S5D9 Lab QPI Flash Micron

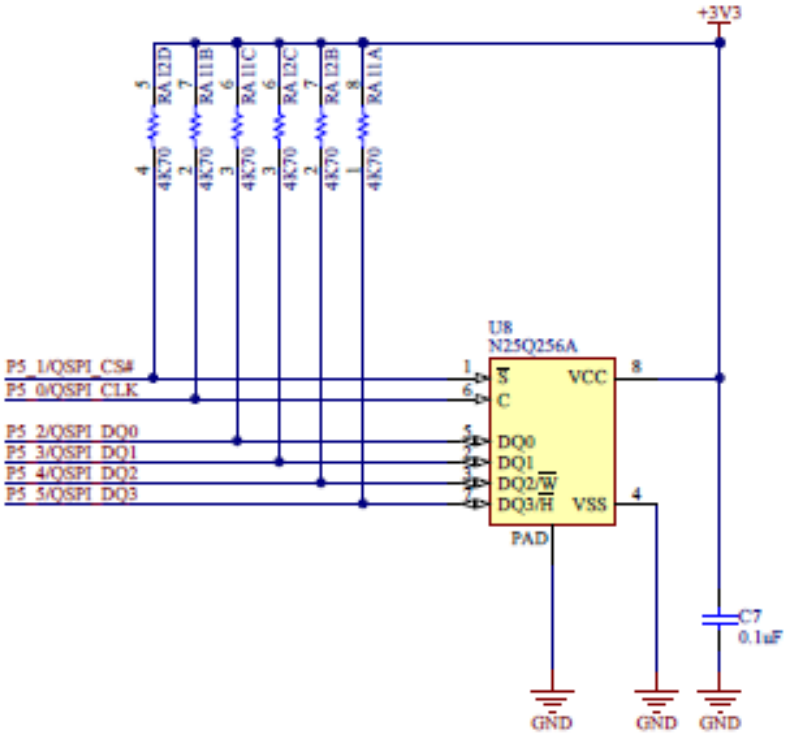
By
Michael Li

(2/5/2018)

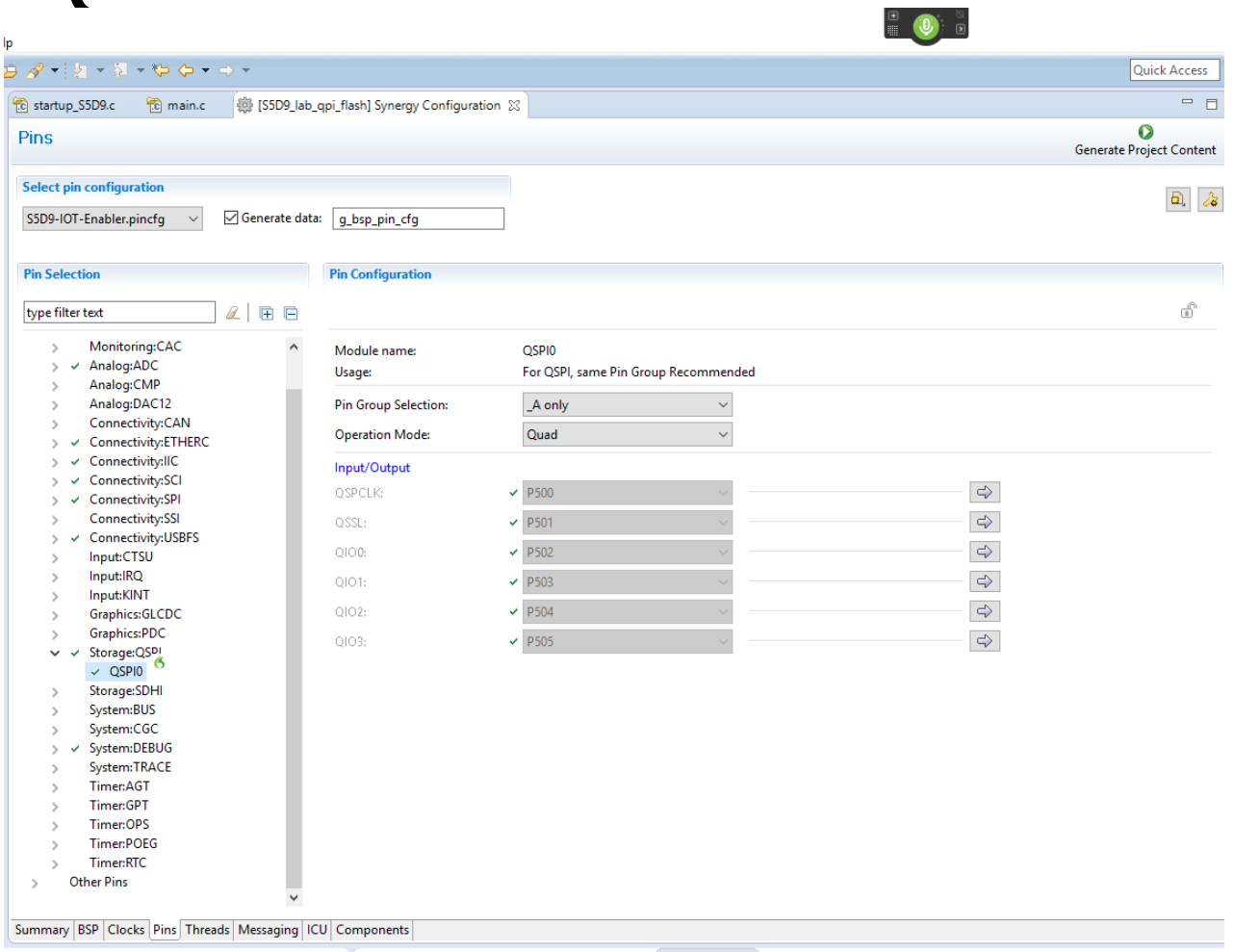
https://www.miketechuniverse.com

E2 Studio 5.4.0.023
SSP 1.3.0

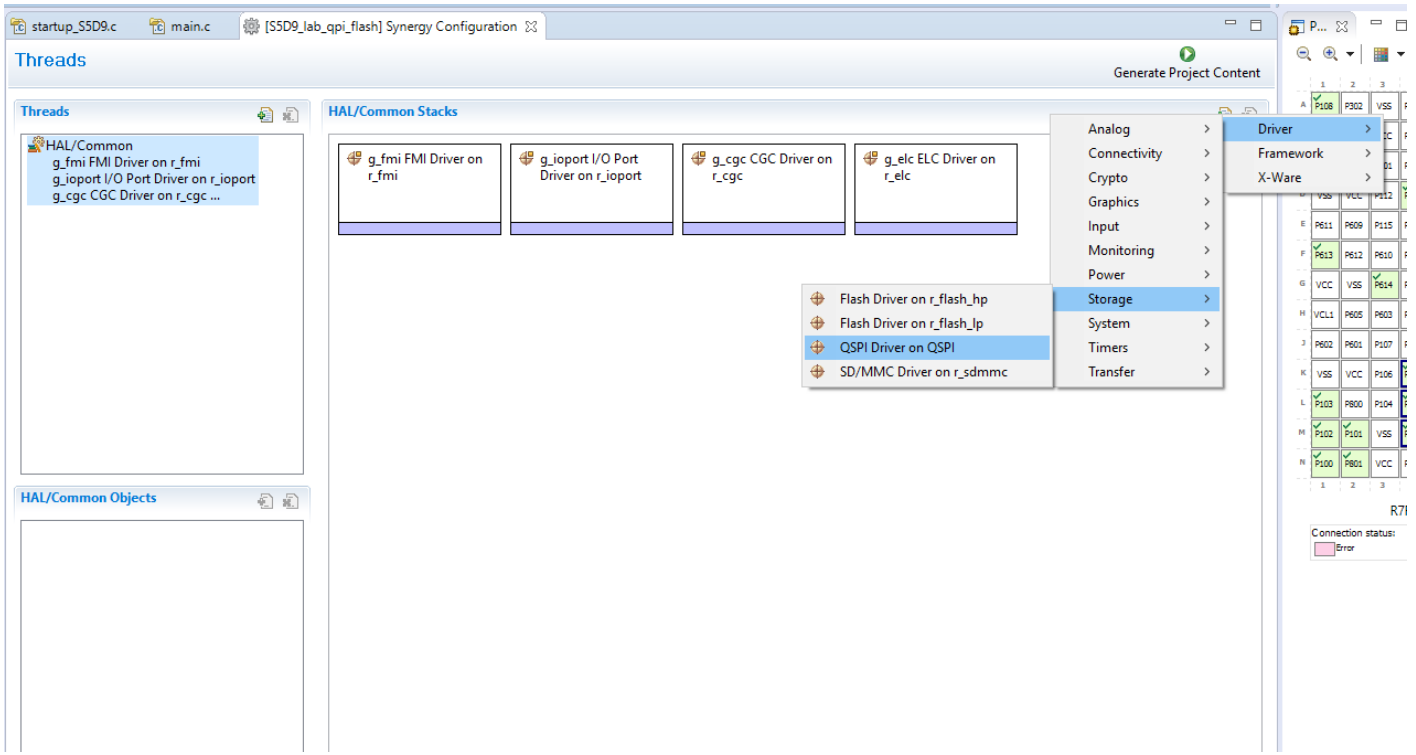
Schematic


+3V3
RA 12D
RA 11B
RA 11C
RA 12C
RA 12B
RA 11A
4K70
U8
N25Q256A
P5_1/QSPI_CS#
P5_0/QSPI_CLK
P5_2/QSPI_DQ0
P5_3/QSPI_DQ1
P5_4/QSPI_DQ2
P5_5/QSPI_DQ3
S
C
DQ0
DQ1
DQ2/W
DQ3/H
VCC
VSS
PAD
C7
0.1uF
GND

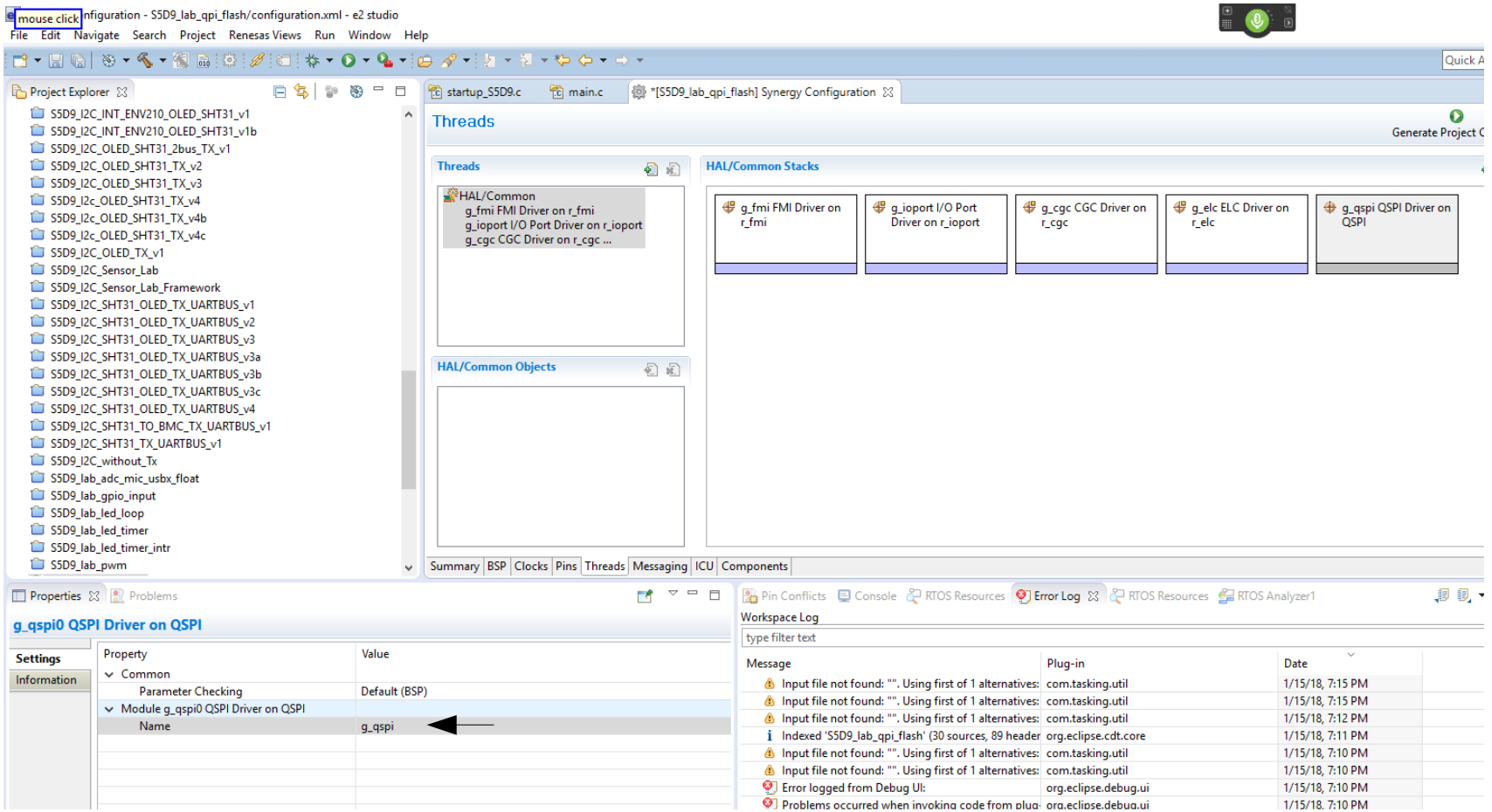
QPI Module enabled.



QPI Driver


startup_S5D9.c
main.c
[S5D9_lab_qpi_flash] Synergy Configuration
Threads
Generate Project Content
Threads
HAL/Common
g_fmi FMI Driver on r_fmi
g_ioport I/O Port Driver on r_ioport
g_cgc CGC Driver on r_cgc ...
HAL/Common Objects
HAL/Common Stacks
g_fmi FMI Driver on r_fmi
g_ioport I/O Port Driver on r_ioport
g_cgc CGC Driver on r_cgc
g_elc ELC Driver on r_elc
Analog
Connectivity
Crypto
Graphics
Input
Monitoring
Power
Storage
System
Timers
Transfer
Driver
Framework
X-Ware
Flash Driver on r_flash_hp
Flash Driver on r_flash_lp
QSPI Driver on QSPI
SD/MMC Driver on r_sdmmc

Properties


mouse click
nfiguration - S5D9_lab_qpi_flash/configuration.xml - e2 studio
File Edit Navigate Search Project Renesas Views Run Window Help
Project Explorer
S5D9_I2C_INT_ENV210_OLED_SHT31_v1
S5D9_I2C_INT_ENV210_OLED_SHT31_v1b
S5D9_I2C_OLED_SHT31_2bus_TX_v1
S5D9_I2C_OLED_SHT31_TX_v2
S5D9_I2C_OLED_SHT31_TX_v3
S5D9_I2c_OLED_SHT31_TX_v4
S5D9_I2c_OLED_SHT31_TX_v4b
S5D9_I2c_OLED_SHT31_TX_v4c
S5D9_I2C_OLED_TX_v1
S5D9_I2C_Sensor_Lab
S5D9_I2C_Sensor_Lab_Framework
S5D9_I2C_SHT31_OLED_TX_UARTBUS_v1
S5D9_I2C_SHT31_OLED_TX_UARTBUS_v2
S5D9_I2C_SHT31_OLED_TX_UARTBUS_v3
S5D9_I2C_SHT31_OLED_TX_UARTBUS_v3a
S5D9_I2C_SHT31_OLED_TX_UARTBUS_v3b
S5D9_I2C_SHT31_OLED_TX_UARTBUS_v3c
S5D9_I2C_SHT31_OLED_TX_UARTBUS_v4
S5D9_I2C_SHT31_TO_BMC_TX_UARTBUS_v1
S5D9_I2C_SHT31_TX_UARTBUS_v1
S5D9_I2C_without_Tx
S5D9_lab_adc_mic_usbx_float
S5D9_lab_gpio_input
S5D9_lab_led_loop
S5D9_lab_led_timer
S5D9_lab_led_timer_intr
S5D9_lab_pwm
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main.c
*[S5D9_lab_qpi_flash] Synergy Configuration
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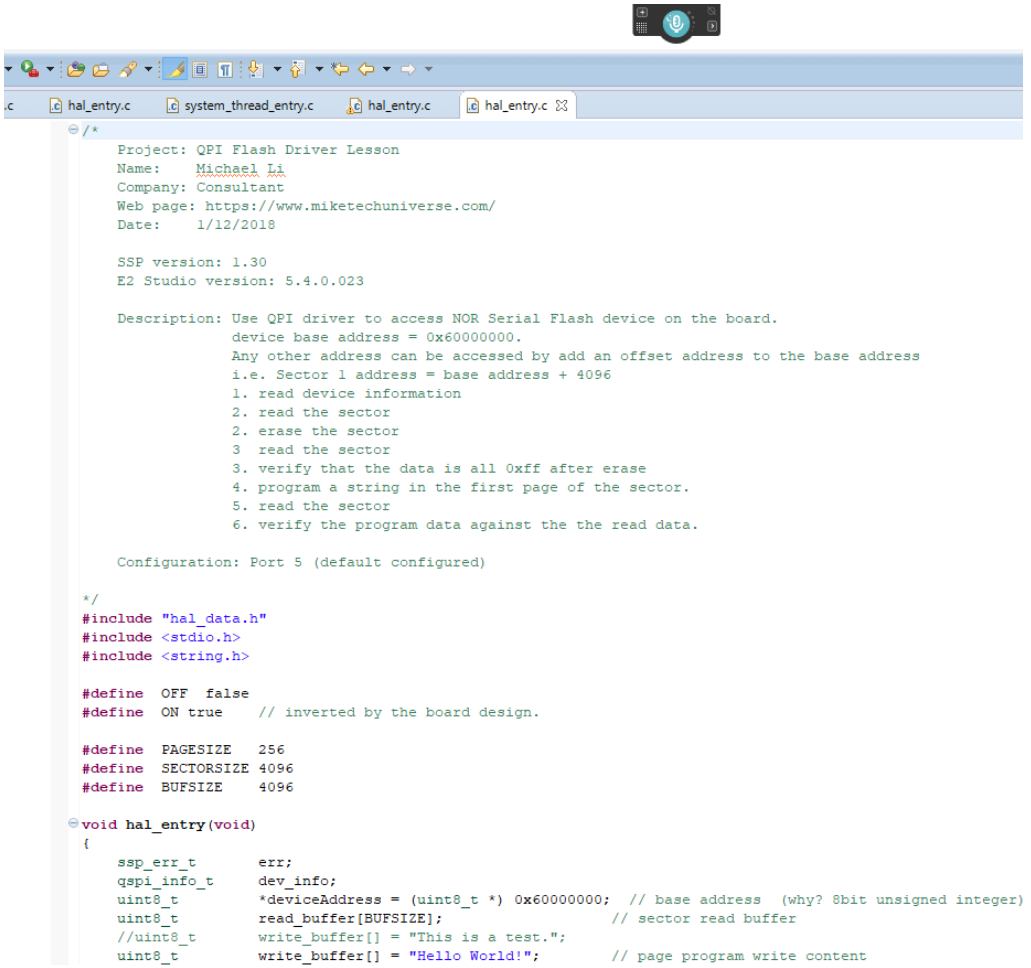
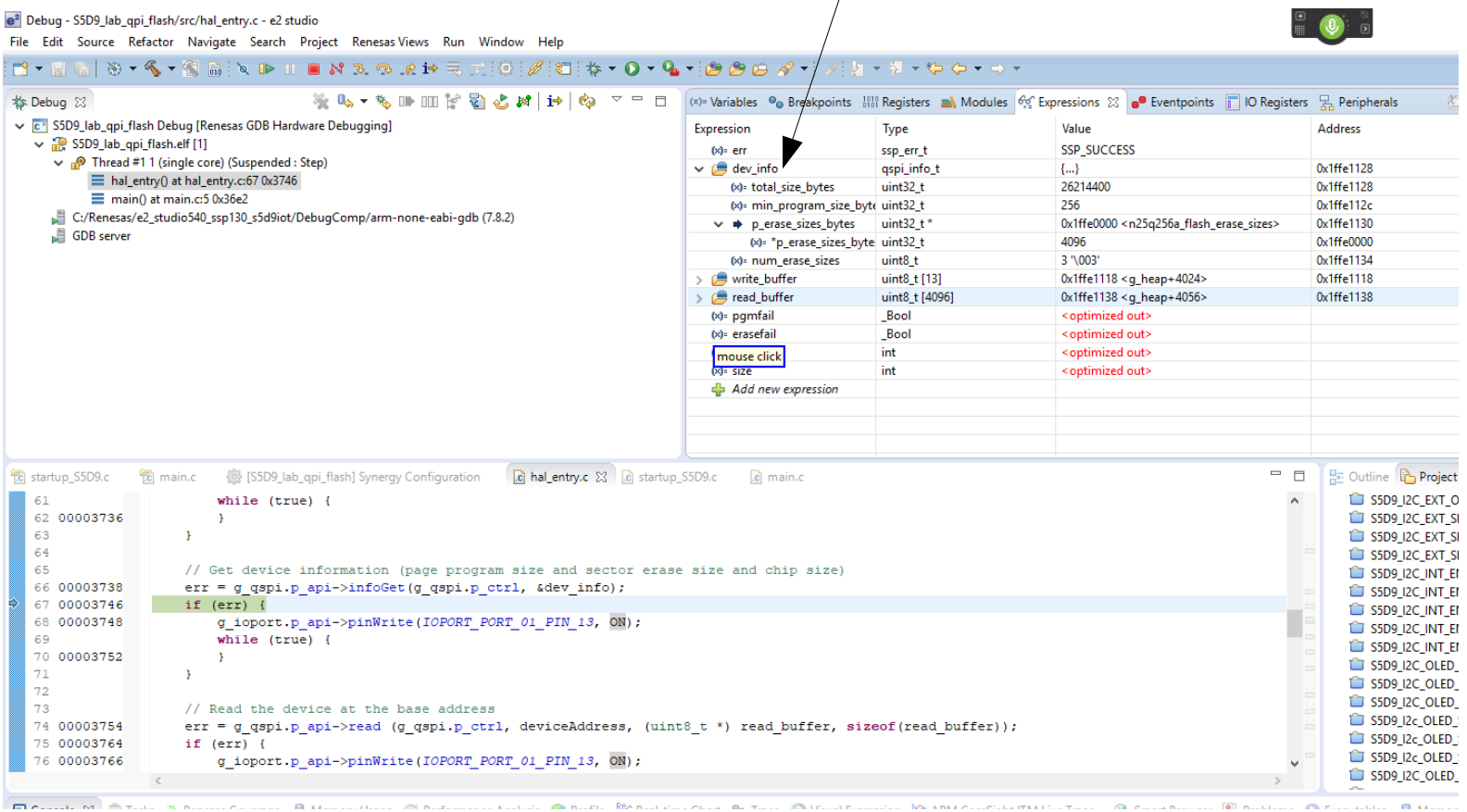
g_elc ELC Driver on r_elc
g_qspi QSPI Driver on QSPI
Summary BSP Clocks Pins Threads Messaging ICU Components
Properties
Problems
g_qspi0 QSPI Driver on QSPI
Settings
Information
Property
Value
Common
Parameter Checking
Default (BSP)
Module g_qspi0 QSPI Driver on QSPI
Name
g_qspi
Pin Conflicts
Console
RTOS Resources
Error Log
RTOS Resources
RTOS Analyzer1
Workspace Log
type filter text
Message
Plug-in
Date
Input file not found: "". Using first of 1 alternatives:
com.tasking.util
1/15/18, 7:15 PM
Input file not found: "". Using first of 1 alternatives:
com.tasking.util
1/15/18, 7:15 PM
Input file not found: "". Using first of 1 alternatives:
com.tasking.util
1/15/18, 7:12 PM
Indexed 'S5D9_lab_qpi_flash' (30 sources, 89 header
org.eclipse.cdt.core
1/15/18, 7:11 PM
Input file not found: "". Using first of 1 alternatives:
com.tasking.util
1/15/18, 7:10 PM
Input file not found: "". Using first of 1 alternatives:
com.tasking.util
1/15/18, 7:10 PM
Error logged from Debug UI:
org.eclipse.debug.ui
1/15/18, 7:10 PM
Problems occurred when invoking code from plug
org.eclipse.debug.ui
1/15/18, 7:10 PM

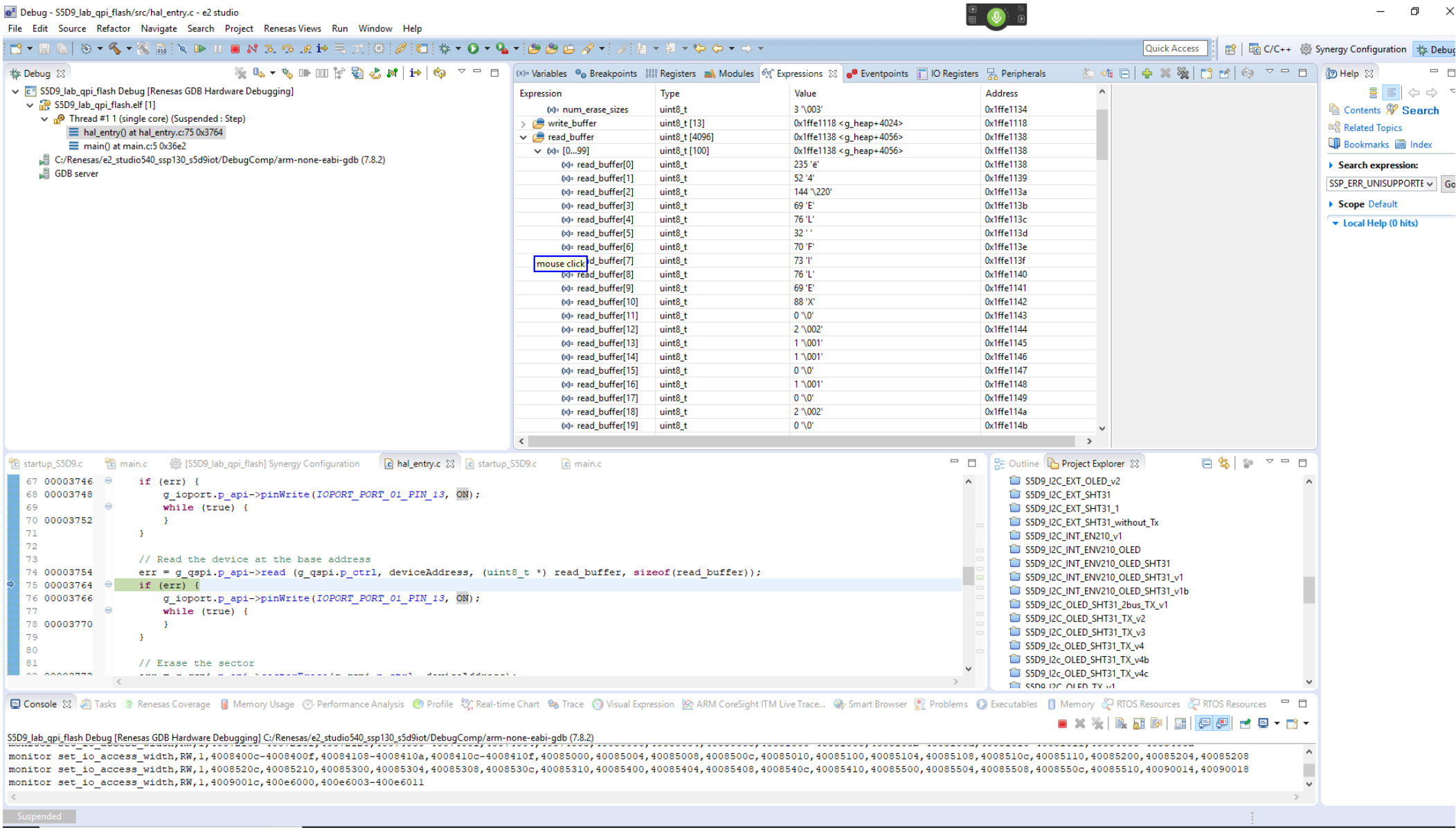
Code Desciption



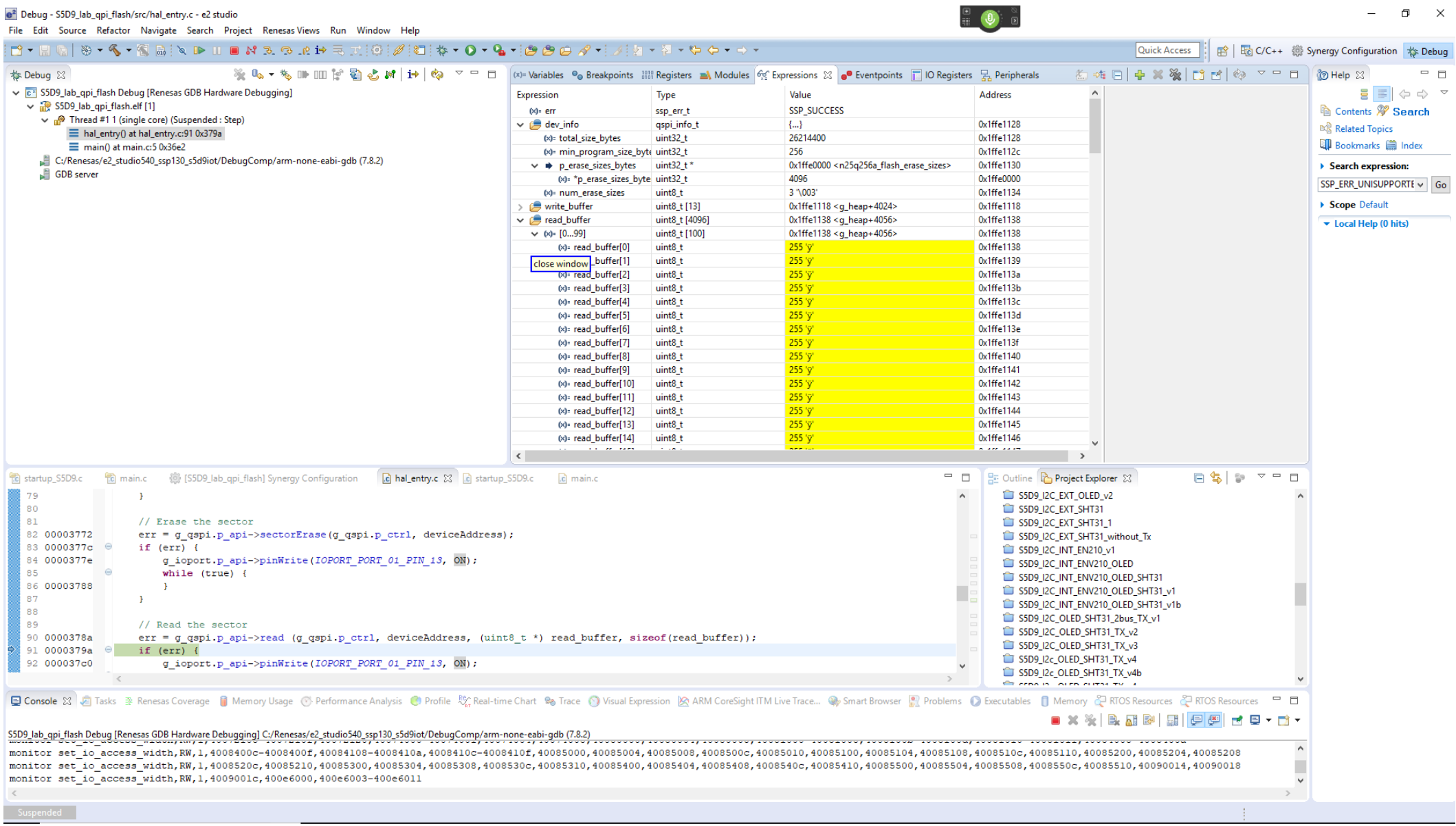
Flash Info


Debug - S5D9_lab_qpi_flash/src/hal_entry.c - e2 studio
File Edit Source Refactor Navigate Search Project Renesas Views Run Window Help
Debug
S5D9_lab_qpi_flash Debug [Renesas GDB Hardware Debugging]
S5D9_lab_qpi_flash.elf [1]
Thread #1 1 (single core) (Suspended : Step)
hal_entry() at hal_entry.c:67 0x3746
main() at main.c:5 0x36e2
C:/Renesas/e2_studio540_ssp130_s5d9iot/DebugComp/arm-none-eabi-gdb (7.8.2)
GDB server
Variables Breakpoints Registers Modules Expressions Eventpoints IO Registers Peripherals
Expression Type Value Address
err ssp_err_t SSP_SUCCESS
dev_info qspi_info_t {...} 0x1ffe1128
total_size_bytes uint32_t 26214400 0x1ffe1128
min_program_size_byte uint32_t 256 0x1ffe112c
p_erase_sizes_bytes uint32_t * 0x1ffe0000 <n25q256a_flash_erase_sizes> 0x1ffe1130
*p_erase_sizes_byte uint32_t 4096 0x1ffe0000
num_erase_sizes uint8_t 3 '\003' 0x1ffe1134
write_buffer uint8_t [13] 0x1ffe1118 <g_heap+4024> 0x1ffe1118
read_buffer uint8_t [4096] 0x1ffe1138 <g_heap+4056> 0x1ffe1138
pgmfail _Bool <optimized out>
erasefail _Bool <optimized out>
mouse click int <optimized out>
size int <optimized out>
Add new expression
startup_S5D9.c main.c [S5D9_lab_qpi_flash] Synergy Configuration hal_entry.c startup_S5D9.c main.c
61 while (true) {
62 00003736 }
63 }
64
65 // Get device information (page program size and sector erase size and chip size)
66 00003738 err = g_qspi.p_api->infoGet(g_qspi.p_ctrl, &dev_info);
67 00003746 if (err) {
68 00003748 g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, ON);
69 while (true) {
70 00003752 }
71 }
72
73 // Read the device at the base address
74 00003754 err = g_qspi.p_api->read (g_qspi.p_ctrl, deviceAddress, (uint8_t *) read_buffer, sizeof(read_buffer));
75 00003764 if (err) {
76 00003766 g_ioport.p_api->pinWrite(IOPORT_PORT_01_PIN_13, ON);
Outline Project
S5D9_I2C_EXT_O
S5D9_I2C_EXT_SI
S5D9_I2C_EXT_SI
S5D9_I2C_EXT_SI
S5D9_I2C_INT_EI
S5D9_I2C_INT_EI
S5D9_I2C_INT_EI
S5D9_I2C_INT_EI
S5D9_I2C_INT_EI
S5D9_I2C_OLED_
S5D9_I2C_OLED_
S5D9_I2C_OLED_
S5D9_I2c_OLED_
S5D9_I2c_OLED_
S5D9_I2C_OLED_

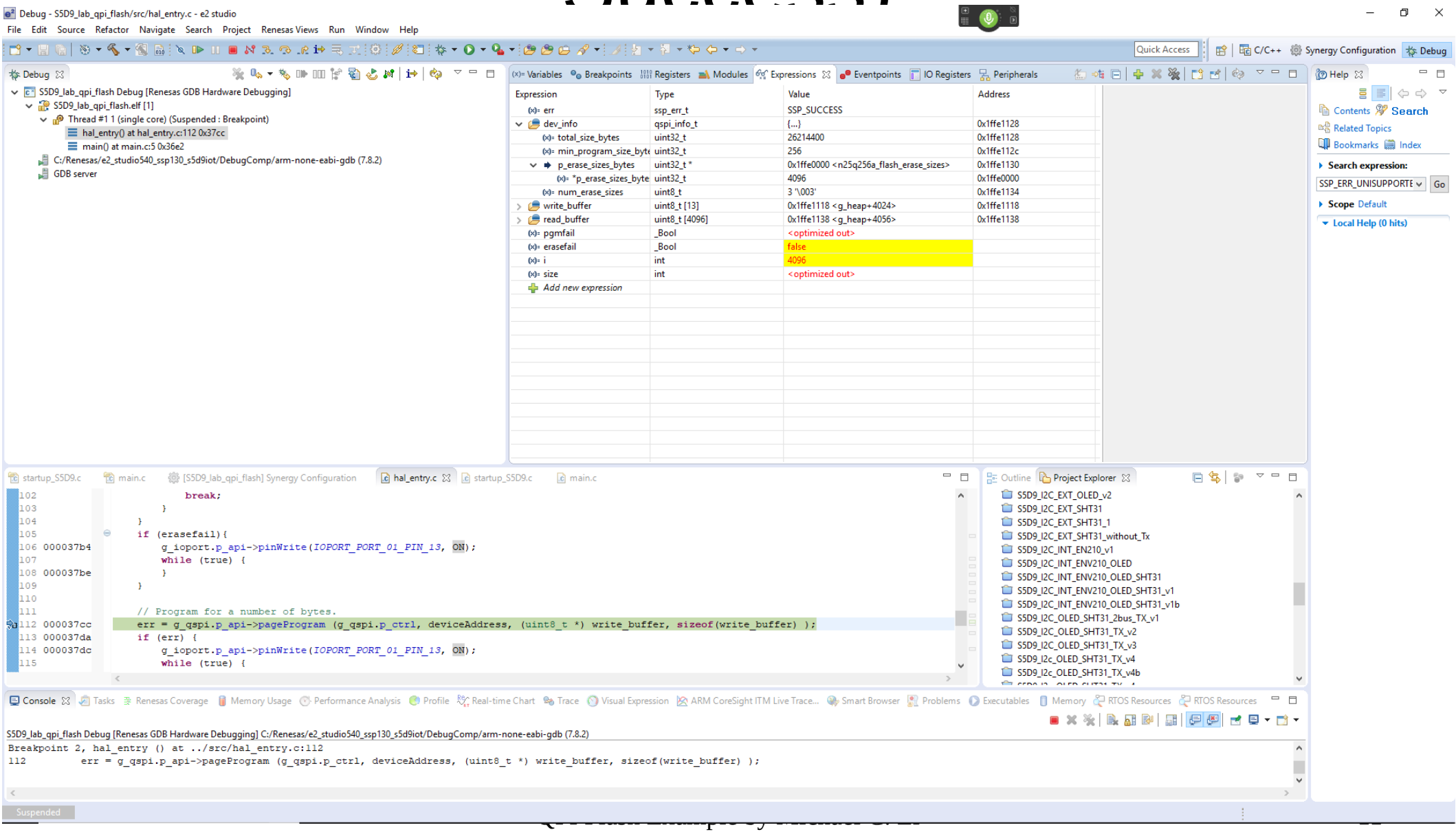
1st Read (some data) Need to erase the sector.



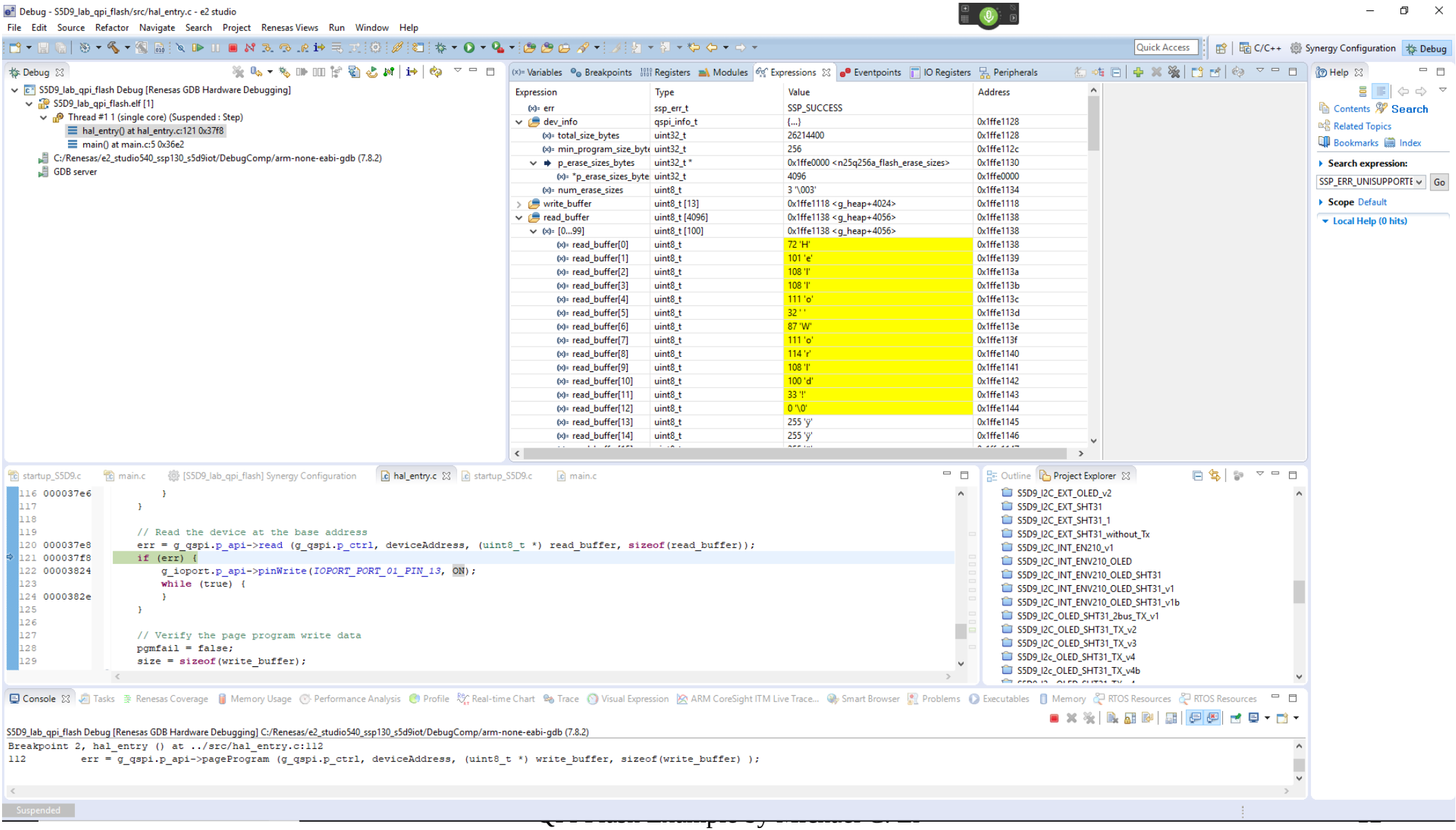
After Sector Erase



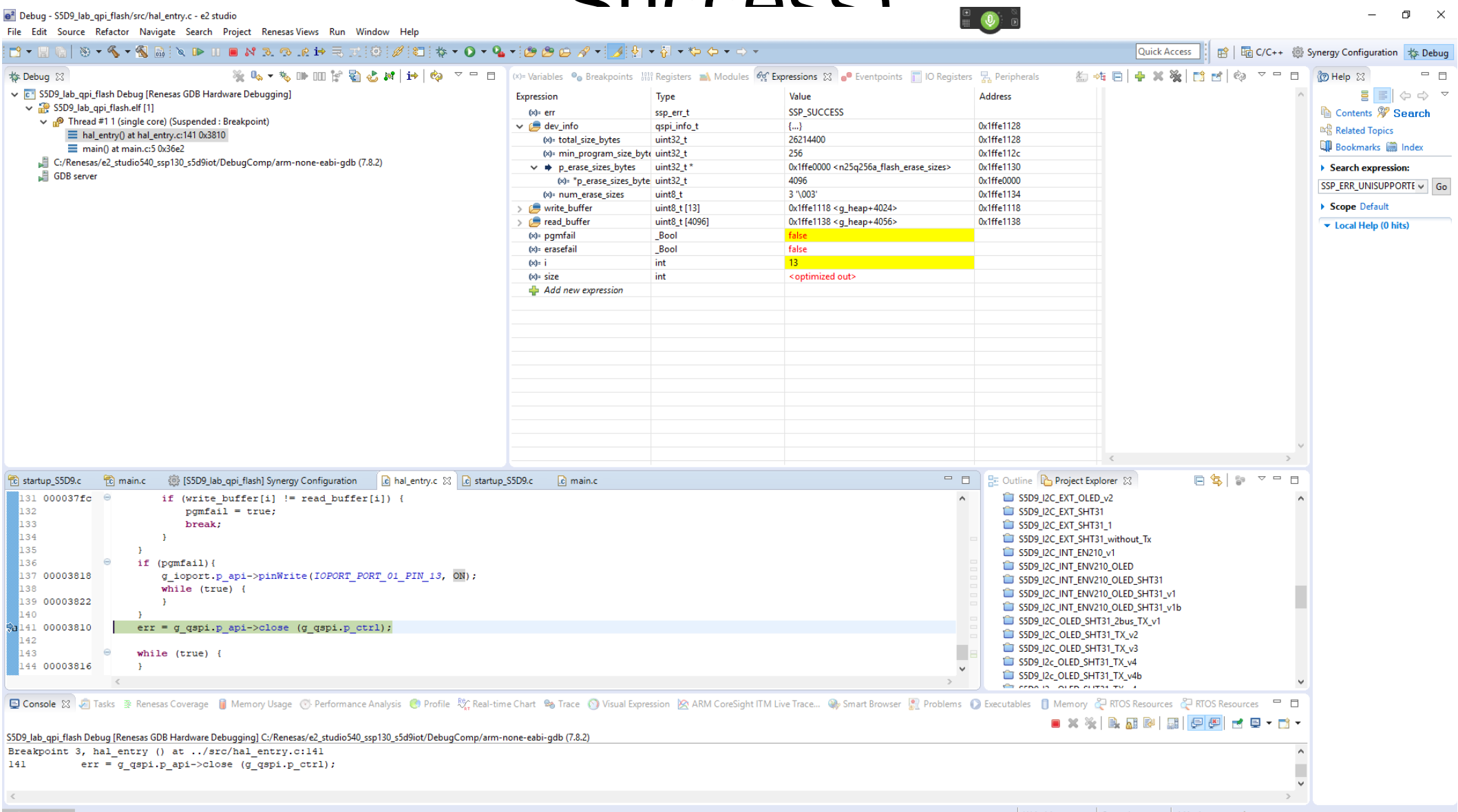
Erase Fail = False (Operation Success)



Read After Program



Program Fail = False (Program Success)



Read Again After Power down/up (Data is still good)