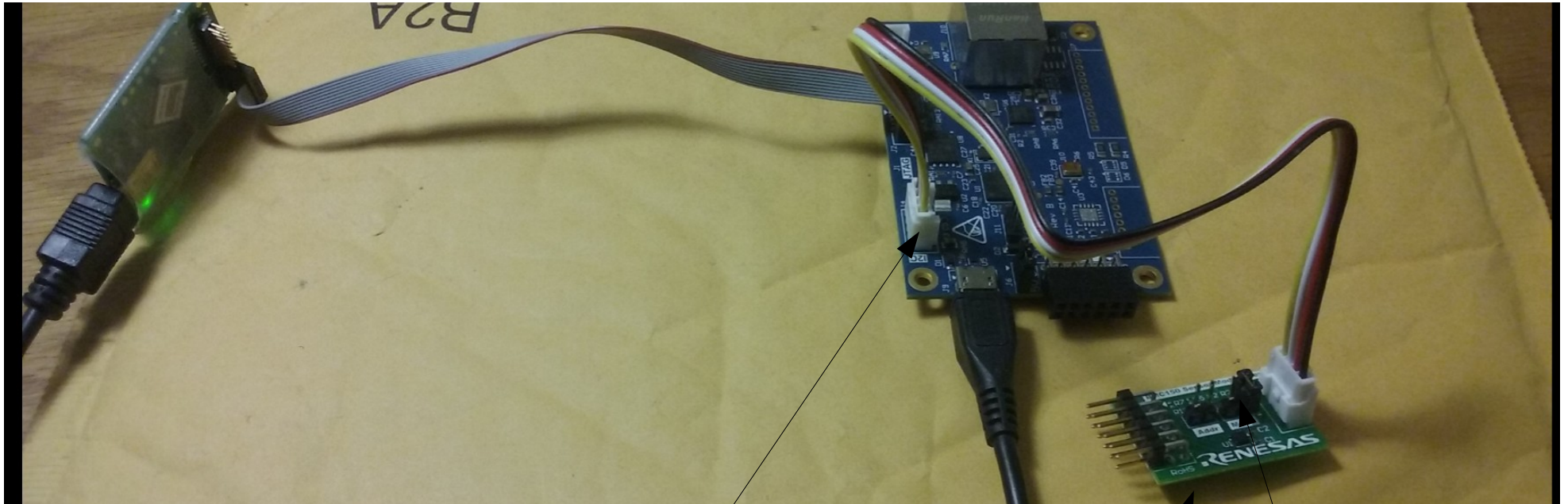
By

Michael Li
(2/2/2018)

<https://www.miketechuniverse.com>

E2 Studio 5.4.0.023
SSP 1.3.0

Hardware Connection

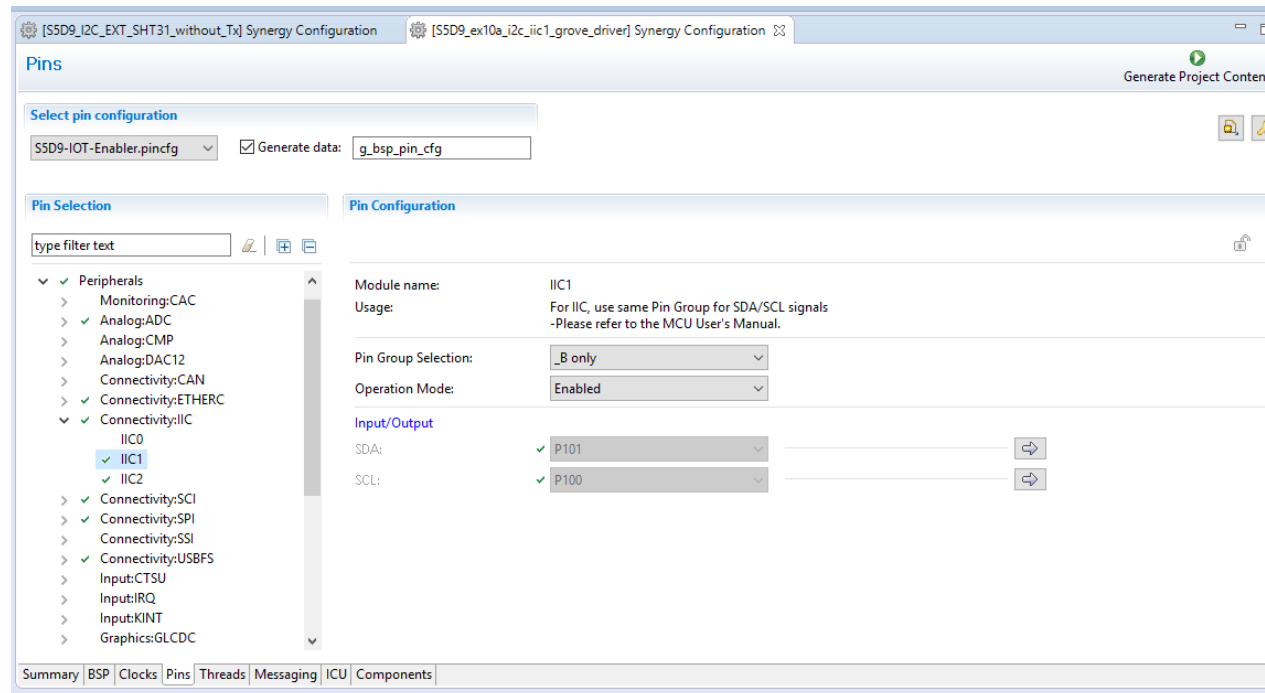


Open for the I2C mode

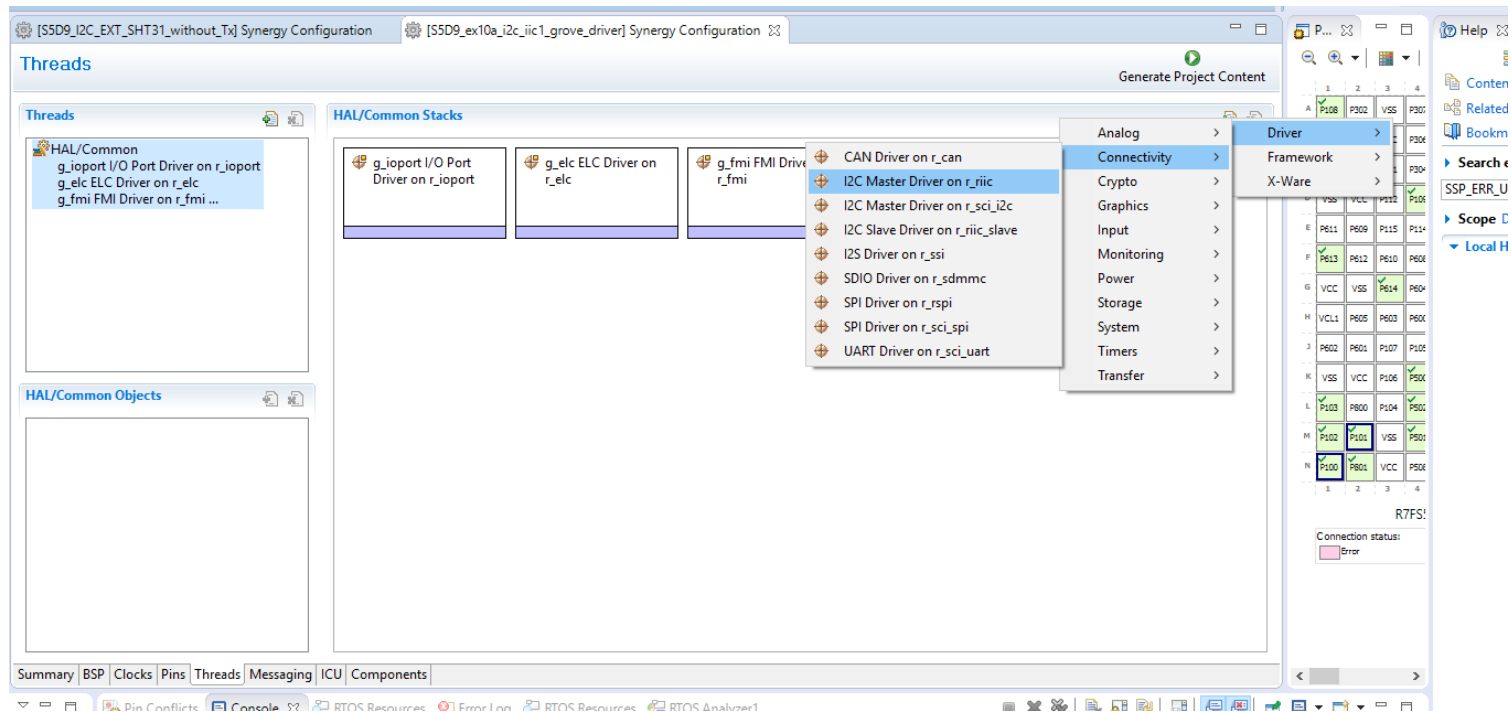
Note: BMC150 Module is part of S7A3 IOT Smart Chef Starter Kit

I2C Example By Michael Li

Pin Configuration



Add Driver



Driver Properties

The screenshot displays the Synergy Configuration tool interface. The Project Explorer on the left shows the file structure for the project. The HAL/Common Stacks pane on the right shows the configuration of the g_i2c0 I2C Master Driver on r_riic. The Properties pane at the bottom left shows the settings for the g_i2c0 I2C Master Driver on r_riic.

g_i2c0 I2C Master Driver on r_riic

| Property | Value |
|-----------------------------------|---------------|
| Common | |
| Parameter Checking | Default (BSP) |
| Module g_i2c0 I2C Master E | |
| Name | g_i2c0 |
| Channel | 1 |
| Rate | Standard |
| Slave Address | 0x11 |
| Address Mode | 7-Bit |
| Callback | NULL |
| Receive Interrupt Priorit | Priority 2 |
| Transmit Interrupt Priori | Priority 2 |
| Transmit End Interrupt F | Priority 2 |
| Error Interrupt Priority | Priority 2 |

Use channel 1 because iic1 is configured for the i2c port

Main Code

```
[S5D9_ex10a_i2c_iic1_grove_driver] Synergy Configuration  hal_entry.c  startup_S5D9.c  main.c
32 00004a50 g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, false);
33
34
35 //read acceleration
36 00004a60 err = g_i2c0.p_api->open(g_i2c0.p_ctrl, g_i2c0.p_cfg);
37 00004a6e if (err)
38 00004a70 g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
39
40
41
42 while (1)
43 {
44     // read xyz value
45 00004a7a buf[0] = 0x02;
46 00004a7e err = g_i2c0.p_api->write(g_i2c0.p_ctrl, buf, 1, false);
47 00004aee if (err)
48 00004af2 g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
49 00004a84 err = g_i2c0.p_api->read(g_i2c0.p_ctrl, &buf[7], 6, false);
50 00004a92 if (err)
51 00004b22 g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
52
53 //read chip id
54 00004a96 buf[0] = 0x00;
55 00004a9a err = g_i2c0.p_api->write(g_i2c0.p_ctrl, buf, 1, false);
56 00004aa6 if (err)
57 00004b16 g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
58
59 00004aaa err = g_i2c0.p_api->read(g_i2c0.p_ctrl, &buf[7], 1, false);
60 00004ab8 if (err)
61 00004b0a g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
62
63 //read temperature
64 00004aba buf[0] = 0x08;
65 00004ac0 err = g_i2c0.p_api->write(g_i2c0.p_ctrl, buf, 1, false);
66 00004acc if (err)
67 00004afe g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
68
69 00004ace err = g_i2c0.p_api->read(g_i2c0.p_ctrl, &buf[7], 1, false);
70 00004adc if (err)
71 00004b2e g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
72
73 }
74
75 }
```

Chip ID Read (0xFA)

Debug - SSD9_ex10a_i2c_iic1_grove_driver/src/hal_entry.c - e2 studio

File Edit Source Refactor Navigate Search Project Renesas Views Run Window Help

Debug SSD9_ex10a_i2c_iic1_grove_driver Debug [Renesas GDB Hardware Debugging]

SSD9_ex10a_i2c_iic1_grove_driver.elf [1]

Thread #1 1 (single core) (Suspended: Step)

hal_entry() at hal_entry.c:60 0x4ab8

main() at main.c:5 0x4a46

C:/Renesas/e2_studio540_ssp130_s5d9iot/DebugComp/arm-none-eabi-gdb (7.8.2)

GDB server

| Expression | Type | Value | Address |
|-------------------|--------------|----------------------------------|------------|
| g_temperatureC | | Error: Multiple errors report... | |
| g_humidityP | | Error: Multiple errors report... | |
| g_humidityP_sht31 | | Error: Multiple errors report... | |
| cmd | | Error: Multiple errors report... | |
| measure_data | | Error: Multiple errors report... | |
| temperatureC | | Error: Multiple errors report... | |
| temperatureF | | Error: Multiple errors report... | |
| humidityP | | Error: Multiple errors report... | |
| ssp_err | ssp_err_t | SSP_SUCCESS | |
| buf | uint8_t [20] | 0x1ffe235c <g_main_stack... | 0x1ffe235c |
| buf[0] | uint8_t | 0 '\0' | 0x1ffe235c |
| buf[1] | uint8_t | 81 'Q' | 0x1ffe235d |
| buf[2] | uint8_t | 0 '\0' | 0x1ffe235e |
| buf[3] | uint8_t | 0 '\0' | 0x1ffe235f |
| buf[4] | uint8_t | 124 'l' | 0x1ffe2360 |
| buf[5] | uint8_t | 35 '#' | 0x1ffe2361 |
| buf[6] | uint8_t | 254 'p' | 0x1ffe2362 |
| buf[7] | uint8_t | 250 'U' | 0x1ffe2363 |
| buf[8] | uint8_t | 0 '\0' | 0x1ffe2364 |
| buf[9] | uint8_t | 193 'Á' | 0x1ffe2365 |
| buf[10] | uint8_t | 62 '>' | 0x1ffe2366 |
| buf[11] | uint8_t | 65 'A' | 0x1ffe2367 |

Name : buf[7]
Details: 250 'U'
Default: 250 'U'
Decimal: 250
Hex: 0xfa
Binary: 11111010
Octal: 0372

```

52 //read chip id
53 buf[0] = 0x00;
54 err = g_i2c0.p_api->write(g_i2c0.p_ctrl, buf, 1, false);
55 if (err)
56     g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
57 err = g_i2c0.p_api->read(g_i2c0.p_ctrl, &buf[7], 1, false);
58 if (err)
59     g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, true);
60
61
62

```

SSD9_ex10a_i2c_iic1_grove_driver [Renesas GDB Hardware Debugging] C:/Renesas/e2_studio540_ssp130_s5d9iot/DebugComp/arm-none-eabi-gdb (7.8.2)

Program received signal SIGINT, Interrupt.

Reset_Handler () at ../synergy/ssp/src/bsp/cmsis/Device/RENEASAS/SSD9/Source/startup_SSD9.c:60

Program received signal SIGTRAP, Trace/breakpoint trap.

Reset_Handler () at ../synergy/ssp/src/bsp/cmsis/Device/RENEASAS/SSD9/Source/startup_SSD9.c:60

Temporary breakpoint 1, main () at ../src/synergy_gen/main.c:5

5 hal_entry ();

Suspended