## Contents



# 1. Overview

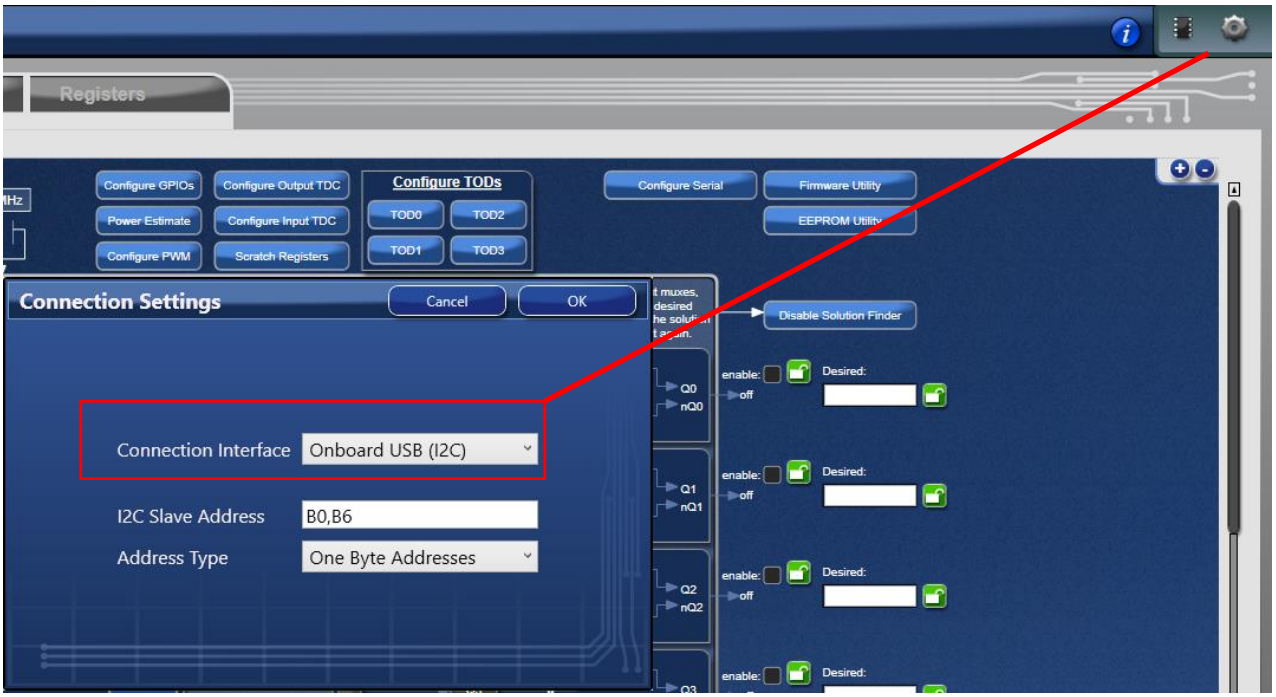
This document explains how to change an 8A3xxxx serial port after start-up. The serial port has the option of being either I2C or SPI. It can also be either 1-byte or 2-byte addressing. The following pages provide step-by-step instructions on how to make these changes.

# 2. Start-Up

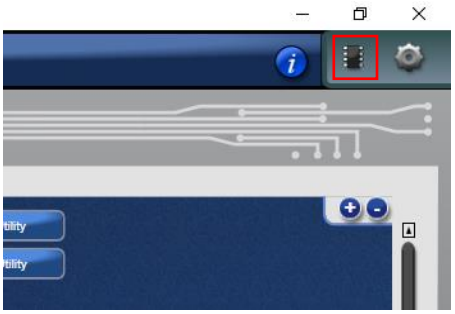
- Two serial ports exist in the 8A3xxxx: SER0 (primary) and SER1 (secondary or auxiliary)
- Both serial ports can be used simultaneously
- GPIO9 determines whether SER0/SER1 will be in I2C or SPI mode upon device start-up only. It has no effect after start-up
- When GPIO9 = HIGH upon device start-up, SER0 uses I2C and SER1 uses SPI
- When GPIO9 = LOW upon device start-up, SER0 uses SPI and SER1 uses I2C
- By default, SER0 and SER1 are one-byte addressing but can be changed to two-byte addressing after start-up
- If required, SER0 and SER1 can both be changed to use I2C or SPI after start-up
- If a reset or power-cycle occurs, all writes to the device are lost and the device starts up with defaults

# 3. After Start-Up using Timing Commander

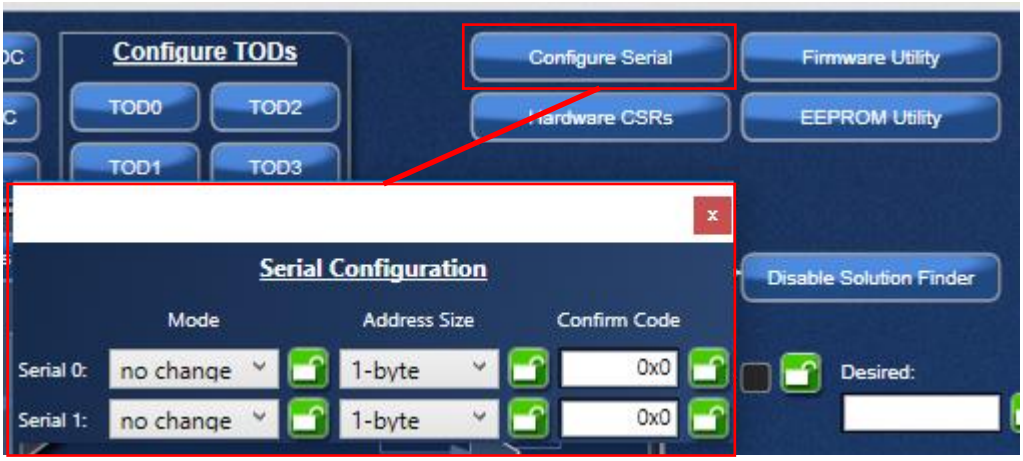
1. Choose the correct serial port type. Check GPIO9 on the board.




2. Connect to the device.



3. Select the Configure Serial button.



4. Change the Mode or the Address Size for the Serial port (Serial 0 is default) you are using with the GUI. The Confirm Code will be automatically written to 0xA and you will be prompted to disconnect from the device. This is normal because changing the Serial port can cause a communication error to the device.
5. Reconnect to device using Steps 1 and 2 but choose the changed Mode and Address Size.

# 4. After Start-Up using SPI/I2C Writes

From the Programming Guide, the Base Address and the Offset can be found (for detailed information, see the Programming Guide). The base address can be different depending on the part number.

**Module: SERIAL**

Configure the serial communication ports.

**Table 329: SERIAL Register Index**

| Offset (Hex) | Register Module Base Address CAE0h | |
|---|---|---|
| | Individual Register Name | Register Description |
| 000h | SERIAL.I2CM | I2C Master configuration. |
| 001h | RESERVED | This register must not be modified from the read value |
| 002h | SERIAL.SER0 | Slave serial interface 0 (main serial port) configuration. |
| 003h | SERIAL.SER0_SPI | SPI configuration for serial interface 0 (main serial port). |
| 004h | SERIAL.SER0_I2C | I2C configuration for serial interface 0 (main serial port). |
| 005h | SERIAL.SER1 | Slave serial interface 1 (auxiliary serial port) configuration. |
| 006h | SERIAL.SER1_SPI | SPI configuration for serial interface 1 (auxiliary serial port). |
| 007h | SERIAL.SER1_I2C | I2C configuration for serial interface 1 (auxiliary serial port). |
| 008h | SERIAL.SER_APPLY_CONFIG | Trigger serial configuration changes. |

SER0 address size and mode

SER1 address size and mode

Confirm Code for SER0 and SER1

## 4.1 After Start-Up Using SPI Writes

This example changes Serial Port 0 to SPI two bytes using SPI one-byte writes.

- From the datasheet:
  - The address is 0xCAE2 for Serial Port 0 and the value should be 0x06.
  - The address is 0xCAE8 for the Confirm Code and the value should be 0xA0.
- SPI one-byte writes
  - Line 1: 7C 80 CA 10 20
  - Line 2: 62 06
  - Line 3: 7C 80 CA 10 20
  - Line 4: 68 A0

### 4.2 After Start-Up Using I2C Writes

This example changes Serial Port 1 to I2C two bytes using I2C one-byte writes

- From the datasheet:
  - The address is 0xCAE5 for Serial Port 1 and the value should be 0x06.
  - The address is 0xCAE8 for the Confirm Code and the value should be 0x0A.
- I2C one-byte writes using slave address 0x5B (I2C address is left-shifted one bit 0x5B -> 0xB6)
  - Line 1: B6 FC 00 CA 10 20
  - Line 2: B6 E5 06
  - Line 3: B6 FC 00 CA 10 20
  - Line 4: B6 E8 0A

## 5. Revision History

| Revision | Date | Description |
|---|---|---|
| 1.0 | May.14.20 | Initial release. |

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